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COMMUNICATION IMPROVEMENT THROUGH MUSIC: THE CASE OF CHILDREN WITH DEVELOPMENTAL DISABILITIES

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This paper investigates the effect of music on the communication improvement of children with developmental disabilities. Forty subjects (18 boys and 22 girls) 7-12 years old, were divided into an experimental group (n = 20) which participated in music therapy activities and a control group (n = 20) which was discussing and watching television, both for one hour. The State-Trait Anxiety Inventory Scale for children was used to measure state and trait anxiety respectively. In addition, heart rate response to music therapy was monitored for assessing probable music therapy effect. Findings from paired t-tests revealed that the State Anxiety Inventory Scale score was significantly influenced by the music therapy (t=5.56, p<0.001) as well as it was not significantly influenced by the discussing and watching television session (t=1.02, p>0.05: NS). Besides, heart rate alteration analysis revealed that music therapy helps calm young children with developmental disabilities. Consequently, music therapy could lead not only to significant improvements in young CWDD’s psychological and physical well-being but also could produce mental benefits, and should constitute a part of therapeutically programs that aim both to the improvement of young CWDD’s psychological state and quality of life.

By all odds, music has the power to adjust and channel the collective consciousness of massive groups of people and no one can easily underestimate that music is one of the most prominent relaxing and entertaining activities. It is amazing to notice that, even in the days of philosophers like Plato and Aristotle, they had a profound understanding and respect for the tremendous influence that music can have on its listeners. Plato, for example, observed the effect that music had on society and made this thought provoking statement When the modes of music change, the fundamental laws of the state change (Jowett, 1888, p.4) while Aristotle’s view was that Music has the power to form character (Sinclair & Saunders, 1981, p. 13).

Nowadays, some of the above theories of yesterday may seem somewhat exaggerated. However, as one continues studying, the logic of old great thinkers may start to make plenty of sense today. For example, as Kissinger & Worley (2008) explain, music can be employed as a communication improvement channel for therapeutic or pedagogic reasons, especially for children with developmental disabilities (CWDD). In particular, for children with autism (CWA), music offers a potentially alternative to traditional communication channels.

Music therapy has been defined as a form of psychotherapeutic treatment where the therapeutic relationship is used to decrease psychic problems, conflicts and disturbances of the client (Schalkwijk, 1994, p. 5) or as a systematic process of intervention wherein the therapist helps the client to promote health, using music experiences and the relationships developing through them as dynamic forces of change (Bruscia, 1998, p. 13). Therefore, music may fill an important gap working as a special type of psychotherapy where forms of musical interaction and communication are used alongside verbal communication.
Several systematic reviews and meta-analyses have been conducted to examine the effects of music therapy in the field of mental health or communication improvement of CWDD (Dileo & Bradt, 2005; Gold, Heldal, et al., 2005; Gold, Voracek, & Wigram, 2004; Gold, Wigram, & Elefant, 2006; Koger, Chapin, & Brotons, 1999; Maratos, Gold, Wang, & Crawford, 2008; Pesek, 2007; Silverman, 2003; Vink, Birks, Bruinsma, & Scholten, 2003). Many of these reviews and studies have found promising results; however, the quality of the included studies varied. As well as, promising results, applying rigorous study selection criteria, have been found in a recent study focused on the feasibility of using the concert harp as a communication channel for CWA (Kissinger & Worley, 2008).

In psychotherapeutic methods such as music therapy, the term dose or dosage clearly must be understood metaphorically, not literally. In this direction, Howard, Kopta, Krause, & Orlinsky (1986) have argued that the number of music therapy sessions has been widely accepted as a measure of dose opening a discussion on whether the dose relationship in music therapy is linear, or whether the first sessions have a greater influence than subsequent sessions. In addition, the same paper sustains that although a therapy model's proposed active ingredients (such as interpretations, empathic reflections, etc.) might be considered as the most theoretically coherent unit of treatment; these are not easy to measure. However, the number of therapy sessions a patient has received is most likely correlated to a patient's exposure to those ingredients and can therefore be used as a readily available proxy measure.

To date, this discussion is still ongoing, and therefore the present study aims at examining both possibilities. In addition, the purpose of this paper is to examine the effect of music therapy on the communication improvement of CWDD by measuring the heart rate not only ex-ante and ex-post the music therapy session, but also in the middle of it. On the other hand, the State-Trait Anxiety Inventory for children (STAIC; Spielberger et al., 1973) was used, for the measurement of subjects’ anxiety. All subjects, from both groups, completed the STAIC scale, alone or with their parents’ collaboration. For trait anxiety subscale once, just about twenty minutes before the music therapy or watching television session and for the state anxiety subscale twice, just about twenty minutes before and just after the above procedure.

Method
Sample
CWDD from five different European countries (Greece, France, Germany, Cyprus and Italy) were examined. Using a lottery-wheel, we randomly selected two special schools and 20 children (subjects) from each country (ten form each school) who fulfilled the inclusion criteria such as participating only in one music therapy program and having developmental disabilities. Afterwards, communication was made with each one of the selected subjects with regard to the research aims. In addition, a written informed consent was obtained from the parents of each child in order to participate in the research. Before the beginning of the research it could be certified that all the children do not suffer from any unusual disease and that they do not take any unusual medication. Additionally, their parents asked to answer a questionnaire about their personal medical history and any special health problem, while a research assistant and a special pathologist were present in order to give any extra clarifications. Finally, 60 subjects who were found to fulfil the exclusion criteria that is parental agreement, unusual health problems, unusual medication and extra participation in other research programs, were excluded from the research.

A total number of 40 children (18 boys and 22 girls), ranging from 7 to 12 years of age (mean=9.8 and standard deviation=1.7), volunteered to participate in the research. All of the subjects had developmental disabilities. In particular, 26 of them had Down syndrome, four had Fragile X syndrome and the rest had Autism Spectrum disorders. They were, then, divided into an experimental group; (A) which participated in music therapy activities (MT) and a control group (B) which was discussing, playing, having fun, enjoying them-selves or watching television (WT). However, the control group was matched in all respects with the experimental one except for the participation in the MT program, which is the factor, who has been willing to investigate.

Procedure
Before the beginning of the research, a presentation of the main aims and a brief description of the general requirements were given to the parents of the selected children. In addition, psychological instruments and instructions were presented and explained in detail for each one of them. Moreover, an approval for the conduct of the research was given from the committee of each institute, where the children were members, after the aims and the design of the research were described and after the
certification that the procedures were in agreement with the ethical standards of the Declaration of Helsinki (World Medical Association, 2000).

Then, the subjects of the group A participated in a MT program while the subjects of the group B were asked to stay in a separate room, free to discuss with each other, play or watch television. The duration of the above procedure was sixty minutes for both groups and repeated five times in total during a two months period.

**Scales of measurement**
The STAIC was used, for the measurement of anxiety. It is comprised of separate, self-report scales for measuring two distinct anxiety concepts: state anxiety (S-Anxiety) and trait anxiety (T-Anxiety). Both S-Anxiety scale (SAIC) and T-Anxiety scale (TAIC) consist of twenty statements, each, that describe how respondents feel right now, at this very moment, and how respondents usually feel, respectively. The STAIC is similar in conception and structure to the State-Trait Anxiety Inventory (STAI), which provides measures of anxiety for adolescents and adults (Spielberger et al., 1970). Moreover, the STAIC was administered both to the children and parents prior to their completing a novel nonverbal task.

All subjects, from both A and B groups, completed the 40-item scale, alone or with their parents’ collaboration. For trait anxiety subscale once, just about twenty minutes before the MT or WT session and for the state anxiety subscale twice, just about twenty minutes before and after the above procedure. Children respond to each item on a three-point rating scale, checking one of three alternatives that describes him or her best or indicates frequency of occurrence. The score of each subject ranges from 20 to 60 degrees according to the above three-point rating subscale. Children generally require eight to twelve minutes to complete each subscale, and less than twenty minutes to complete both.

In addition, heart rate (HR) response to MT was monitored for assessing probable MT effect. So, just before the MT session the special pathologist measured the subjects’ baseline HR during two ten-second periods. Besides, the HR measurement repeated twice, in the middle of the MT session and just after the termination of the procedure.

**Data analysis**
SPSS V.16 for Windows was employed for both descriptive and multivariate statistical analysis of the dataset. Descriptive statistics was used in order to compare the MT effect between groups including means, standard deviations, paired t-tests and non-parametric tests. In particular, the non-parametric Kolmogorov-Smirnov test was used to evaluate the normal distribution of the sample and the paired t-test was used to evaluate significant differences between measurements, that is before and after the MT or the WT session, while the independent groups’ t-test was used to evaluate significant differences between groups. According to the similar literature the level of significance was set to \( p<0.05 \) (Mavrovouniotis et al., 2009).

Multivariate statistical analysis of the groups’ A dataset was used in order to classify the subjects and to determine possible relations between MT effect and personal or other characteristics of groups’ A subjects. In particular, two-step cluster analysis (SPSS, 2007) was used to classify the subjects in discernible clusters in order to explore the reasons of different levels of SAIC scale measurement and different HR response to MT and a categorical regression model (Kooij & Meulman, 1997) was estimated to determine the relation between subjects’ characteristics and STAIC scale measurement or HR. Finally, Reliability analysis (Bohmstedt, 1970; SPSS, 2007) was used to determine the extent to which the items are related to each other to get an overall index of the internal consistency of the scale as a whole, and to identify items that had to be excluded from the scale. Figure 1 (next page) presents the general methodological framework of data collection, statistical analysis and obtained results.

Although, the number of subjects is too small, for multivariate statistical models, the results indicate great attributive values. Therefore the explanation of the clustering, in combination with the relative importance measures and descriptive statistics, can prove extremely valuable.
Results
Figure 2 presents the minimum, maximum and mean values of all measurements of group A subjects’ HR just before the MT session, as well after 30 and 60 minutes respectively. Findings from HR alteration analysis revealed that MT helps calm young children with mental retardation. More specifically, 30 minutes after the beginning of the MT the HR mean value decreased from 105.7 bps to 101.9 bps and just after the end of the session decreased more to 100.1 bps. A very interesting point of this observation is that the major part of the HR decrease (67.85%) realized at the first half-hour of the session suggesting that the dose relationship in music therapy is not absolutely linear.

Figure 2.
HR alteration during music therapy session (group A)
Descriptive statistics for each STAIC measure assessed prior to and following the MT and WT sessions and the significance of any demonstrated change are shown in Figure 3. In regard to SAIC, it is obvious that, it was observed a larger decrease in the mean value after the MT session (M=-2.44, SD=3.48) than after the WT one (M=-0.31, SD=1.98). On the other hand, both SAIC and TAIC factors present similar mean values between groups indicating that the control group was very well matched in all respects with the experimental one. Moreover, from paired t-tests, it was found out that SAIC score was significantly influenced by the MT (t=5.36, p<0.001) as well as it was not significantly influenced by the WT session (t=1.02, p>0.05: NS).

Figure 3.
Alterations to SAIC factors and TAIC mean values for both groups

The two-step cluster analysis extracted automatically the optimal solution of three clusters. The majority of the subjects (10 or 50%) were included in the second cluster while 6 (30%) and 4 (20%) of them included in the first and third cluster respectively. Regarding the distribution of observations in the above clusters, it is shown in Table 1, that mainly female children with Autism Spectrum disorders.

Table 1.
Distribution of observations each cluster (frequencies and percentages)

<table>
<thead>
<tr>
<th>Continuous variables</th>
<th>Clusters</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1st (6, 30%)</td>
</tr>
<tr>
<td>1. Down syndrome</td>
<td>1 (16.7%)</td>
</tr>
<tr>
<td>2. Fragile X syndrome</td>
<td></td>
</tr>
<tr>
<td>3. Autism Spectrum disorders</td>
<td>5 (83.3%)</td>
</tr>
<tr>
<td>4. Male</td>
<td>1 (16.7%)</td>
</tr>
<tr>
<td>5. Female</td>
<td>5 (83.3%)</td>
</tr>
<tr>
<td>6. SAIC decrease</td>
<td>6 (100.0%)</td>
</tr>
<tr>
<td>7. HR decrease</td>
<td>6 (100.0%)</td>
</tr>
<tr>
<td>8. SAIC increase</td>
<td></td>
</tr>
<tr>
<td>9. HR increase</td>
<td>6 (60.0%)</td>
</tr>
<tr>
<td>10. Communication Improvement (YES)*</td>
<td>6 (100.0%)</td>
</tr>
<tr>
<td>11. Communication Improvement (NO)*</td>
<td></td>
</tr>
<tr>
<td>12. TAIC mean value (&gt;28)</td>
<td>2 (20.0%)</td>
</tr>
<tr>
<td>13. TAIC mean value (&lt;28)</td>
<td>6 (100.0%)</td>
</tr>
</tbody>
</table>

Subjective estimations of the research assistant
constitute the first cluster. It is important to point out that all the SAIC and HR mean values, related to the subjects of first cluster, decreased just after the MT session indicating the positive effect of MT on the children with Autism Spectrum disorders. As well as, according to the research assistant estimations, all the subjects of the first cluster improved their communication ability after the MT session. On the other hand, female children with Down syndrome or Fragile X syndrome constitute the third cluster. All the subjects of this cluster presented large TAIC values (>28) while the majority of their SAIC and HR mean values increased after the MT session indicating the negative effect of MT on the children of the third cluster. Finally, the second cluster mainly includes male children with Down syndrome who affected rather positive regarding their SAIC change and rather negative regarding their HR change. In tabloid form, we could describe the subjects of the first cluster as music sensitive, of the second cluster as rather music sensitive and of the third clusters as music reactive.

Reliability analysis (Bohmstedt, 1970; SPSS, 2007) was then employed in order to determine the extent to which the eight continuous variables of Table 2 are related to each other and to investigate the reliability of the selected scales. The value of Cronbach’s alpha (a) reliability coefficients (SPSS, 2007) were found equal to 0.79 for the SAIC scale measurement and 0.82 for the HR change scale. So, the selected scales are reliable as the related coefficients exceed the constant value (>0.70) suggested by Bohmstedt (1970). In addition, Friedman two-way analysis of variance, with $\chi^2=2,118$ ($\alpha=0.00$) and Hotelling’s $T^2=1,186$ ($F=40.24$ & $\alpha=0.00$), indicated the significance in differences of item means. Having accepted the consistency of the eight items, the average rankings for each subject were used as the numerical values of the dependent variable SAIC or HR decrease which along with the categories of eight independent variables are shown in Table 2.

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Type</th>
<th>Categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Trait anxiety value</td>
<td>Ordinal</td>
<td>1=over 28, 2=under 28</td>
</tr>
<tr>
<td>2. Country</td>
<td>Nominal</td>
<td>1=Greece, 2=France, 3=Germany, 4=Cyprus, 5=Italy</td>
</tr>
<tr>
<td>3. Gender</td>
<td>Nominal</td>
<td>1=male, 2=female</td>
</tr>
<tr>
<td>4. Age</td>
<td>Ordinal</td>
<td>1=under 8, 2=9-10, 3=over 11</td>
</tr>
<tr>
<td>5. IQ value</td>
<td>Ordinal</td>
<td>1=under 24, 2=25-39, 3=40-54, 4=55-69, 5=over 70</td>
</tr>
<tr>
<td>6. Communication Improvement</td>
<td>Ordinal</td>
<td>1=no, 2=rather no, 3=neither yes nor no, 4=rather yes, 5=yes</td>
</tr>
<tr>
<td>7. Special education</td>
<td>Ordinal</td>
<td>1=2 or less years, 2=3-4 years, 3=5 or more years</td>
</tr>
<tr>
<td>8. Developmental Disability</td>
<td>Nominal</td>
<td>1=Down syndrome, 2=Fragile X syndrome, 3=Autism Spectrum disorders</td>
</tr>
</tbody>
</table>

Then, investigating further the dependent variable SAIC or HR decrease in order to find out how SAIC or HR mean values influenced by personal characteristics of each clusters’ subjects we employed the categorical regression model. Categorical regression (Kooij & Meulman, 1997) was used to handle the optimally transformed categorical variables. It yielded $R^2$ values ranging from 0.756 (1st cluster) to 0.868 (3rd cluster) indicating moderate relation between the SAIC or HR decrease and the group of selected predictors (Table 3). However, since $R^2>0.70$, it is indicated that more than 70% from (75.6% to 86.8%) of the variance in the SAIC or HR decrease rankings is explained by the regression of the optimally transformed variables used. The F statistic values from (8.16 to 8.28) with corresponding $\alpha=0.00$ indicates that this model is always performing well.

<table>
<thead>
<tr>
<th>Cluster</th>
<th>N</th>
<th>$R^2$</th>
<th>Relative Importance Measures</th>
<th>Total Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Developmental Disability</td>
<td>Gender (0.125)</td>
</tr>
<tr>
<td>1st</td>
<td>6</td>
<td>0.756</td>
<td>Communication Improvement</td>
<td>(93.5%)</td>
</tr>
<tr>
<td>2nd</td>
<td>10</td>
<td>0.770</td>
<td>Developmental Disability</td>
<td>Communication Improvement (0.118)</td>
</tr>
<tr>
<td>3rd</td>
<td>4</td>
<td>0.868</td>
<td>Trait anxiety value</td>
<td>Developmental Disability (0.236)</td>
</tr>
</tbody>
</table>

Dependent variable: SAIC or HR decrease

The relative importance measures (Pratt, 1987) of the independent variables show that the most influential factors predicting SAIC or HR decrease in the first cluster correspond to Communication...
improvement (accounting for 58.4%), followed by Developmental Disability (22.6%), and Gender (12.5%). Respectively, the relative importance measures of the independent variables, which are reported in the second cluster, are higher for the variables of Developmental Disability, Communication Improvement and Trait anxiety value. Finally, the relative importance of the above independent variables in the third cluster is presented high for the variables of Trait anxiety value, Developmental Disability and Gender. The total percentage of the SAIC or HR decrease which is explained by the estimated three independent variables, in each cluster, is calculated in the last column of Table 3. In particular, the additive importance of estimated independent variables accounts for about 93.5%, 90.6% and 85.1% for the first, second and third clusters respectively.

Discussion
In recent years, MT offers a potentially viable alternative to traditional communication channels for CWDD and especially for CWA (Kissinger & Worley, 2008). In the context of treatment options for CWDD, MT may fill an important gap, which traditional therapies do not fill. Previous clinical reports (Rolvsvjord, 2001; Solli, 2008) as well as research studies (Hannibal, 2005; Hanser & Thompson, 1994; Meschede, Bender, & Pfeiffer, 1983) have reported that MT has helped some patients and especially children who did not benefit from exclusively verbal psychotherapy. Many of these have found promising results; however, the quality of the included studies varied.

In this paper an indicatory dataset, centralized from 40 typical subjects, have been analyzed using two-step clustering, categorical regression models and descriptive statistics analysis in order to classify the subjects and to determine possible relation between MT and communication improvement of the subjects. The results overall indicate that the MT process improved the communication ability of CWDD.

More specifically, we found out that there is a strong statistical relation between communication improvement and SAIC or HR decrease, for CWA and for children with Down syndrome (CWDS), indicating that communication improvement for the majority of CWDD can be well explained through the analysis of the SAIC or HR decrease dependent variable. In this direction, HR alteration analysis revealed that MT helps calm young CWDD. In addition, the major part of the HR decrease realized at the first half-hour of the MT session suggesting that the dose relationship in music therapy is not linear. A further finding is that SAIC score was significantly influenced by the MT as well as it was not significantly influenced by the WT session.

Regarding the distribution of observations in the clustering procedure, all the subjects of the first and third cluster improved their communication ability, after the MT session, and the majority of them improved their SAIC and HR mean values. Synoptically, we could describe the CWA as music sensitive subjects, the majority (77%) of the CWDS as rather music sensitive subjects and the rest of the CWDD as music reactive subjects.

Moreover, the relative importance measures of the independent variables show that the most influential factors predicting SAIC or HR decrease correspond to Communication improvement, Developmental Disability and Trait Anxiety value. More specifically, in the first cluster, the decrease of SAIC or HR values explained mainly by the Communication improvement of the subjects. In addition, in the second and third cluster, the decrease of SAIC or HR values explained by the Down syndrome and the TAIC mean values (>28) of the subjects, respectively.

From a methodological point of view the contribution of this paper provided an application of modern multivariate methodologies in the field of special education. In particular, although several articles have been conducted to examine the effects of music therapy our study presents a first application of categorical methodologies in the field of mental health. The main benefit of employing the above methodologies is that they can handle optimally both continuous and categorical variables as well as attributes (Michailidis, 2007). Thus, a combination of categorical regression model with a two-step cluster analysis can be very useful, in the examination of communication improvement of CWDD, as the categorical variables of Table 2 can be better accommodated (Michailidis, 2007).

Consequently, this study provides interesting and initial observations as well as it demonstrates verifiability. However, as a first systematic attempt to assess the effect of MT on the communication improvement of CWDD, our study was limited to a rather small sample and a rather restrained amount of time for the observations. Therefore, due to the small number of subjects (sample) and due to the
An indefinable number of CWDD (population) our study rather lacks generalizability. Nevertheless, the observations made in this study provide a beginning for further research, which could extend the investigation to more representative sample.

In conclusion, MT could lead to significant improvements in young CWDD’s psychological and physical well-being. In addition, the participation of CWDD in MT programs could produce not only psychological and physical but also mental benefits, and should constitute a part of therapeutically programs that aim both to the improvement of young CWDD’s psychological state and quality of life. However, these observations about the value of MT are preliminary. Although there have been indications for the positive effects these cannot be generalized to assess long-term participation in a MT program. In order to support these observations further validation research is necessary.

References


EFFICACY OF ENRICHMENT TRIAD AND SELF-DIRECTED MODELS ON ACADEMIC ACHIEVEMENT OF GIFTED STUDENTS IN SELECTED SECONDARY SCHOOLS IN NIGERIA

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Questions about gifted learners and the best way to teach them to face expected challenges is often a source of controversy. This is because old stereotype curriculum and conventional instructional strategies may not be enough to give the needed stimulation. Considering the enormity of what is expected to reinforce the education of the gifted, this study investigated the efficacy of Enrichment Triad and Self-Directed learning models on the academic achievement of selected gifted students in some secondary schools in Nigeria. The study used the pre-test, post-test, control group quasi-experiment design in a 3 x 2 factorial matrix. The subjects for the study consisted of 75 Senior Secondary School gifted students from eight secondary schools in Nigeria. Multi-stage sampling technique was utilized for the selection of the participants, which were randomly assigned into three experimental groups. Analysis of Covariance was the main statistical method utilized to test two generated hypotheses at the probability level of 0.05. The findings revealed that there was significant treatment effect on subjects’ post-test academic achievement scores. There was no significant main effect of gender. The study also indicated that gifted male subjects exposed to Enrichment Triad and Self-Directed models had higher mean score (x = 80.93) than their female counterparts exposed to the same treatment. Since the Enrichment Triad and Self-Directed models are capable of facilitating gifted students’ educational programmes, it is therefore recommended that both regular and special educators should use these models in facilitating the academic achievement for their gifted students.

Gifted and talented individuals do not face challenges in the same way that most children who receive special education services do. However, because of their differences (high levels of intelligence, academic achievement, creativity or unique talents); they are often stifled by educational approaches that do not challenge or develop their cognitive abilities or help them achieve to their potential. For these reasons many parents, policymakers and education professionals, believe that these students need special services (Grantham, 2002).

Schools across the world have been adding more teaching learning models for students of all ages and abilities. Gifted and talented students in many schools, now use various teaching learning models in their classrooms and increasingly large percentage of these students have developed their intellectual functioning through the use of these models. Educators, captains of business and industry, government, and the general public, believe that students must be facilitated through the various teaching learning models for a developed intellectual functioning. The disparity between theory and practice is attributed to many causes, ranging from a lack of educational focus, to shortage of funding. Even those problems have found evidence that students are working smarter, whether they are learning and using more information, understanding better, or developing higher level thinking skill (Holden, 1998). Thus, gifted students are now benefiting from increased use of various teaching learning because their special needs are being met through informed used of these various models (Jones, 1990).
According to Maker (1995) the determination of the specific needs of gifted and talented children is complicated by the widely different opinions of what giftedness is and how it is manifested. Basic research is as varied as Gardner’s (1983) theory of multiple intelligences and Renzulli’s (1994) congruence between ability, commitment and creativity. Most agree, however, that the talents of gifted youngsters are dynamic, rather than static or fixed, and the youngsters and their talent must be nurtured. How schools nurture the gifted through the use of teaching learning models like enrichment triad and self-directed models and its effect on their academic achievement is the focus of this research.

A teaching learning model therefore, is a structural framework that serves as a guide for developing specific educational activities and environments. A model can be highly theoretical and abstract, or it can be a more practical structural framework. Regardless of whatever it is, theoretical or practical, the distinguishing features common on learning models are implicit assumptions about the characteristics of learners and about the teaching learning process. These include guidelines for developing specific day-to-day learning experiences; definite patterns and requirements for these learning activities and a body of research surrounding their developments or an evaluation of their effectiveness (Maker, 1994).

Joyce and Weil (1999) have identified more that (80) teaching learning models and have divided them into four families based on their common viewpoints about teaching and learning. The first group, social interaction models, emphasizes the relationship of the individual to the society and to other groups, and focuses on the individual ability to relate to others, engage in democracy, and work productivity with society. The third family, personal models, shares an orientation toward the development of self-concept. Behaviour modification and cybernetic models emphasized changes in observable behaviour based on efficient sequencing of learning tasks along with manipulation of antecedents and consequences.

The Enrichment Triad Model
The Enrichment Triad Model was developed as a total enrichment skills, and development of an investigative attitude. Several teaching learning models have been developed for education and used in programmes for the gifted, but few have been developed specifically for teaching gifted children. One of the most popular is Renzulli’s (1994) Enrichment Triad. Educators of the gifted and critics of special provisions for the gifted have long been concerned about providing qualitatively different. Learning experiences for these children; therefore, Renzulli presents an enrichment model that can be used as guide in developing defensible programmes for the gifted, this is programmes that are qualitatively different.

According to Renzulli (1994) qualitatively different programmes mean more than freedom of choice, lack of pressure, absence of grading, an individualization of rate or pace, although all of those are important in gifted programmes. Renzulli developed a model for moving the student through awareness, the learning of process, and the development of a product using three different but interrelated types of learning activities. The simplest form of enrichment sometimes referred to as vertical enrichment or acceleration, consists of introducing gifted students to advance courses early. This practice takes care of the student's need to be challenged and to interact with equally advanced peers and more specialized instructor enrichment activities that must be respected; the student's content interest and preferred style these are important components of Renzulli's model. There are two main objectives that Renzulli (1994) recommends for guiding the education of gifted and talented students and that are incorporate into Triad Approach:

1) Students will have an opportunity to pursue their own interests to whatever depth and extent they so desire; and they will be allowed to pursue these interests in a manner that is consistent with their own preferred styles of learning.

2) The primary role of each teacher in the programme for gifted and talented students is to guide students to identify problems that are consistent with the student's interest.

In addition, another role of each teacher is to acquire the necessary methodological resources and investigative skills that are necessary for solving these particular problems. The skills will help the teachers to cope with various problems that may want to impede the success of gifted students.

Renzulli (1994) further noted that enrichment activities consist of three types and these activities are prepared in such a way that each type provides springboard for the other (i.e. type one, two and three) and are interrelated.
Type one focuses on three procedures that teachers can use to allow the student to explore a diversity of areas, which are interest centers, visitation or field trips, and resource persons or guest speakers (Renzulli, 1991). These activities create awareness for the gifted and talented students which later arouses their interests.

Type two provides valuable systems for organizing thinking and feeling processes and factors that are essential for human learning. These processes are necessary for type three because they are the basic skills that serve as foundation for type three. Students must then acquire the process skills and abilities that will enable them to solve problems in a variety of areas. The following are given by Renzulli and Reis (1993) as example of process skills. That is, brainstorming will lead to comparison and comparison will lead to elaboration, observation will lead to categorization and from categorization to hypothesizing, classification to synthesis and synthesis to awareness, interpretation leads to fluency and to value classification and evaluation leads to originality and originality to commitment.

In this model, the teachers' role is to be a manager in the learning process and to know when and how to enter into this process. The teacher thus has the following major responsibilities when managing type three. These include: identifying and focusing students' interest findings appropriate outlets for students' products providing students with methodological assistance and developing a laboratory environment (Reinzulli & Reis, 1993).

Self-Directed Model

In addition, one of the important priorities expressed by educators of the gifted is a need to develop self-directedness or independent learning skills in students so that they can continue their learning without constant supervision or assistance from an adult. Often, these educators, along with the parents of gifted children, assume that because their children are gifted, they automatically are or will become if turned loose - self-directed learners. Indeed gifted children are more independent than other children. However, not all gifted children are independent learners, and even if they are more independent than other children they probably do not possess the skills that will enable them to direct their own learning completely or conduct their own research, unless they have had some practice of being self-directed (Maker, 1994).

Treffinger's (1996) model provides exactly the structure needed to develop gradually in students the skills necessary to become self-directed learners. It is a model designed for moving students towards independent learning. Its primary goal is the sequential development of skills in managing individual learning, which builds on the strengths of gifted children, enhances their involvement in their own learning and increase their motivation by allowing them to study in their areas of interest.

The self-directed learning model developed two assumptions about learning, first, children will learn better if involved in their own learning. Second, they will be more motivated to learn if they directed their learning in areas of their own choice. These assumptions are closely related to Bruner's (1994) and Kagan's (1993) ideas about discovery learning. When children are active rather than passive participants in the learning process, they learn more, remember it longer, and develop more self-confidence in their ability to figure things out on their own. This contributes to greater motivation for learning rather than doing what they are told by an adult.

The self-directed learning model provides a structured way for teachers to develop experiences that will move their students and themselves toward student-directed learning. Rather than assuming that gifted students already possess the self-management skills that will enable them to be independent learners, the model provides a way to develop these skills gradually. In this process, both teacher and student roles change drastically as students assume more responsibility. The teacher moves from director to a provider of options, and then to resource person or facilitator when needed by the student. On the other hand, the student moves from passive/learner to a developer and chooser of options, and then to diagnostician, director of learning and self-evaluator (Barton, 1994).

Furthermore, Treffinger (1988) presented the idea underlying self-directed model as the teaching that involves the following four basic factors that can be used to analyze any instructional event or sequence. These include: identification of goals and objectives, assessment of entering behaviour identification and implication of instructional procedures and assessment of performance. In most
classrooms, all these factors are completely under the direction and control of the teacher. The teacher decides what the class as a whole will learn.

Statement of the Problem
Most gifted students are not adequately exposed to educational approaches that would challenge or develop their cognitive abilities. Questions about gifted learners and the best way to teach them to face expected challenges are often sources of controversy.

Gifted students manifest or are capable of developing opportunities and services that are not ordinarily provided through regular or traditional instructional programmes. This is because old stereotype curriculum and conventional instructional strategies may not be enough to give the needed stimulation, especially in Nigerian schools.

Considering the challenges faced by the gifted in Nigeria schools and the inability to identify their academic needs, this study therefore investigated the Efficacy of Enrichment Triad and Self-Directed learning models on the academic achievement of selected students in some secondary schools in Oyo State, Nigeria. Thus the outcome of this study will serve as the basis upon which educational programmes for the gifted can be better achieved considering the growing trend in the education of this identified group. This will therefore lay to rest the controversies surrounding the causes of under-achieving among gifted children.

Method
Participants
A total of 75 identified gifted students were selected from a target group of about 600 from all the eight secondary schools that were randomly selected for the study. These schools comprised both private and public secondary schools in Oyo State, Nigeria. Their IQ level ranges, between 129 and 136 for ages 12 to 16 with the use of Slosson intelligence test, Teacher made achievement test and metropolitan Achievement test (adapted from George, A.P. et’ al (1978) Metropolitan Achievement Tests)

Design
The researcher adopted a pre-tests; post-test, control group, quasi-experimental design, with a 3 x 2 (three by two) factorial matrix which covers the instructional strategies. Two null hypotheses were tested in the study. These are:

(a) There is no significant difference in the academic achievement of gifted students exposed to Enrichment Triad, Self-directed model and control group.

(b) There are is no significant difference in the academic achievement of male and female gifted students exposed to Enrichment Triad, self-directed learning and control group.

The design employed the use of the 3x2 factorial matrix, which consisted of the following variables: These are: One independent variable (instructional strategy) at the three levels i.e. Enrichment Triad Learning model, Self-Directed model and Conventional method for the controlled group. One moderating variable consists of male and female (gender) and one dependent variable, which is the academic achievement of the participants.

Procedure and Instrument
The participants went through 13 weeks of different sessions of English language and Mathematics through the instructional methods of Enrichment Triad and Self-Directed models as a treatment package. Each of the lessons was based on the types and stages of the models respectively. The study made use of three instruments, one for purpose of identification and the remaining two as pre-test and post-test achievement tests. Slosson's Intelligence Test (SIT) was used to identify and provide information on IQ level. The Metropolitan Achievement Test (Advance II) and West African School Certificate Achievement Test (WASCAT) were used to test the achievement of the students in Mathematics and English Language with the total scale of the SIT having an alpha coefficient of 0.97; MAT with 0.98 and WASCAT with 0.87.

Analysis of Data
The inferential statistics of ANCOVA (Analysis of Covariance) was used to test the stated null hypotheses at 0.05 level of significance. Also, the Multiple Classification Analysis (MCA) was used to determine the magnitude of the performance of the various groups, t-test, using the least meant squares.
(LMS) and Standard Error of the mean (SEX) was employed to determine the influence of the two learning models on the academic achievement.

Results
There was no significant difference in the academic achievement of gifted students exposed to Enrichment Triad, Self-Directed model and control group. From hypothesis one, it was evident as shown in table one below, the effect of treatment on the post-test scores of subjects was significant ($F = 495.498, p<0.05$). This shows that there was a significant difference in the academic achievement of gifted students exposed to Enrichment Triad, Self-Directed model and Control Group. On the basis of this finding, the null hypothesis one was rejected. In order to determine the magnitude of the mean achievement scores of subjects in each of the two treatments, and control groups, the multiple classification analysis was used as shown in table two.

Hypothesis two indicated no significant difference in the academic achievement of male and female gifted student exposed to the two treatments and control group. It is worthy noting that gender had no significant effect on participants post-test achievement scores of male gifted students in better ($x=80.83$) than their female counterparts ($x=79.33$) this difference, is however, not significant.

Table 1
Summary of Analysis of Covariance of Post-Test Scores of Subjects According to Treatment and Gender

<table>
<thead>
<tr>
<th>Sources of Variance</th>
<th>Sum of Square(s)</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Covariance Pre-test</td>
<td>124.959</td>
<td>1</td>
<td>124.959</td>
<td>8,420</td>
<td>0.005</td>
</tr>
<tr>
<td>Main Effects (combined)</td>
<td>22158.90</td>
<td>5</td>
<td>4431.780</td>
<td>298,612</td>
<td>0.005</td>
</tr>
<tr>
<td>Treatment</td>
<td>22061.47</td>
<td>3</td>
<td>7353.823</td>
<td>495,498</td>
<td>0.005*</td>
</tr>
<tr>
<td>Gender</td>
<td>39.600</td>
<td>1</td>
<td>39.600</td>
<td>2,668</td>
<td>0.108</td>
</tr>
<tr>
<td>2-way Interaction (combined)</td>
<td>64.170</td>
<td>7</td>
<td>9.167</td>
<td>0,618</td>
<td>0.739</td>
</tr>
<tr>
<td>Treatment* x Gender</td>
<td>28.348</td>
<td>3</td>
<td>9.449</td>
<td>0,637</td>
<td>0.594</td>
</tr>
<tr>
<td>Model</td>
<td>22405.79</td>
<td>16</td>
<td>1400.362</td>
<td>94,356</td>
<td>0.005</td>
</tr>
<tr>
<td>Residual</td>
<td>860.795</td>
<td>58</td>
<td>14.841</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>23266.59</td>
<td>74</td>
<td>314.413</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Sig (Significance), * Significant at $p<0.05$

Table 2
Multiple Classification Analysis of Post-Test Scores by Treatment and Gender

<table>
<thead>
<tr>
<th>Variable + Category</th>
<th>N</th>
<th>Unadjusted Deviation</th>
<th>ETA</th>
<th>Adjusted for factor and Covariance Deviation</th>
<th>BETA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.00 Enrichment Triad</td>
<td>28</td>
<td>10.5089</td>
<td>0.976</td>
<td>10.26</td>
<td></td>
</tr>
<tr>
<td>2.00 Self-Directed</td>
<td>27</td>
<td>9.8455</td>
<td>-23.5133</td>
<td>10.09</td>
<td></td>
</tr>
<tr>
<td>3.00 Control</td>
<td>20</td>
<td>-23.5133</td>
<td>-28.54</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.00 Male</td>
<td>44</td>
<td>-0.5542</td>
<td>0.037</td>
<td>0.62</td>
<td>0.042</td>
</tr>
<tr>
<td>2.00 Female</td>
<td>31</td>
<td>0.7867</td>
<td>-0.88</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

MULTIPLE R = 0.979
R SQUARE = 0.978

Discussion
The most obvious finding from this study was that the two treatments (Enrichment Triad and Self-Directed learning) were very important instructional strategies toward improving the academic achievements of gifted students in Nigeria, and these were more adequate instructional strategies for the gifted compared to conventional methods that seemed non challenging to the gifted students. This was confirmed in the findings from Hulick & Chuck (1998) that self-directed learning had a great influence on the academic achievement of the participants in the studies. Similarly, Collins, Norma,
Alex and Korten (1995) examined two research studies related to enrichment triad and self-directed learning models, which encourage problem finding and problem solving in gifted education. In support of the justification of the best option of teaching learning models as it was discovered in this study, they confirmed that academic achievement, creative problem solving and enrichment triad were complimentary in that they enhanced students to develop the abilities comprehensively.

Again, the findings were in line with Okoro (1991) on effect of enrichment triad and self-directed model on reading of high achieving student. His findings indicated that the mean score of the experimental group was (x = 71.25), while that of the control group mean score was 60.25. This showed a significant difference between the enriched and the non-enriched group. Thus, special educators and educators generally must come to understand their potential role, especially in inhibiting creativity, divergent thinking, and intellectual and academic achievement in gifted children. This could be achieved through the implementation of some of the teaching learning models (enrichment triad and self-directed learning models).

It is highly unlikely that the conventional or the traditional methods of teaching the gifted that are currently being used in Nigerian schools could provide the necessary challenges needed for these children. Therefore, this study focused on the efficacy of enrichment triad and self-directed learning model for enhancing academic performance of the gifted children. Having considered the various concepts of giftedness in relation to teaching learning activities through the use of Enrichment Triad by Joseph Renzulli, (1994) and self-directed model by Donald Treffinger, (1996), the researcher concluded that, the most effective teaching strategies to be employed should be the combination of the various models to form a comprehensive approach.

In addition, Renzulli's (1994) Enrichment Triad was basically designed as a framework for programme and curriculum development for the gifted students. Renzulli, for example, recommended that certain process models modification be used to develop his type two activities. He therefore suggested the combination of enrichment activities with other models such as Bloom and Krathewohl’s Cognitive and Affective Taxonomies, Parne’s Creative Problem Solving; Guilford’s Structure of Intellect; Taylor’s Multiple Talent Approach; and Kphlberg’s Discussions of Moral Dilemmas. This he believes will lead to great success in the education of gifted and talented students.

Furthermore, Treffinger’s (1996) Self-Directed Model was designed to provide guidelines for teachers to use in developing an environment where self-directed learning can occur. Since self-Direction is a goal of many gifted, this model if creatively used to train gifted children will in no small measure help them to achieve their potentials fully. This model can also be combined with a content model such as Burnner’s Basic Structure of Discipline or Tabas Teaching Strategies with several process models that systematically develop higher levels of thinking (Maker, 1994).

So with the careful application of this teaching model, it is hoped that classroom problems confronting the gifted students will be alleviated. Educators, especially teachers of the gifted in general must come to understand their potential role in enhancing creativity, divergent thinking, intellectual and academic achievement in gifted children, through the application of some teaching learning models (enrichment triad and self-directed leaning). This is because the conventional or the traditional method of teaching the gifted currently being used in gifted programmes cannot really bring out the potentials in gifted students. Therefore, this study concludes by advocating for the use of enrichment triad and self-directed models to enhance the academic performance of identified gifted children in Nigeria.

References


THE EFFECTIVENESS OF PROJECT-BASED LEARNING ON PUPILS WITH LEARNING DIFFICULTIES REGARDING ACADEMIC PERFORMANCE, GROUP WORK AND MOTIVATION

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University of Thessaly

This study focuses upon the effectiveness of project-based learning on primary school pupils with learning difficulties regarding their academic performance and attitudes towards self efficacy, task value, group work and teaching methods applied. The present study is a part of a larger one that included six Greek fourth-grade primary school mainstream classrooms with ninety-four pupils of mixed learning abilities. An eight-week project was implemented within the curriculum area of environmental studies with a topic of ‘sea animals’. The methodology applied in this study was a combination of a pre-experimental design (the one group pre-post test design) and the case study research design. In the present study data were used only for pupils with learning difficulties in those classes. The findings of the present study support that pupils with learning difficulties can gain benefits through project-based learning in academic performance, motivation (self-efficacy and task value in terms of environmental studies) and group work (acceptance in the group and engagement in the learning process). The students also preferred experiential learning to traditional teaching. The implications of our findings for the design of project-based learning programmes in the environmental studies with pupils with learning difficulties are also discussed.

Within the context of student-centered learning, project-based teaching method has become increasingly prominent as a response of schooling to the challenges of the 21st Century. The project method teaching approach (PMT) or the project-based learning (P-BL) involves study/research of a topic in depth where students’ ideas, questions, predictions and interests form the experiences lived and the works/activities undertaken. The key-characteristic of the PMT is researching questions which have been raised by the students or/and in collaboration with the class teacher and could be further refined during the course of the study.

Further characteristics of the project-based learning are described in the literature as follows (Frey, 1994; Harris, 2002; McGrath, 2002; Solomon, 2003): students can choose the activities and works undertaken during the course of the study, they can become communicative, creative and develop practical thinking as they are engaged in active inquiry/discovery, exploration and decision making; knowledge is based on experience and experimentation in real/authentic life; the project-based learning links manual and intellectual work. In addition, Westwood (2006) points out that projects promote meaningful learning, connecting new learning to student’s past experience and prior knowledge, they increase self-direction and motivation, since students are responsible for their own learning, they utilise various modes of communication and presentation (multi-sensory approach) which may be quite helpful for pupils with learning difficulties. Project-based learning is also an inclusive approach, in that all learners can participate to the best of their ability.

In the last decade there are an increasing number of pupils attending the mainstream school who face various learning difficulties. These pupils face various cognitive and psycho-emotional problems. The majority of them have language-based difficulties, concerning either the oral or the written form or both, working memory limitations, attention and concentration difficulties, problems in applying learning to new context, in using cognitive and metacognitive strategies for problem resolution or
organization of their knowledge and problems in self-regulation learning (Elliott, 2000; Lerner, 2003). A number of non-intellecutive factors, such as repeated failure, may also influence motivation and task persistence for these pupils. When a child experiences repeated failure might well has limited expectations for future success with attendant anxiety, withdrawal, avoidance, passivity and low self-esteem (Bouffard & Couture, 2003; Sideridis & Scanlon, 2006). In terms of self-efficacy, the literature has been compelling with regard to the fact that students with learning disabilities exhibit lower academic self-efficacy than their non-learning disabled peers, even when they were matched by school grades (Frederickson & Jacobs, 2001; Hampton & Mason, 2003; Lackaye, Margalit, Ziv, & Ziman, 2006). Hampton and Mason (2003) posited that learning disabilities students’ low self-efficacy was due to less access to sources of efficacy information, including fewer successful experiences, less access to successful peer models with learning disabilities and less support from teachers. Several project-based learning practitioners have stated P-BL, because of its various features, is a more effective means of adapting to students various learning styles or multiple intelligences than is the traditional instructional model (Thomas, 2000, p.20).

Westwood (2006) indicates that project-based learning may not be an effective teaching method for pupils with learning difficulties who lack adequate baseline skills in reading and writing. There is also a frequently voiced claim that project-based learning increases team working and cooperative learning skills prompting heretofore reluctant and disengaged students (e.g., low-achieving students) to become motivated and engaged learners (Thomas, 2000, p. 22).

More specifically, Cornell and Clarke (1999) as well as Wurdinger, Haar, Hugg, & Bezon, (2007) found that project-based learning increased higher and lower performing pupils’ engagement in learning activities. The first writers also reported that project-based learning not only gave all of the students an opportunity to work with each other while doing hands-on activities and discover unique skills necessary to complete projects, but also allowed the lower performing pupils to progress at their own pace. In addition, other researchers (Barron et al., 1998; Liu & Hsiao, 2002) discovered that academic performance; cognitive strategy use and motivation towards learning are improved when using project-based learning with low, average and high ability middle school students.

Research on cooperative learning has shown that working in groups positively affects the social acceptance of children with disabilities by their non-disabled peers. Moreover, pupils with learning problems who work in cooperative groups in mainstream classes tend to attain higher learning outcomes than their peers who work in the typical class environment (Gillies & Ashman, 2000). Researchers suggest that pupils who need help can benefit from interactions in a working team, because their peers can provide them with explanations in terms that can be easily understood and focus on the relevant features of the problem, since they are often more aware than their teachers of what some students do not understand. As a consequence, pupils with learning difficulties seem to internalise specific strategies for solving problems and apply them to novel situations. Furthermore, low-ability pupils seem to be more active learners when working in trained mixed ability groups, providing more helpful explanations to other group members than their peers in the untrained group. Through their interactions with others, these children receive feedback and support that help them clarify issues and build understanding (Gillies & Ashman, 2000; Webb & Farivar, 1994). However, for the help to be effective Webb (1985) argues, it must be relevant to the student’s needs provided in a way that enhances understanding and at a time when the student will use the explanation to solve the problem.

On the other hand, Mc Arthur, Ferretti and Okolo’s (2002) study in which sixth grade students with and without mild disabilities participated in an eight-week project-based investigations about immigration to the U.S. in the early 20th century, showed that although pupils with learning disabilities had better understanding of historian content and more favourable attitudes about their self-efficacy in social studies after the implementation of the project-based learning program, they had no significant changes in attitude towards cooperative learning and academic intrinsic motivation.

Finally, in a research conducted by Guven and Duman (2007) investigating the effectiveness of a project-based learning program delivered to seven children with mild mental disabilities it was found that after the completion of the project special needs pupils increased their knowledge about the topic and maintained interest in the topic of the project during its implementation. Research on project-based learning regarding primary school pupils with learning difficulties is scarce. The authors of this article contribute to the research on this field by expanding the research on project-based learning. In turn the authors use a larger number of pupils with learning difficulties compared to previous studies and
examine two elements to determine the effectiveness of project-based learning on pupils with learning difficulties: academic achievement and attitudes towards learning. More specifically, the aim of the present study is to investigate the effectiveness of project-based learning on primary school pupils with learning difficulties regarding academic performance and attitudes towards self-efficacy and task value in terms of environmental studies, group work (acceptance in the group and pupils’ engagement in the learning process) and teaching methods (traditional teaching versus experiential learning).

Method
The present study is a part of a larger one that included six fourth-grade primary school mainstream classrooms with ninety-four pupils of mixed learning abilities. The methodology applied in this study was a combination of a pre-experimental design (the one group pre-test-post-test design) and the case study research design (Bassey, 1999; Cohen & Manion, 1991). The combinations of these two designs were used because our aim was twofold. First, to account for differences between pre-test and post-test scores of typical pupils and pupils with learning difficulties after the implementation of the P-BL. Dependent variables included: (a) academic performance, (b) self-efficacy in terms of environmental studies, (c) task value (i.e. importance of good performance in environmental studies, personal interest in this specific subject area, utility of the task in terms of future academic goals), (d) group work (i.e. acceptance in the group and pupils’ engagement in the learning process) and (e) teaching methods (i.e. traditional teaching versus experiential learning). Secondly, the researchers studied both the process and the products of learning during the implementation of the project regarding both the typical pupils and pupils with learning difficulties. The case study design allowed us to study each classroom and participant with learning difficulties as an individual case and then develop themes across all the cases. In the present article quantitative and qualitative results concerning pupils with learning difficulties are presented.

Participants
Twenty-four Grade four learning difficulties pupils (nineteen boys and five girls) from six mainstream mixed ability classes from the cities of Volos, Lamia and Athens (Greece) participated in the study. Ages ranged from nine years and two months to eleven years and one month (M = 9.6 months, SD = 0.7). The selection of the classes was based on three criteria: (a) class teachers who volunteered to implement a project-based learning educational programme, (b) classes, which had pupils with learning difficulties and (c) teachers with similar amount of experience on project-based learning implementation in the classroom. The 24 pupils were identified as having learning difficulties based on two measures: (a) a standardized teacher questionnaire for identification of pupils with learning difficulties (A.M.D.E.) (Padeliadu & Sideridis, 2008) and (b) a standardized screening software for learning skills and weaknesses (L.A.M.D.A.) (Protopappas & Scalumbakas, 2008). Three of the twenty-four pupils had a diagnosis of special educational needs from the National Diagnostic and Therapeutic Centres of Prefecture of Magnesia and Attica. Two of them were identified as having general mild learning difficulties with an IQ score (WISC-III) between 75 and 80 and one pupil was identified as having specific learning difficulties (dyslexia) with an IQ score (WISC-III) above 85. The other 21 pupils had not undertaken an official diagnostic assessment. The three special educational needs pupils were attending a resource class two to three times per week.

According to A.M.D.E. questionnaire, all the 24 pupils were rated by their teachers as having a high possibility (0-84%) of exhibiting learning difficulties on receptive oral language, expressive oral language, reading and writing. Ninety-two (92%) percent of the pupils were rated as having a high possibility of exhibiting learning difficulties on mathematics and reasoning as well. The other 8% were rated as having a moderate possibility (84-97.5%) of exhibiting learning difficulties on the above two scales. The results from L.A.M.D.A. test are presented in table one.

According to table 1 (next page), the majority of pupils with learning difficulties (from 58% to 85%) exhibited low performance (<25th percentile) on all but two subtests of L.A.M.D.A. test (picture recognition and rhythm reproduction) in terms of accuracy. In terms of speed, only on morphosyntactic awareness 58% of the pupils exhibited a slow response pace.

Instruments
A variety of data collection methods were used to inform the results of this study. The use of multiple methods helped to triangulate the data and to confirm the findings and interpretations. The instruments chosen for the research included standardized learning difficulties screening tests, knowledge test, attitude scale, interviews (from typical, learning difficulties pupils and teachers) and classroom
observations (field notes and observation scales). In the present article results from the knowledge test, the attitude scale and learning difficulties pupils’ interviews are presented.

Table 1

<table>
<thead>
<tr>
<th>Subtests</th>
<th>Accuracy (&lt; 25th percentile)</th>
<th>Speed (&lt; 25th percentile)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Picture Recognition</td>
<td>17%</td>
<td>25%</td>
</tr>
<tr>
<td>Word recognition</td>
<td>75%</td>
<td>41%</td>
</tr>
<tr>
<td>Spelling</td>
<td>85%</td>
<td>50%</td>
</tr>
<tr>
<td>Listening Comprehension</td>
<td>76%</td>
<td>42%</td>
</tr>
<tr>
<td>Reading Comprehension</td>
<td>83%</td>
<td>25%</td>
</tr>
<tr>
<td>Morphosyntactic awareness</td>
<td>71%</td>
<td>58%</td>
</tr>
<tr>
<td>Vocabulary</td>
<td>58%</td>
<td>33%</td>
</tr>
<tr>
<td>Working memory</td>
<td>67%</td>
<td>42%</td>
</tr>
<tr>
<td>(no. of letters recall)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-verbal reasoning</td>
<td>65%</td>
<td>8%</td>
</tr>
<tr>
<td>Rhythm reproduction</td>
<td>50%</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Standardised Screening Learning Difficulties Tests
1. **Standardized Teacher Questionnaire for Identification of Pupils with Learning Difficulties (A.M.D.E.)** (Pandeliadu & Sideridis, 2008). It consists of six scales: (a) oral language (expressive and receptive), written language (reading and writing), (c) mathematics and (d) reasoning. Each scale comprises 15-20 statements regarding difficulties pupils may exhibit in the above learning domains. The teacher is rating the observed behavior in a scale ranging from one to nine, which is from “never” to “always”. It is used for pupils from 9 to 15 years old. The test-retest reliability coefficients range from .95 to .98 for the six scales. Cronbach alpha coefficient ranged from .95 to .97 for the six scales.

2. **Standardized Screening Software for Learning Skills and Weaknesses (L.A.M.D.A.)** (Protopappas & Scaloumbakas, 2008). The software assesses: picture and word recognition, spelling, oral and reading comprehension, morpho-syntactic awareness and vocabulary, working memory (no of words recall), nonverbal reasoning and rhythm sensitivity. The above skills are evaluated in terms of both accuracy and speed. This screening test is used for pupils from 7-15 years old. The test-retest reliability coefficients range from .60 to .77 for the ten scales for Year-four. Cronbach alpha coefficient ranged from .60 to .80 for the ten scales for Grade four.

Knowledge Test
We assessed student’s content knowledge about sea animals with 15 open-ended and multiple-choice questions, developed based on the eight thematic unit of the project, including information presented in whole-class and small group activities. This test was administered both to typical and learning difficulties pupils in each class prior to and at the conclusion of the project. It was read to the whole class to compensate for any reading problems. Pupils with writing difficulties could answer the questions orally. Spelling and morphosyntactic errors were not taken into consideration during the evaluation of the answers. The evaluation of the answers was done using a three-point scale: zero indicated either no answer or a wrong answer, one indicated either limited number of correct answers and/or one-two wrong answers and two indicated correct and adequate number of answers. A total score on knowledge test was given for each pupil. One researcher scored all pupils’ protocols initially. A second researcher independently scored a random sample of 30 percent of the protocols. Interrater reliability for the total score was 0.95 (Pearson r).

Attitude Scale
Students’ attitudes were examined with an instrument including 40 statements, which consisted of five factors. The first factor assessed pupils’ attitudes towards task value concerning environmental studies (r = .83, α = .80), the second factor-assessed pupils’ academic self-efficacy in learning environmental studies (r = .85, α = .88). The statements regarding the above two factors were part of the relevant statements included in Pintrich and DeGroot’s (1990) Motivated Strategies for Learning Questionnaire (MSLQ) adapted for the present study. The third factor assessed pupils’ attitudes towards group work and collaborating with the peers (r = .91, α = .89). The statements used to assess this factor were part of the Collaborative Inquiry-based Project Questionnaire (CIPQ) (Chow & Law, 2005) and the Pupils Perceptions of Cooperative Learning (PPCL) (Veeman, Kenter & Post, 2000) adapted for the present study. The forth factor assessed pupils’ attitudes towards traditional teaching (r = .87, α = .85), and the
fifth factor assessed pupils’ attitudes towards experiential learning ($r = .89$, $\alpha = .84$). The authors constructed the statements for the evaluation of the last two factors. The statements were evaluated using a four-point scale (from one equals not true to four equals always true).

**Individual interviews**
A semi-structured interview protocol was designed with 13 open-ended questions. The interview was conducted with each pupil with learning difficulties and a sample of 25 pupils (almost the $1/3$) without learning difficulties within two weeks after the conclusion to the implementation of the Project. The questions referred to issues regarding group work, engagement in the learning process and evaluation of the project procedure, the activities and the experiential learning. Each of the interviews lasted for approximately 30 minutes. One researcher scored all interviews. A second researcher independently scored a random sample of 30 percent of the protocols. Interrater reliability for the total score was 0.97 (Pearson $r$).

**Educational programme**
The educational programme lasted for eight weeks and planned activities were implemented between two-three teaching hours per week. The fundamental axis of the educational programme lies on the pedagogical concept of project-based learning as developed earlier.

The topic studied during project-based learning was *sea animals* which arose from discussions in the class about pupils’ interests. Pupils expressed a personal interest in studying the sea animals further. This was also linked to the nature of the topic, which could provide pupils with opportunities to experiential and field based learning. Children who live in towns and cities nearby the sea (like the city of Volos) have cognitive stimuli and experiences about the sea animals from their daily life therefore they bring valuable experiences, which can be reinforced and expanded. Moreover, Greece’s sea parks with animals threatened by extinction (i.e. the seal *monachus-monachus* and sea turtle *caretta-caretta*) can offer rich material to be studied and develop pupils’ environmental sensitivity.

The main thematic units of the topic *sea animals* included sea animals’ classification, anatomy, reproduction, and food. Furthermore, the thematic units included sea animals and human nutrition as well as local sea animals, sea animals threatened by extinction in the country and construction of an aquarium (simulation).

For each thematic unit one to three teaching hours were spent on average. Activities included studying and searching for information in primary sources (i.e. field-based visits, hands-on experiences, experts’ visits to the class) and in secondary sources (i.e. books, leaflets, pictures, DVD) as well as learning based on games. The topic was cross-curricular linking concepts and principles from different subjects of the national curriculum such as environmental studies, language, local and national geography. On table two we present the thematic units of the topic, the type of activity and the class organisation for each unit.

**Table 2**

<table>
<thead>
<tr>
<th>Thematic units</th>
<th>Types of activities</th>
<th>Class organisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Classifying sea animals.</td>
<td>From secondary sources (pictures &amp; texts)</td>
<td>Whole class teaching and group work</td>
</tr>
<tr>
<td>2. Anatomy of sea animals.</td>
<td>Hands-on (real sea animals in the class)</td>
<td>Whole class teaching and group work</td>
</tr>
<tr>
<td>3. Sea animals’ reproduction.</td>
<td>DVD</td>
<td>Whole class teaching and individual work</td>
</tr>
<tr>
<td>4. Sea animals’ food.</td>
<td>From secondary sources and a game on food chain</td>
<td>Whole class teaching</td>
</tr>
<tr>
<td>5. Sea animals and human nutrition.</td>
<td>An expert’s visit (nutritionist)</td>
<td>Whole class teaching</td>
</tr>
<tr>
<td>6. Sea animals of the local area.</td>
<td>Visit to a local fish market</td>
<td>Whole class teaching and pair and individual work</td>
</tr>
<tr>
<td>7. Sea animals threatened by extinction in the country.</td>
<td>Books, leaflets, pictures, information from an environmental society</td>
<td>Whole class teaching and group work</td>
</tr>
<tr>
<td>8. Making a dummy aquarium</td>
<td>Crafty</td>
<td>Whole class teaching and group work</td>
</tr>
</tbody>
</table>
Results

Quantitative outcomes on Knowledge Test and Attitude Scale
Prior to statistical analysis, total knowledge score, attitudes toward academic self-efficacy, task value, group work, traditional teaching and experiential learning were examined for missing values and fit assumptions of multivariate analysis. The two missing values on total knowledge score were deleted.

In order to account for differences before and after the implementation of the project-based learning programme in terms of pupils with learning difficulties the pre- and post-test rating scores regarding knowledge of the project topic, academic self-efficacy on environmental studies, task value, group work, traditional teaching and experiential learning were analysed using paired t tests. Statistically significant differences before and after the implementation of the project were found for all the dependent variables, that is total knowledge score \(t(21) = -8.87, p < .001\) with an effect size of 1.89, academic self-efficacy on environmental studies \(t(23) = -2.59, p = .02\), with an effect size of 0.53, task value concerning learning environmental studies \(t(23) = -2.67, p = .01\), with an effect size of 0.54, group work \(t(23) = -3.01, p = .006\) with an effect size of 0.61, traditional teaching \(t(23) = 3.65, p = .001\) with an effect size of 0.74 and experiential learning \(t(23) = -2.36, p = .027\) with an effect size of 0.48.

Mean scores and standard deviations of pre- and posttesting conditions are presented on table three. Paired t test results and table three data show that pupils with learning difficulties scored significantly higher on the knowledge test administered after the completion of the project, indicating that they enriched their knowledge on all seven thematic units (classification of sea animals, anatomy of sea animals, reproduction, sea animals’ food, sea animals and human nutrition, sea animals of the local area, sea animals threatened by extinction) after the implementation of the project.

<table>
<thead>
<tr>
<th>Table 3</th>
<th>Means and Standard deviations of six dependent variables before and after the implementation of the P-BL about sea animals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dependent variables</td>
</tr>
<tr>
<td></td>
<td>Total Knowledge Score 1</td>
</tr>
<tr>
<td></td>
<td>Total Knowledge Score 2</td>
</tr>
<tr>
<td>Pair 2</td>
<td>Task value1</td>
</tr>
<tr>
<td></td>
<td>Task value2</td>
</tr>
<tr>
<td>Pair 3</td>
<td>Self-efficacy1</td>
</tr>
<tr>
<td></td>
<td>Self-efficacy2</td>
</tr>
<tr>
<td>Pair 4</td>
<td>Group Work 1</td>
</tr>
<tr>
<td></td>
<td>Group Work 2</td>
</tr>
<tr>
<td>Pair 5</td>
<td>Traditional Teaching 1</td>
</tr>
<tr>
<td></td>
<td>Traditional Teaching 2</td>
</tr>
<tr>
<td>Pair 6</td>
<td>Experiential Learning 1</td>
</tr>
<tr>
<td></td>
<td>Experiential Learning 2</td>
</tr>
</tbody>
</table>

Note: 1 = Before the implementation of the P-BL 2 = After the implementation of the P-BL

A qualitative analysis of the data revealed that there were prominent differences regarding broad classification categories of sea animals (e.g. mammals, mollusca, reptiles, vertabrates and invertrabrates). Pupils with learning difficulties acquired new knowledge regarding both the terminology and the correct classification of sea animals into these categories. Important knowledge differences after the project were also noted in terms of sea animals’ reproduction, sea animals and human nutrition, sea animals’ food chain, sea animals of the local area and sea animals threatened by extinction. All these topics were explored through hands-on activities and experiential learning. Little but significant improvement was shown regarding specific classification categories [e.g. arthropods, echinoids (i.e. sea urchin), cnidarians (i.e. jellyfish, sea anemones, and corals), sea animals’ food categories]. In the pre-testing condition the majority of the pupils with learning difficulties did not know the above categories and only after the project they managed to discriminate them, providing one
to two correct examples of each category. An improvement after the project was also noted for well-established prior knowledge (e.g. fish).
A significant attitude change was also revealed for pupils with learning difficulties after the project regarding self-efficacy; task value, group work, traditional teaching and experiential learning (see Table three). On average, after the implementation of the project on environmental studies, pupils with learning difficulties believed they could perform better in the environmental studies than they did before, they scored higher this subject area, they liked working in teams more than doing work on their own and they also found group work more effective in terms of their engagement in the learning process. Furthermore, as it was expected, they stated that they found experiential learning more beneficial than traditional teaching.

**Qualitative outcomes from the interviews**
In the present study, results from the interviews carried out with the pupils with learning difficulties are presented. The interviews provided complementary information on pupils’ with learning difficulties views about evaluation of the project procedure, the activities and the experiential learning, group work and acceptance in the group, and engagement in the learning process.

A qualitative analysis of the data revealed that in terms of the evaluation of the procedure and the activities, all pupils stated that project-based learning helped them learn better and retain much information about sea animals. They found this procedure amusing and more motivational in comparison to traditional teaching methods (direct instruction, teacher talk, studying from their own textbooks). The majority of the pupils (22 out of 24) supported that what they found more effective and pleasant in this procedure was both experiential learning and working in groups:

- “I liked this procedure very much, because we saw real sea animals in the class, we examined them, we saw a DVD, we made an aquarium. The book doesn’t say so much and our teacher does not often show us DVDs and pictures. It is boring when the teacher only is talking (Vicky).”
- “It helped me that we were working in groups and I was learning from others (George).”

The other two children said that what helped them more to obtain new knowledge was the assignment they had to do. One fourth (6 out of the 24) of the pupils with learning difficulties found difficult and without particular interest the activities related to secondary sources (e.g. magazines, books).

Although all pupils enjoyed working in groups some of them believed that this procedure did not increased their involvement in the learning process. Five of the pupils (5 out of 24) stated that they liked being with others in the group, they learned better through this procedure because peers explained them their queries but they mainly had a passive role in the group. They either were listening or following instructions. They did not express their ideas. Tom, a child with moderate learning difficulties said: “I liked being with others, but most of the time I was listening what others said, while John, a pupil with mild learning difficulties in writing stated: “I was showing up pictures or I was reading aloud the text from the magazine On the contrary, the rest of the pupils with learning difficulties (9 out of 24) stated that they got used to a more active role in the learning process when they worked in groups during the project, than they had before. They often expressed their ideas and discussed them with their peers. They were interactive and cooperated with others in order to come to a decision or to produce a final learning outcome: “we used to discuss altogether what we had to do and either we worked altogether or in pairs and then we got everything together and we presented it (Julia).”

A few of the pupils with learning difficulties (6 out of 24) said that they asked their teachers to work in pairs or groups in the classroom even after the completion of the project. A closer look of the data showed that, as it was expected, pupils who were used to work in pairs or groups in their classrooms before the project got further advantage of this procedure during the project implementation.

**Discussion**
The purpose of this study was to investigate the type of differences pupils with learning difficulties exhibited after the implementation of a project on environmental studies about sea animals in terms of academic performance and attitudes towards academic self-efficacy in learning environmental studies, task value for environmental studies, group work, traditional teaching and experiential learning. Quantitative and qualitative measures demonstrated learning gains concerning the topic studied for the pupils with learning difficulties. A closer examination of the results showed that these pupils enriched and expanded their knowledge on units studied mainly through hands-on, field based activities and experiential learning because this approach applies better to their educational needs for a multi-sensory teaching method. Little improvement was noted concerning retaining knowledge of specific
The above findings come along with previous research on project-based learning (Barron et al., 1998; Guvan & Duman, 2007; Liu & Hsiao, 2002; Mc Arthur, Ferretti and O’kolo, 2002), which reveals improvement of academic performance for pupils with learning difficulties after the implementation of a project. This study also indicated that there was improvement for pupils with learning difficulties regarding their attitudes towards group work, their acceptance in the group and their involvement in learning process. These pupils’ views about the benefits of group work on learning outcomes, peer interactions and acceptance in the group has significantly changed after their learning experiences with the project. When pupils with learning difficulties requested for help inside the group, they initiated interactions that often led to clarifications and exchange of ideas with other group members, and it is these interactions that probably contributed to an increase in their direct involvement in the learning process and in the acceptance from their peers, as they stated in the interviews. According to pupils’ interviews some of them contributed more than others in the groups, but most of the time all the group members had to be involved in the process either by contributing to discussions, reading information, writing up assignments, or presenting the learning product to the class. The majority of pupils with learning difficulties in the present study appeared to be much more engaged with this process as opposed to other passive methods of learning such as direct instruction, especially in curriculum areas like environmental studies where topics can be researched and studied in child-centered approaches. Most of the research done on cooperative learning, project-based learning and pupils with learning difficulties pinpoint the positive effects these approaches have on social acceptance of children with difficulties, academic performance, peer interactions and active engagement in the learning process (Cornell & Clarke, 1999; Gillies & Ashman, 2000; Webb & Farivar, 1994; Wurdinger, Haar, J., Hugg, R., & Bezon, J., 2007). However, Mc Arthur, Ferretti and Okolo’s, 2002 study showed that sixth grade students with mild learning disabilities did not change significantly their attitudes towards cooperative learning after their participation in a project on social studies. This different result may be due to the fact that pupils in the above study had finally to produce a debate, which allowed for competition between groups rather than collaborative action in carrying out the activities, assigned. Nevertheless the present study is based on a larger number of pupils with learning difficulties (24) compared to previous studies and more specifically the one of Mc Arthur, Ferretti and Okolo (2002) (nine pupils with learning difficulties), thus the analysis of the findings becomes rigorous in obtaining robust outcomes.

The project-based learning also altered pupils’ attitudes towards self-efficacy and task value concerning environmental studies but in a moderate degree according to the effect size. As it was presented in the results section, the majority of pupils with learning difficulties stated in their interviews that P-BL method enhanced their engagement in the learning process. A closer look of the data derived from the field notes and pupils’ interviews show that most of the pupils with learning difficulties in the present study seem to have been mainly engaged behaviourally and motivationally in the learning process although sometimes in a superficial way (i.e. they sought help in order to complete the task without necessarily understanding it). Psychosocial factors such as group acceptance and positive affect during learning experience seem to contribute substantially to defining motivational states during engagement in the learning process. However, these pupils did not seem to be cognitively engaged (i.e. using more surface processing strategies like rehearsal, writing down information instructed by peers etc.) during the project experience. As Linnenbrink and Pintrich (2003) support, pupils should not only be behaviourally engaged (put effort, persistence and seek help) and motivationally engaged (show interest, give value and positive affect) in a learning activity but also be cognitively engaged (use cognitive and metacognitive strategies) in order to actually learn and highly improve their self-efficacy. *The more a student is engaged, and especially the more he/she learns and the better he/she performs, the higher his/her self-efficacy* (Linnenbrink & Pintrich, 2003, p. 123). Children with learning difficulties face problems with the use of cognitive and metacognitive strategies and an in-depth examination of a topic. For these pupils it is necessary to teach them individually how to use cognitive strategies and at the same time to include more direct instruction during a project. It may also be needed to adapt the project to their needs by designing a shorter one or by setting fewer and more specific aims.
An interesting finding in this study is also that pupils with learning difficulties had positive self-efficacy beliefs in terms of their academic performance in the environmental studies even before the implementation of the project (see table three). A possible explanation could be that, as several studies found, pupils with learning disabilities tend to overestimate their efficacy (Klassen, 2002a). Another possible explanation could be that, as Linnenbrink & Pintrich, (2003) support, self-efficacy judgments may vary as a function of intra-individual or environmental differences (p.122). According to Hampton and Mason (2003) a pupil may has positive self-efficacy beliefs if he/she is exposed to sources, which help to develop these beliefs. That is, if he/she has positive emotional experiences from environmental studies because it provides knowledge, which is related to daily life more accessible to him/her as well as if the pupil receives support from the teacher and peers, then he/she may express positive self-efficacy beliefs about his/her performance on this curriculum subject. The fact that knowledge from environmental studies is applicable to real world may explain why pupils with learning difficulties had positive task value believes even before the implementation of the project.

In conclusion, the findings of the present study support that pupils with learning difficulties can gain benefits through P-BL in academic performance, motivation, cooperative learning, social acceptance, and engagement in the learning process. Children with learning difficulties can engage in learning experiences through P-BL at their own level to meet their social and academic goals. However, for this approach to be effective, activities based on secondary sources (materials from books and magazines) should be adapted and relevant to pupils’ need at a level of elaboration that will assist their understanding. P-BL is not an instructional teaching method, which can develop certain learning skills (e.g. reading, writing, strategy use) to pupils with special educational needs. It can, though, support these children’s learning through alternative routes (e.g. multi-sensory approach, hands-on experience, co-operative learning). Individualized instruction should be applied for these pupils to develop basic skills for coping in open-ended learning environments. Furthermore, pupils engaged in P-BL need to have been instructed to work co-operatively because they can then develop an understanding of the purpose of the group and of the need to help and support each other’s learning (Sharan & Shaulov, 1990). However, as Webb (1985) argues for the help to be effective it must be provided at a time when the pupil with learning difficulties has an opportunity to use the explanation to solve the problem on-task.

References


DEVELOPMENTAL HIERARCHY OF ARABIC
PHONOLOGICAL AWARENESS SKILLS

Sana Tibi
U.A.E. University,

Research indicates a strong relationship between phonological awareness and reading success. Phonemic intervention programs clearly show the benefits of explicitly teaching phonological awareness skills. Phonological awareness skills vary in nature and degree of difficulty and appear to follow a developmental progression. This study examined a developmental hierarchy of four Arabic phonological awareness tasks. The participants were 140 native Arabic speaking students from elementary grades one to three. They were administered four different phonological awareness tasks. One-way ANOVA and multiple comparisons were used to analyze the data of the study. The results revealed differences across phonological awareness tasks among different grade levels. Results of this study indicated that the four phonological awareness tasks ranged from easy to difficult in the following: rhyme, initial sound identification, syllable deletion and phoneme segmentation. Significant differences were found in two tasks, identifying the initial sound of the word in favor of grade two and syllable deletion in favor of grade three. However, there were no significant differences in the grade performances regarding the rhyme oddity task and the phoneme segmentation task. This study supports English language research in the sense that there is a hierarchical order behind phonological awareness development. This means that when phonological awareness tasks are trained, they must follow an order. Phonological awareness skills are complicated and place demand on cognitive processes and, therefore, should not be considered randomly.

Considerable research in the past two decades has emphasized the importance of phonological awareness (PA) and phonics in the process of learning to read and write (Byrne & Fielding-Barnsely, 1989; Lewkowicz, 1980; National Reading Panel, 2000; Vandervelden & Siegel, 1995; Wagner & Torgesen, 1987; Yopp, 1988). Phonological awareness (PA) refers to the ability to recognize and make use of the phonological structure underlying spoken language. A large body of research has documented the importance of phonological awareness as an excellent predictor of reading success. Correlation studies, longitudinal studies and intervention studies have not only confirmed the importance of PA in learning an alphabetic script, but also clarified it and extended it.

In fact, researchers now recognize the major difference between successful readers and struggling readers on phonological awareness tasks. Many researchers consider PA a prerequisite for learning to read. Several researchers have developed tests to assess PA skills for readers as well as pre-readers.

The result of research indicates that low-readiness pre-readers are simply unable to think consciously about the sound structure of words. Unlike high-readiness pre-readers, low-readiness pre-readers do not attend to the phonemes of words spoken.

Phonological awareness has been also a component in many reading intervention and instruction programs. Many phonics programs have focused on their PA skills. Phonics, in its simplest sense, refers to a system of teaching reading that teaches the sounds of the alphabetic script. Phonics is an instructional strategy that focuses on teaching correspondences between letters and their corresponding sounds. An ample body of research has proven that implementing systematic phonics instruction has positive impact on children’s reading (Adams, 1990; Ehri, Nunes, Stahl & Willows, 2001; Sister Oudeans, 2003). In fact, Ehri et al. (2001) recommended that phonics should be part of literacy
programs to teach beginning readers as well as to prevent and remediate reading difficulties. Comprehension, the ultimate goal of all reading instruction programs, cannot be achieved if a child is not taught to recognize letters, map letters on to their sounds, spelling patterns and also to recognize some whole words Adams (1990).

Research (Adams, 1990; Ehri et al., 2001) proves that skillful readers do translate spellings to sounds as they read. Although, skillful readers seem to recognize familiar words visually, skillful readers visually process every individual letter of every word as they read (Adams, 1990). This is evident when skillful readers detect sometimes the slightest misprint that may appear in a long word or a text. In addition, skillful readers use context to speed the interpretation of orthographic information only after the word is identified. That is, context does not take the place of orthographic information. Therefore, skillful readers possess knowledge of word’s pronunciation. Spelling-sound associations serve as a backup system for recognizing visually less familiar words. Indeed, research clearly indicates the importance of the phonological processor in this process of reading the alphabetic script. Observations of everyday reading behavior of beginning readers clearly reveal this sounding out behavior in both reading and writing attempts.

Therefore, activating the phonological processor plays a critical role in the process of learning to read (Ehri, 1992). Indeed, Bryant and Goswami have said, the discovery of a strong relationship between children's phonological awareness and their progress in learning to read is one of the great successes of modern psychology (1987, p. 439).

Children’s conscious appreciation of syllables and later on of individual phonemes is strongly related to reading acquisition. Children’s knowledge of letters and letters’ sounds is a crucial matter for reading acquisition. In fact, understanding and using the alphabetic principle depends equally on knowledge of letters and explicit awareness of the phonemes these letters represent. Adams (1990) has stated that knowledge of letters and phonological awareness have been found to bear a strong and direct relationship to success and ease of reading acquisition (p. 44).

Phonological awareness is not acquired spontaneously. It seems to develop only through systematic and explicit training. Teaching phonological awareness requires considerable time and effort. Phonological awareness skills (phonemes & syllables) when taught result in significant gains in reading for most children. In fact, several studies reported that children who received phonological awareness instruction had higher scores on measures of reading achievement than children who did not receive instruction in phonological awareness (Ball & Blachman, 1991; Cunningham, 1990; O’Connor, Jenkins, & Slocum, 1995; Torgesen, Morgan, & Davis, 1992). Indeed, Cunningham (1990) has noted that kindergarten children with explicit instruction in phonological awareness did better than a group of first graders who had no instruction on PA skills, indicating that this important pre-skill for reading can be taught.

Phonological awareness tasks vary in type and difficulty. Several of these tasks have been addressed in the literature in the English language over the past 20 years. Some tasks are at the syllable and intra-syllabic levels, while others are at the phoneme level. Some examples of phonological awareness tasks include: phoneme segmentation, syllable segmentation, phoneme manipulation, rhyme generation, odd word out, phoneme synthesis, syllable blending and deleting sounds (Ball & Blachman, 1991; Byrne & Fielding-Barnsley, 1991, Cunningham, 1990; Yopp, 1988). Also, diversity in the phonological awareness tasks is of importance because of its developmental progression. The developmental nature of phonological awareness skills has implications for both assessment and intervention. Some tasks are easier than others; hence develop earlier (Vandervelden & Siegel, 1997; Yopp, 1988). Assessment results of phonological awareness show that some tasks are beyond the ability of children for a certain age group. For example, phoneme manipulation tests have been found to be beyond the ability of children before the end of first grade (Lundberg, Olofsson,& Wall, 1980). On the other hand, initial sound recognition test or as Adams (1990) named it syllable-splitting test is considered easier than phoneme segmentation or manipulation tests. Other phonological tasks such as phoneme segmentation are more difficult because they require the child to know every little sound in a word in isolation. This ability usually comes as a result of learning to read and when the child has already acquired larger units (e.g. Syllables & words). Hence, the better children are at decoding, the better they do on the phoneme tapping or phoneme segmentation tests (Adams, 1990; Turner & Nesdale, 1985). Children seem to do better with larger units of sounds (syllables) than with smaller units of sounds (phonemes) (Stahl & Murray, 1994; Treiman & Zukowski, 1991). The difficulty of phonological awareness tasks has
implications for instructional strategies. Thus, teachers should engage students initially in activities that focus on larger units such as syllables and sub-syllabic unit the onset and rime (Yopp & Yopp, 2000).

Research literature on the English language has addressed the issue of the different types of phonological awareness tasks and the variations in the difficulty of these tasks. Several researchers also added that the number of sounds in a word is a factor in the difficulty of the task (Adams, 1990; Smith, Simmons & Kaneenui, 1998; Yopp, 1988; Yopp & Yopp, 2000). For example, Yopp and Yopp (2000) noted that matching initial sounds is an easy task whereas segmenting spoken words into their constituent sounds is more difficult. That is, fewer sounds are easier than more sounds. In addition, the location of the sound in the word (initial, medial, final) makes a task easier or more difficult than the other. For example, asking the child to identify the initial or final sound is easier than the middle sound (McBride-Chang, 1995).

The purpose of the present study is to examine the nature of some phonological awareness tasks in the Arabic language. The study presented here aims at discovering the level of difficulty of four Arabic phonological awareness tasks. Findings from this study can provide information about the acquisition of phonological awareness in Arabic and hence has instructional implications.

**Method**

**Participants**
The participants in the study were 140 (male & female) from the first three elementary grades; one (n=58), two (n=51), and three (n=31). The sample was selected from a number of elementary grade classes in Al-Ain city of United Arab Emirates (UAE). The three classes were selected randomly for each grade level. These schools were public schools from the city of Al-Ain in the Emirate of Abu Dhabi.

**Materials**
The tool of the study consisted of four phonological awareness tasks that were presented orally. The four tasks were developed for the present study. The tasks varied in nature and degree of difficulty. The four tasks included in the present study were: identifying the initial sound in a word, rhyme oddity, syllable deletion and phoneme segmentation of words. Each of the four tasks included ten items. The words in each task were selected from the Standard Arabic language curriculum in the UAE. The language used in these texts is the Modern Standard Arabic (MSA) as opposed to spoken Arabic. The four phonological awareness tasks were selected after a review of phonological awareness tasks in English. In addition, the items in the four tasks were selected based on what is appropriate for the Arabic word syllabic structures and what is common (Ababneh, 2000).

*Initial sound identification*
In this task, the examiner presented a word orally and asked the child to say the initial sound of the word. For example, *What sound does the word /samak/ (fish) begin with?* The child had to say the sound /s/. In this task, each correct response received one point. The maximum score for this measure was ten points.

*Rhyme Oddity*
In this task, the examiner orally introduced a set of three words. Two words are similar in prime but one word is different in rhyme. For example, the examiner asked the child which word is different in rhyme when I say /daq/, /naq/, /samak/. The child had to say the word /samak/ because the rime is different. This measure received one point for each correct answer. The maximum score for this measure was ten.

*Syllable Deletion*
In this task, the examiner orally presented a word to the child and instructed him/her to provide a new word after deleting one syllable provided by the examiner. For example, the examiner said which word do you get out of /jama:l/ (beauty) when we delete the syllable *ja-.* The child had to say the word /ma:l/ (money). Each correct answer the child produced received one point Maximum10.

*Phoneme segmentation*
In this task, the examiner orally presented the stimuli to the child and instructed the child to segment the word into its constituent phonemes. It should be noted that Arabic and English are quite different
orthographically and in the relationship between the orthographic system and the sounds in the spoken language. Phoneme segmentation is a task that requires special consideration especially when administering it to young children. Therefore, the examiner included practice items with feedback followed by ten items. The performance on the practice items was not included in the sub-tests score. For example, in this segmentation sub-test the examiner presented a word by asking *How can we divide the word /samak/ (fish)?* The child had to respond by saying all the consonants and the short vowels that the word included in the past. Each correct answer the child provided received one point summing up to a total of ten points.

To investigate the reliability of the tool, it was administered to a pilot of 20 students and then re-administered after two weeks. The correlation co-efficient was .85. To determine the validity of the tool, a number of methods were used. The tasks and their items were designed after reviewing the Arabic language curriculum in order to choose familiar words from Arabic curricular texts. In addition, the tasks were designed based on a review of literature on phonological awareness at the word, syllable, and phoneme levels. The tool was designed in its preliminary form and then it was sent for evaluation to three reviewers and five senior teachers in order to evaluate the relevancy of items to the students’ curricula. Their comments were taken into consideration and modifications were made accordingly. To finalize the tool, it was given to three faculty members at the College of Education, UAEU. Their comments regarding the language of the items were incorporated into the final tool. The tests were administered to each student individually and lasted approximately 45 minutes.

**Results & Discussion**

One-way ANOVA and multiple comparisons were used to analyze the data of the study. Table 1 presents means and standard deviation for the four PA tasks for each grade. When comparing students’ performance on the task of identifying the initial sound in a word, grade two children had significantly a higher mean score (mean = 8.90) than grade one children (mean = 7.7) as can be seen in Table 2. This result may be due to the fact that by the time Arabic speaking students reach second and third grades, they have already acquired the necessary knowledge related to the alphabetic principle and auditory discrimination skills which in turn enable them to identify the first sound in a word.

In the rhyme oddity task, there were no significant differences among the means for the three grades. This may be due to the fact that rhyme tasks are considered easy and therefore mastered early (Yopp & Yopp 2000; Adams, 1990). The fact that the rhyme oddity task implemented in the present study turned out to be the easiest may be due to the fact that the final phoneme is easier to isolate than initial phoneme. In fact, in another research on Arabic phonemic awareness, it was reported that initial phonemes were harder to isolate than final phonemes (Saiegh-Haddad, 2003). In addition, Arabic students’ early exposure to Quranic texts stimulates their awareness of rhyme and alliteration. Quranic verses have a high percentage of rhyme that facilitates memorization and recitation of Quran even if one does not speak the Arabic language.

In the syllable deletion task, the mean score for students in grade three was significantly higher (mean = 8.58) than for grade one students (7.03) as seen in Table 2. This may be due to the difficulty of the task. That is, deleting a syllable and producing a new meaningful word with a different meaning from

<table>
<thead>
<tr>
<th>Variable</th>
<th>Grade</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial sound identification</td>
<td>Grade 1</td>
<td>58</td>
<td>7.70</td>
<td>2.195</td>
<td>.019</td>
</tr>
<tr>
<td></td>
<td>Grade 2</td>
<td>51</td>
<td>8.90</td>
<td>1.897</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Grade 3</td>
<td>31</td>
<td>8.42</td>
<td>2.161</td>
<td></td>
</tr>
<tr>
<td>Rhyme oddity</td>
<td>Grade 1</td>
<td>58</td>
<td>8.10</td>
<td>1.917</td>
<td>.144</td>
</tr>
<tr>
<td></td>
<td>Grade 2</td>
<td>51</td>
<td>8.45</td>
<td>1.419</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Grade 3</td>
<td>31</td>
<td>8.84</td>
<td>1.635</td>
<td></td>
</tr>
<tr>
<td>Syllable deletion</td>
<td>Grade 1</td>
<td>58</td>
<td>7.03</td>
<td>3.392</td>
<td>.050</td>
</tr>
<tr>
<td></td>
<td>Grade 2</td>
<td>51</td>
<td>7.88</td>
<td>3.083</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Grade 3</td>
<td>31</td>
<td>8.58</td>
<td>1.727</td>
<td></td>
</tr>
<tr>
<td>Phoneme segmentation</td>
<td>Grade 1</td>
<td>58</td>
<td>5.24</td>
<td>3.817</td>
<td>.144</td>
</tr>
<tr>
<td></td>
<td>Grade 2</td>
<td>51</td>
<td>4.55</td>
<td>4.487</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Grade 3</td>
<td>31</td>
<td>6.42</td>
<td>4.154</td>
<td></td>
</tr>
</tbody>
</table>

In the rhyme oddity task, there were no significant differences among the means for the three grades. This may be due to the fact that rhyme tasks are considered easy and therefore mastered early (Yopp & Yopp 2000; Adams, 1990). The fact that the rhyme oddity task implemented in the present study turned out to be the easiest may be due to the fact that the final phoneme is easier to isolate than initial phoneme. In fact, in another research on Arabic phonemic awareness, it was reported that initial phonemes were harder to isolate than final phonemes (Saiegh-Haddad, 2003). In addition, Arabic students’ early exposure to Quranic texts stimulates their awareness of rhyme and alliteration. Quranic verses have a high percentage of rhyme that facilitates memorization and recitation of Quran even if one does not speak the Arabic language.

In the syllable deletion task, the mean score for students in grade three was significantly higher (mean = 8.58) than for grade one students (7.03) as seen in Table 2. This may be due to the difficulty of the task. That is, deleting a syllable and producing a new meaningful word with a different meaning from
the original word requires higher language skills when dealing with the form and content of the word. Also, syllable deletion is a higher order of phonological awareness and more sophisticated than simple tasks such as rhyme or initial sound identification.

Table 2
Multiple Comparisons for Tasks 1-4 by Grade Level

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Class</th>
<th>Class</th>
<th>Mean Difference</th>
<th>Std. Error</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial sound identification</td>
<td>Grade 1</td>
<td>Grade 2</td>
<td>-1.135*</td>
<td>.400</td>
<td>.005</td>
</tr>
<tr>
<td></td>
<td>Grade 2</td>
<td>Grade 3</td>
<td>-.652</td>
<td>.464</td>
<td>.162</td>
</tr>
<tr>
<td></td>
<td>Grade 3</td>
<td>Grade 3</td>
<td>.483</td>
<td>.474</td>
<td>.311</td>
</tr>
<tr>
<td>Rhyme oddity</td>
<td>Grade 1</td>
<td>Grade 2</td>
<td>-.348</td>
<td>.324</td>
<td>.285</td>
</tr>
<tr>
<td></td>
<td>Grade 3</td>
<td>Grade 3</td>
<td>-.735</td>
<td>.375</td>
<td>.052</td>
</tr>
<tr>
<td></td>
<td>Grade 3</td>
<td>Grade 3</td>
<td>-.388</td>
<td>.384</td>
<td>.315</td>
</tr>
<tr>
<td>Syllable deletion</td>
<td>Grade 1</td>
<td>Grade 2</td>
<td>-.84787*</td>
<td>.57302</td>
<td>.141</td>
</tr>
<tr>
<td></td>
<td>Grade 3</td>
<td>Grade 3</td>
<td>-1.54616*</td>
<td>.66414</td>
<td>.021</td>
</tr>
<tr>
<td></td>
<td>Grade 2</td>
<td>Grade 3</td>
<td>-.69829</td>
<td>.67983</td>
<td>.306</td>
</tr>
<tr>
<td>Phoneme segmentation</td>
<td>Grade 1</td>
<td>Grade 2</td>
<td>.692</td>
<td>.796</td>
<td>.386</td>
</tr>
<tr>
<td></td>
<td>Grade 3</td>
<td>Grade 3</td>
<td>-1.178</td>
<td>.922</td>
<td>.204</td>
</tr>
<tr>
<td></td>
<td>Grade 2</td>
<td>Grade 3</td>
<td>-1.870*</td>
<td>.944</td>
<td>.050</td>
</tr>
</tbody>
</table>

* The mean difference is significant at the .05 levels

As for the phoneme segmentation task, means were almost the same across all three grades. This may be due to the fact that isolating each sound as a discrete sound is more difficult than analyzing words into syllables. It has been shown in the English literature that syllable analysis is easier than phoneme analysis and hence develops earlier. Awareness of phonemes, although the most closely PA task tied to decoding skills, seems to come only after a child is aware of larger units. Also, with phoneme segmentation tests, it is possible that the ability to tap the number of phonemes is a result of learning to read, as well as a possible cause (Adams, 1990; Yopp & Yopp, 2000). Furthermore, one may argue that dealing with larger units in Arabic would be easier than dealing with smaller units because Arabic is considered a syllabic language. Therefore, it would be easier for Arabic speaking children to break an Arabic word into syllables rather than single phonemes.

The results of this study revealed that phonological awareness skills in Arabic seem to follow a developmental hierarchy. This finding is congruent with other findings from the literature on the development of phonological awareness in English speaking children. That is, there seems to be a hierarchical organization in the rate of acquisition of the different types of phonological awareness skills in Arabic.

The results indicated that some phonological awareness tasks are easier than others. Identifying the initial sound of a word and rhyme oddity tasks are easy tasks when compared to syllable deletion and phoneme segmentation. This finding as indicated earlier is consistent with other findings from the literature on the English language (Adams, 1990; Vandervelden & Siegel, 1995; Yopp, 1988). This study revealed that the hierarchical order of the Arabic phonological skills investigated here ranked from easy to most difficult as follows: identifying initial sound, rhyme oddity, syllable deletion and lastly the phoneme segmentation task.

Another important finding is that the phoneme segmentation task in Arabic is the most difficult one. This finding is consistent with previous findings in English. That is, larger units (e.g. syllables) are acquired faster than smaller units (Adams, 1990; Turner & Nesdale, 1985). Also, it seems the case that Arabic children do better in phonological skills related to larger units than phonological skills related to smaller units. This finding may be due to the strong cohesion found in Arabic between the initial consonant and its following vowel (Saiegh-Haddad, 2003).

Conclusion
This study tested four phonological awareness tasks in Modern Standard Arabic. A total of 140 children were randomly selected from public first, second and third elementary classes from Al Ain city in the Emirate of Abu Dhabi in the United Arab Emirates. The primary aim of the study was to examine the developmental nature of some phonological awareness tasks in Modern Standard Arabic. The results showed that there was a developmental progression across all three grade-level groups on all four PA tasks. Further, it was shown that the four PA tasks selected for the present study varied in
their degree of difficulty. For example, the rhyme oddity task was the easiest among all four tasks examined for the purpose of this study. This result conforms to the fact that larger syllables are easier than single phonemes especially in the case of Arabic (Saiegh-Haddad, 2007). Adams (1990) has theorized that phonological awareness tasks in the English language may be classified according to levels of difficulty with the easiest being tasks that measure the ability to remember familiar rhyming words followed by the ability to recognize and classify patterns of rhyme and alliteration which is exactly what the rhyme oddity task, selected for the present study, required students to do.

Adams (1990) stated also that full segmentation of all the phonemes within words is a fourth level of analysis, followed by phoneme addition, reversal, deletion and other manipulation processes. Results of the present study also showed that the phoneme segmentation task proved to be the most difficult task and, therefore, developed at a higher grade level. This finding confirms earlier findings by Saiegh-Haddad (2007) which stated Arab children find initial phonemes and initial singleton phonemes the most difficult to segment (p. 620). Overall, this study supports previous claims that there is a hierarchical order to the development of phonological awareness in spite of differences in language structures.

Nevertheless, one should note here that this study involved only school-aged children who are already exposed to formal instruction in reading. This means that children’s performances across all grade levels on the PA tasks in this study may have been influenced by their formal exposure to the orthographic structure of the language. Future research that includes a younger age group (preschoolers) is suggested to examine closely the nature of their performance on PA tasks prior to their school-based knowledge of orthography.

Findings of the current study have important practical implications for both assessment and instruction. That is, when practitioners or assessors develop assessment tools, they need to ensure that there is a variety of PA subtests (phoneme & syllable levels); that they provide varied degrees of test difficulty; and that they are able to administer the test to different age groups. As for instructional implications, teachers need to be sensitive to the level of difficulty of the PA tasks to be taught. Teachers must be knowledgeable about the graded level of difficulty of PA tasks. For example, teachers need to know which PA tasks will be more suitable to teach to younger children. For these children, PA tasks that deal with rhyme and initial sound identification will be more suitable to teach than other PA tasks that require manipulation of the sounds in memory.

Future research should further examine the developmental progression of other PA tasks and include younger children who have not been exposed to formal literacy instruction. In addition, the role of the Consonant-Vowel (CV) unit in segmenting Modern Standard Arabic words into phonemes should be further examined. Moreover, students’ performances on other PA tasks could be compared to their reading of single words and spelling as well examining closely the relationship between PA and other reading and reading-related measures. Further research on the nature of reading processes in the Arabic language is warranted.

References


SPECIAL EDUCATION PARAPROFESSIONALS: PERCEPTIONS OF PRESERVICE PREPARATION, SUPERVISION, AND ONGOING DEVELOPMENTAL TRAINING

William Breton
University of Maine at Presque Isle

Many studies have investigated the adequacy of the preservice preparation of special education teachers but few studies have investigated the preparation of special education paraprofessionals. This study investigated one rural state that does not have an identified system of formal preservice training programs for special education paraprofessionals. Special education paraprofessionals in Maine were queried regarding their perceptions of (1) the adequacy of their training, (2) the effectiveness of their supervision, and (3) their current training needs in order for them to successfully meet their mandated role responsibilities to serve students with disabilities. Findings indicated that most respondents perceived that they were inadequately prepared for their duties and received minimal supervision. Findings also suggested that a very high level of consistency existed among the respondents with respect to their current most critical training needs. Findings further suggest that a major need exists for states and individual school districts (1) to develop and enforce competency based requirements for the employment of special education paraprofessionals, (2) to provide opportunities for quality professional development for these individuals, and (3) to ensure that special education teachers are adequately trained to fulfill their mandated supervisory responsibilities with respect to paraprofessionals.

Economic factors during recent years have forced many school systems to consider alternative cost effective service delivery models to meet the needs of students with disabilities. For many systems this has contributed to the increased utilization of paraprofessionals (also referred to as paraeducators, teacher aides or educational technicians) in their efforts to meet these challenges (Deardorf, Glasenapp, Schalock, & Udell, 2007; Downing, Ryndak, & Clark, 2000; Fenner, 2005; Giangreco, Edelman, & Broer, 2003; Riggs & Mueller, 2001). It has long been believed that when properly trained and supervised, paraprofessionals could provide an efficient and cost effective way for supporting students with disabilities (Ashbaker & Morgan, 2006; Downing, Ryndak, & Clark, 2000; Etscheidt, 2005). Few would disagree that the increased demands for special education services, lack of certified special education teachers, emphasis on regular classroom placement (inclusion), and accountability factors driven by the Individuals with Disabilities Act (IDEA) have influenced the ever-increasing role that paraprofessionals play in the delivery of educational services to students with disabilities (Downing, Ryndak, & Clark 2000; Giangreco, Edelman, & Broer 2003; Riggs & Mueller, 2001). This is especially evident in rural areas where cost-effective service delivery models and the dynamics of the efficiency of scale as it relates to student/teacher ratios when dealing with low incidence disabilities are unusually demanding (Bugaj 2002, as cited in Deardorf, 2007). Regrettably, prior research has shown that many paraprofessionals have not had much formal training in instructing students with disabilities, and further, contrary to IDEA requirements, they generally have received minimal supervision (Downing, Ryndak, & Clark, 2000; Etscheidt, 2005; Giangreco, Broer, & Edelman, 2002).

The reauthorization of IDEA 2004 requires that states ensure that all personnel needed to provide special education services are adequately prepared and trained and, in addition, that paraprofessionals be appropriately supervised (IDEA 20 U.S.C. 1412(a) (14). IDEA addresses the issue of personnel standards by requiring states to address identified needs for inservice and preservice training to ensure that personnel, including paraprofessionals, possess the skills and knowledge necessary to meet the needs of students with disabilities. How this requirement was to be met was essentially left up to the
individual states. Picket (1999) reported that although IDEA required that states ensure that paraprofessionals are appropriately trained and supervised most states had not adequately addressed this issue. Picket further reported that IDEA regulations offer minimal guidance and direction as to what constitutes appropriate training and supervision to local schools. Some states have initiated standards for paraprofessionals (Education Commission of the States, 2006). However, many others have not.

States such as Minnesota, Utah, Vermont and Wisconsin have developed exemplary models for preservice and inservice training as well as for the supervision of paraprofessionals. However, no research could be found in the professional literature which suggests that training and supervisory practices for paraprofessionals has significantly changed within most states since the implementation of IDEA in 2004.

A number of states have been proactive and have developed extensive competency based programs supporting paraprofessionals, some going so far as mandating the completion of a formal certification programs as a condition for licensure. Other states have standards which are not as clear and are not necessarily competency based. As an example, Maine has certification standards for three levels of special education paraprofessionals who are called Educational Technician I, II, III (State of Maine. n.d.). All three levels contain education requirements, permitted responsibilities, and supervision requirements. See Figure 1.

**Figure 1**

Maine Department of Education

<table>
<thead>
<tr>
<th>Educational Technician Requirements, Permitted Responsibilities, Required Supervision</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Requirements</strong></td>
</tr>
<tr>
<td>Educational Technician I: Hold a high school diploma or GED.</td>
</tr>
<tr>
<td>Educational Technician II: document a minimum of 60 credits of approved study in an educationally related field; or, for career and technical education authorization, document a minimum of two years of paid applied employment within the field of assignment.</td>
</tr>
<tr>
<td>Educational Technician III: document a minimum of 90 credits of approved study in an educationally related field; or, for career and technical education authorization, document a minimum of three years of paid applied employment within the field of assignment.</td>
</tr>
</tbody>
</table>

As the information contained in Figure 1 illustrates, each level of paraprofessional certification has specific educational requirements, permitted duties within that level of certification, and required supervision in the performance of those duties. Supervisory requirements range from direct supervision for an Educational Technician I to indirect supervision on a twice-weekly basis for an Education Technician III. However, none of the educational requirements stipulate any knowledge or competencies in the area of special education which could lead one to conclude that often the least qualified personnel are in a position of providing the majority of instruction and related services to
students presenting the most complex learning challenges (Brown, Farrington, Zeigler, Knight, & Ross, 1999; Etscheidt, 2005; Riggs & Mueller, 2001).

The use of paraprofessionals in the education of students with disabilities has not been without its controversies (Giangreco et al., 2002) questioned if it were not a double standard when regular education students receive instruction from certified teachers while, at the same time, many students with disabilities receive their instruction from paraprofessionals. Few would argue that special education paraprofessionals are being utilized as a key service delivery model for educating students with disabilities and that they are being given a high level of responsibility in this process -- frequently without much training or support.

As a result of this situation many legal issues and ethical concerns have emerged concerning the adequacy of paraprofessionals’ supervision and training (Etscheidt, 2005). Among the most prominent of these concerns expressed in the literature include:

- Least qualified individuals, paraprofessional, often have primary teaching responsibilities for the most challenging students;
- The most complex teaching strategies often are implemented by untrained or poorly trained paraprofessionals;
- Paraprofessionals often lack academic qualifications and competencies for the performance of their duties;
- Special education teachers often are untrained, undertrained, or are hesitant to direct or supervise paraprofessionals (Brown, Farrington, Ziegler, Knight, & Ross, 1999; Downing, Ryndak, & Clark, 2000; Giangreco, Edelman, Luiselli, & MacFarland, 1997; Giangreco, Broer, & Edelman, 2001; Giangreco & Broer, 2003; Marks, Shrader & Levine, 1999; Mueller 2002; Wallace, Shin, Bartholomay & Stahl, 2001).

The purpose of this study was to investigate the perceptions of paraprofessionals in a rural state, Maine, relative to (1) the adequacy of their past training, (2) the preparation for the instruction of current students, (3) the adequacy of their supervision, (4) the effectiveness of that supervision and, (5) their perceived training needs.

Method
Initial Preparation:
A review of the literature was conducted to identify factors, issues and concerns of special education paraprofessionals with respect to their roles, responsibilities, preparation, supervision and perceived training needs. In addition several interviews were held with practicing paraprofessionals, special education teachers, and special education directors to solicit their opinions and suggestions regarding the current status and condition of paraprofessionals in Maine public schools. Paraprofessionals were queried as part of an ongoing staff development program delivered by the author as well as the special education teachers and directors from the 7 school districts in which they were employed. Based upon that information a draft survey instrument was developed.

The draft instrument was reviewed by University of Maine faculty members for clarity, relevancy, and improvements relative to construction. Upon completion of this review and the changes that resulted from such, a further revised instrument was developed and sent to 25 practicing paraprofessionals as part of a pilot study. All 25 participants in the pilot phase completed and returned the instrument. Upon review of all comments and suggestions provided by these participants a 91 item instrument was developed and titled Maine Special Education Technicians Survey (SETS) (Breton, 2009).

Participants
In the fall of 2008 the Maine Department of Education listed 5,430 paraprofessionals (called education technicians) endorsed as working in Maine public schools. These educational technicians were classified in three categories: Education Technician I (n=1,368), Education Technician II (n=1,776), and Education Technician III (n=2,286). A mailing list of the public school K-12 Educational Technicians was obtained from the Maine Department of Education. In January 2009 the survey instrument (SETS) was mailed to a random stratified sample of 750 individuals who were listed as holding a paraprofessional (education technician) endorsement.

Instrumentation
The instrument developed for this study (Special Education Technicians Survey (SETS) consisted of
four major parts: (1) basic demographics including training, experience, and current role and responsibilities; (2) perceptions of the extent and usefulness of supervision and performance evaluation by regular education and special education teachers; (3) perceptions regarding current knowledge level required to perform their duties; and (4) perceptions regarding recent training, and perceptions of current training needs.

The ten page SETS instrument solicited responses to 91 objective items. Major portions of the instrument utilized a 5-point Likert-type scale to assess respondents’ perceptions. It also provided the opportunity for respondents’ commentary and recommendations regarding topics for additional training and recommendations for improving services to their students with special needs. Potential respondents were guaranteed that their responses would be treated with total confidentiality and that only aggregate data would be reported. However, all potential respondents were given the opportunity to include their names and contact information on the bottom of the survey form should they wish to receive a copy of the final study report.

Results

Procedures for Reporting and Analyzing Data:
Of the 750 SETS questionnaires that were sent to special education technicians throughout Maine, two hundred and sixty (260) survey forms were returned. Two survey forms were rejected due to lack of sufficient information. Thus, the final study sample consisted of 258 respondents, representing a return rate of 34 percent (34%). Returned questionnaires were coded, tabulated, and entered into a program written utilizing the SPSS (Statistical Package for the Social Sciences) system at the University of Maine at Presque Isle.

Since the information gathered from the SETS was essentially descriptive in nature it was decided that simple and combined percentage presentations and rank ordering, where appropriate, would most efficiently and effectively portray the significance of collected dated. Also, it was determined that this particular format chosen to present the data would allow for the most meaningful understanding and reflection of the information by readers. Data from the survey were computed with alpha set at .05. Mean scores were computed and group means were analyzed using ANOVA to test differences among subgroups. The percentage values reported throughout this article reflect the percent of responses actually provided for a given variable (valid percent). A respondent’s blank response was recorded as missing data.

In attempting to analyze and report the data (e.g., response patterns, trends, etc.) in the most meaningful manner, certain arbitrary decisions were made by the researcher. For example, rather than simply report respondents’ responses in terms of raw data, certain Likert-scale items were combined in constructing various tables. As an illustration, in the section asking respondents to assess how helpful they perceived the consultation that they received from the special education teacher regarding direct student instruction, the not helpful and somewhat helpful categories were combined and treated as one category. Thus, the total percentage of paraprofessionals who viewed a specific variable in either of these two categories was combined and rank orders were established upon this procedure.

Limitations of the Study:
As with most survey research, the issue of generalization of the findings is posed. In this study, for example, the question arises, how generalized are the perceptions of the study sample respondents to the population of the education technicians in Maine? It should be noted that the sample return approximated the total population percentage in regard to the level of certification Tech I-II-III with a higher percentage return rate for Tech III. Also, even though the response rate for this study (34%) was considered very good, given the length and complexity of the survey instrument, the fact remains that approximately two-thirds of those who were sent the survey did not respond.

Finally, as suggested by some, attitudinal research can be somewhat suspect given that the results obtained might be considered to be reflective of respondents’ biases, hidden agendas, and/or lack of accurate or inadequate information rather than representing reality. Much of the information contained in this study reflects perceptions of the respondents and it is recognized that they may not necessarily represent the reality of situations. The limitations cited above are recognized by the investigator as possibly existing in this study, and readers are cautioned against attempting to over-generalize its results.
Personal, Professional, and Demographic Data:
Information was compiled into several categories to help provide a description of the study participants. These categories include, gender, age, level of education, level of certification, and years of experience as a paraprofessional. This information is contained in Table 1.

Table 1
Personal and Professional Profile of Respondents

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
<th>Percentage of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>40</td>
<td>15.5%</td>
</tr>
<tr>
<td>Female</td>
<td>218</td>
<td>84.5%</td>
</tr>
<tr>
<td>Total</td>
<td>258</td>
<td>100%</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-29</td>
<td>24</td>
<td>9.3%</td>
</tr>
<tr>
<td>30-39</td>
<td>38</td>
<td>14.9%</td>
</tr>
<tr>
<td>40-45</td>
<td>86</td>
<td>33.3%</td>
</tr>
<tr>
<td>50+</td>
<td>110</td>
<td>42.7%</td>
</tr>
<tr>
<td>Total</td>
<td>258</td>
<td>100%</td>
</tr>
<tr>
<td>Level of Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School</td>
<td>29</td>
<td>11.2%</td>
</tr>
<tr>
<td>Non Degree College</td>
<td>62</td>
<td>24.0%</td>
</tr>
<tr>
<td>Associate Degree</td>
<td>60</td>
<td>23.3%</td>
</tr>
<tr>
<td>Bachelor Degree</td>
<td>98</td>
<td>38%</td>
</tr>
<tr>
<td>Graduate Degree</td>
<td>9</td>
<td>3.5%</td>
</tr>
<tr>
<td>Total</td>
<td>258</td>
<td>100%</td>
</tr>
<tr>
<td>Type of Credential</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technician I</td>
<td>57</td>
<td>22.1%</td>
</tr>
<tr>
<td>Technician II</td>
<td>59</td>
<td>22.9%</td>
</tr>
<tr>
<td>Technician III</td>
<td>142</td>
<td>55%</td>
</tr>
<tr>
<td>Total</td>
<td>258</td>
<td>100%</td>
</tr>
<tr>
<td>Years of Experience</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>18</td>
<td>7.0%</td>
</tr>
<tr>
<td>2</td>
<td>31</td>
<td>12.0%</td>
</tr>
<tr>
<td>3</td>
<td>19</td>
<td>7.4%</td>
</tr>
<tr>
<td>4-6</td>
<td>51</td>
<td>19.8%</td>
</tr>
<tr>
<td>7-9</td>
<td>55</td>
<td>21.3%</td>
</tr>
<tr>
<td>10+</td>
<td>84</td>
<td>32.6%</td>
</tr>
<tr>
<td>Total</td>
<td>258</td>
<td>100%</td>
</tr>
</tbody>
</table>

An inspection of the information contained in Table 1 reveals that: (1) females by far outnumbered males in the sample population (females’ n= 218, males n=40); (2) seventy-six percent (76%) of the respondents were over the age of 40; (3) 34.2% did not have a post-high school degree. In addition it was found that the majority of respondents (55.5%) were credentialed as an Education Technician III; and 73.7% had more than four years of experience as an education technician.

Table 2
Gender Differences Between Education Technicians’ Age, Education, Certification Level and Experience

<table>
<thead>
<tr>
<th>Category</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-29</td>
<td>6 (15.0%)</td>
<td>18 (8.3%)</td>
</tr>
<tr>
<td>30-30</td>
<td>6 (15.0%)</td>
<td>32 (14.7%)</td>
</tr>
<tr>
<td>40-49</td>
<td>11 (27.5%)</td>
<td>75 (34.3%)</td>
</tr>
<tr>
<td>50+</td>
<td>17 (42.5%)</td>
<td>93 (42.7%)</td>
</tr>
<tr>
<td>Total</td>
<td><strong>40 (100%)</strong></td>
<td><strong>218 (100%)</strong></td>
</tr>
<tr>
<td>Education:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School</td>
<td>0 (0%)</td>
<td>29 (13.4%)</td>
</tr>
<tr>
<td>Non Degree College</td>
<td>9 (22.5%)</td>
<td>53 (24.3%)</td>
</tr>
<tr>
<td>Associate Degree</td>
<td>7 (17.5%)</td>
<td>53 (24.3%)</td>
</tr>
<tr>
<td>Bachelor Degree</td>
<td>23 (57.5%)</td>
<td>75 (34.4%)</td>
</tr>
<tr>
<td>Graduate Degree</td>
<td>1 (2.5%)</td>
<td>8 (3.6%)</td>
</tr>
<tr>
<td>Total</td>
<td><strong>40 (100%)</strong></td>
<td><strong>218 (100%)</strong></td>
</tr>
<tr>
<td>Current Maine Certification</td>
<td>3 (7.5%)</td>
<td>54 (24.8%)</td>
</tr>
</tbody>
</table>

No discernable difference in age were found between the genders, but when looking at other variables some gender differences were evident: (1) males (77.5%) were more likely to hold a post-high school degree than were females (62.3%); (2) females (28.4%) were far more likely to hold an Education
Technician I certification than were males (7.5%); and (3) males (72.5%) were more likely to hold an Education Technician III credential than were females (51.8%). See Table 2 previous page.

Frequency and Effectiveness of Supervision and Instructional Consultation:
Both federal and state regulations mandate that special education paraprofessionals be appropriately supervised in the performance of their duties. As a component of this study respondents were asked to respond to how often they were evaluated by the special education teacher, how often they received consultation from the special education teacher regarding the direct instruction of students, and how helpful were those activities with respect to their job performance. Participant responses to these questions are presented in Tables 3, 4, and 5).

Table 3
Frequency of Performance Evaluation of Technicians by Special Education Teacher

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Technician I</th>
<th>Technician II</th>
<th>Technician III</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weekly</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>1 (0.7%)</td>
<td>1 (0.4%)</td>
</tr>
<tr>
<td>Twice Monthly</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>1 (0.7%)</td>
<td>1 (0.4%)</td>
</tr>
<tr>
<td>Monthly</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Quarterly</td>
<td>1 (1.8%)</td>
<td>1 (0.7%)</td>
<td>1 (0.7%)</td>
<td>3 (1.2%)</td>
</tr>
<tr>
<td>Semi-Annually</td>
<td>4 (7.0%)</td>
<td>5 (8.5%)</td>
<td>9 (6.3%)</td>
<td>18 (7.0%)</td>
</tr>
<tr>
<td>Annually</td>
<td>29 (50.9%)</td>
<td>33 (55.9%)</td>
<td>71 (50.0%)</td>
<td>133 (51.6%)</td>
</tr>
<tr>
<td>Never</td>
<td>23 (40.4%)</td>
<td>20 (33.9%)</td>
<td>59 (41.5%)</td>
<td>102 (39.5%)</td>
</tr>
<tr>
<td>Total</td>
<td>57 (100%)</td>
<td>59 (100%)</td>
<td>142 (100%)</td>
<td>258 (100%)</td>
</tr>
</tbody>
</table>

As the information contained in Table 3 shows, a substantial percentage (39.5%) of education technicians in all certification categories report that they never are evaluated by the special education teacher (Tech I - 40.4%; Tech II - 33.9%; and Tech III- 41.5%). One might infer from this finding that those education technicians with the least amount of training (Education Technicians I and Education Technicians II) receive the least amount of evaluation with respect to their job performance. One could argue that these are the individuals who should be receiving the most feedback regarding their job performance.

How often do education technicians receive consultation from their special education teachers regarding the direct instruction of their students? Respondents’ perceptions regarding this question are contained in Table 4.

Table 4
Frequency of Special Education Teacher Consultation Regarding Direct Student Instruction by Type of Education Technician Certification

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Technician I</th>
<th>Technician II</th>
<th>Technician III</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily</td>
<td>16 (28.1%)</td>
<td>21 (35.6%)</td>
<td>37 (26.1%)</td>
<td>74 (28.7%)</td>
</tr>
<tr>
<td>Weekly</td>
<td>21 (36.8%)</td>
<td>18 (30.5%)</td>
<td>43 (30.3%)</td>
<td>82 (31.8%)</td>
</tr>
<tr>
<td>Twice Monthly</td>
<td>0 (0%)</td>
<td>3 (5.1%)</td>
<td>13 (9.2%)</td>
<td>16 (6.2%)</td>
</tr>
<tr>
<td>Monthly</td>
<td>6 (10.5%)</td>
<td>4 (6.8%)</td>
<td>6 (4.2%)</td>
<td>16 (6.2%)</td>
</tr>
<tr>
<td>Quarterly</td>
<td>5 (8.8%)</td>
<td>1 (1.7%)</td>
<td>7 (4.9%)</td>
<td>13 (5.0%)</td>
</tr>
<tr>
<td>Semi-Annually</td>
<td>1 (1.8%)</td>
<td>2 (3.4%)</td>
<td>4 (2.8%)</td>
<td>7 (2.7%)</td>
</tr>
<tr>
<td>Annually</td>
<td>1 (1.8%)</td>
<td>1 (1.7%)</td>
<td>7 (4.9%)</td>
<td>9 (3.5%)</td>
</tr>
<tr>
<td>Never</td>
<td>7 (12.3%)</td>
<td>9 (15.3%)</td>
<td>25 (17.6%)</td>
<td>41 (15.9%)</td>
</tr>
<tr>
<td>Total</td>
<td>57 (100%)</td>
<td>59 (100%)</td>
<td>142 (100%)</td>
<td>258 (100%)</td>
</tr>
</tbody>
</table>

As can be seen from the information represented in Table 4, the frequency of special education teacher and paraprofessional consultation with respect to direct student instruction activities appears quite high.
(60.5% of the respondents indicated that they had interaction with their special education teacher at least on a weekly basis). Nevertheless, a further inspection of Table 4 reveals a finding that could be considered as quite disturbing. Forty-one respondents (15.9%) indicated that they never received consultation regarding the direct instruction of their students. In analyzing whether or not any differences existed among the certification levels of respondents with respect to the frequency of consultation, no substantial difference were found with approximately 65% (64.9%) of Education Technicians I reported receiving consultation regarding direct student instruction on a weekly or daily basis, while 66.1% of Education Technicians II and 56.4% of Education Technicians III respondents reported receiving this type of consultation on either a weekly or daily basis.

How helpful did the study participants perceive the consultation that they received from their special education teacher regarding direct instruction activities for their students? Their responses to this question are included in Table 5.

**Table 5**

**Education Technicians Perceptions: Helpfulness of Special Education Teacher Consultation Regarding Direct Student Instruction**

<table>
<thead>
<tr>
<th>Degree of Helpfulness</th>
<th>Technician I</th>
<th>Technician II</th>
<th>Technician III</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Helpful</td>
<td>2 (4.0%)</td>
<td>1 (2.0%)</td>
<td>5 (4.3%)</td>
<td>8 (3.7%)</td>
</tr>
<tr>
<td>Somewhat Helpful</td>
<td>5 (10.0%)</td>
<td>3 (6.0%)</td>
<td>17 (14.5%)</td>
<td>25 (11.5%)</td>
</tr>
<tr>
<td>Helpful</td>
<td>19 (38.0%)</td>
<td>17 (34.0%)</td>
<td>45 (38.5%)</td>
<td>81 (37.3%)</td>
</tr>
<tr>
<td>Very Helpful</td>
<td>14 (28.0%)</td>
<td>17 (34.0%)</td>
<td>34 (29.1%)</td>
<td>65 (30.0%)</td>
</tr>
<tr>
<td>Extremely Helpful</td>
<td>10 (20.0%)</td>
<td>12 (24.0%)</td>
<td>16 (13.7%)</td>
<td>38 (17.5%)</td>
</tr>
<tr>
<td>Total</td>
<td>50 (100%)</td>
<td>50 (100%)</td>
<td>117 (100%)</td>
<td>217 (100%)</td>
</tr>
</tbody>
</table>

* Table includes responses from only those participants who indicated they had received consultation regarding Direct Student Instruction

As the information in Table 5 shows, the 217 respondents who did receive some sort of consultation involving direct instruction with their assigned students, 33 (15.2%) indicated that this consultation was less than helpful. Overall, of the 74 respondents (41 who did not receive consultation at all and the 33 whose consultation was viewed as less than helpful) over a quarter of them (28.7%) reported that they had unsatisfactory or no consultation regarding the direct instruction activities for their students that they received from their special education teachers. Conversely, on a much more positive note, the majority of respondents (84.8%) who did receive consultation on direct instruction judged this activity to be helpful to extremely helpful (Education Technicians I - 86%; Education Technicians II 92%; and Education Technicians III - 80.5%).

**Preparation and Perceived Training Needs**

In a previous study, Trautmen (2004) reported that the preservice preparation and ongoing development of special education paraprofessionals was inadequate. In general, special education paraprofessionals obtained their preparation for their occupation through limited preservice activities, on the job training, and inservice programs. This study investigated the extent and perceptions of the value of prior preparation and training of respondents as well as their perceived needs regarding current training.

**Table 6**

**Perceptions of Respondents Regarding Adequacy of their Preservice Preparation by Level of Certification**

<table>
<thead>
<tr>
<th>Level of Adequacy</th>
<th>Technician I</th>
<th>Technician II</th>
<th>Technician III</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Poor</td>
<td>3 (5.3%)</td>
<td>1 (1.7%)</td>
<td>12 (8.5%)</td>
<td>16 (6.2%)</td>
</tr>
<tr>
<td>Poor</td>
<td>9 (15.8%)</td>
<td>10 (16.9%)</td>
<td>22 (15.6%)</td>
<td>41 (16.0%)</td>
</tr>
<tr>
<td>Fair</td>
<td>18 (31.6%)</td>
<td>13 (22.0%)</td>
<td>31 (22.0%)</td>
<td>62 (24.1%)</td>
</tr>
<tr>
<td>Good</td>
<td>19 (33.3%)</td>
<td>19 (49.2%)</td>
<td>45 (31.9%)</td>
<td>93 (36.2%)</td>
</tr>
<tr>
<td>Excellent</td>
<td>8 (14.0%)</td>
<td>6 (10.2%)</td>
<td>31 (22.0%)</td>
<td>45 (17.5%)</td>
</tr>
<tr>
<td>Total</td>
<td>57 (100%)</td>
<td>59 (100%)</td>
<td>141 (100%)</td>
<td>257 (100%)</td>
</tr>
</tbody>
</table>
Study participants were asked to assess their level of satisfaction with their previous training regarding their ability to carry out the duties and responsibilities of their current position. Respondents were asked to assess the adequacy of their previous preparation on a scale from (1) very poor to (5) excellent. Responses to this query are presented in Table 6 above.

As can be seen from information contained in Table 6, when asked about the adequacy of their prior training activities, 46.3 percent of the respondents indicated that their perception of the adequacy of their training to instruct their students was very poor to fair. The greatest levels of dissatisfaction with their previous training were reported by Educational Technicians I (52.7%). Education Technicians II (40.6%) and Education Technicians III (46.1%) reported a lesser degree of satisfaction with their previous training. Nevertheless, it is suggested that these overall results provide evidence that almost one-half (46.3%) of the participants assessed their previous preparation as being only fair or better.

When asked if they had received the necessary on the job training to work with their students 75 (29.0%) indicated that they were uncertain to strongly disagree with that statement. This was fairly consistent among the three level of certification with Technician I’s (26.4%) indicating minimal training, Technician II’s (22.1%) and Technician III’s (33.1%).

Participants were asked to indicate how many clock hours of professional inservice development training that they received during the past 12 months. Their responses to this question are summarized in Table 7.

<table>
<thead>
<tr>
<th>Clock Hours of Inservice</th>
<th>Technician I</th>
<th>Technician II</th>
<th>Technician III</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>3 (5.3%)</td>
<td>4 (6.8%)</td>
<td>22 (15.6%)</td>
<td>29 (11.3%)</td>
</tr>
<tr>
<td>1-2 hours</td>
<td>10 (17.5%)</td>
<td>8 (13.6%)</td>
<td>19 (13.5%)</td>
<td>37 (14.4%)</td>
</tr>
<tr>
<td>3-6 hours</td>
<td>8 (14.0%)</td>
<td>9 (15.3%)</td>
<td>13 (9.2%)</td>
<td>30 (11.7%)</td>
</tr>
<tr>
<td>7-9 hours</td>
<td>5 (8.8%)</td>
<td>7 (11.9%)</td>
<td>16 (11.3%)</td>
<td>28 (10.9%)</td>
</tr>
<tr>
<td>10+ hours</td>
<td>31 (54.4%)</td>
<td>31 (52.5%)</td>
<td>71 (50.4%)</td>
<td>133 (51.8%)</td>
</tr>
<tr>
<td>Total</td>
<td>57 (100%)</td>
<td>59 (100%)</td>
<td>141 (100%)</td>
<td>257 (100%)</td>
</tr>
</tbody>
</table>

As an examination of the information contained in Table 7 shows, 133 Education Technicians (51.8%) reported receiving ten or more hours of in-service training. However, what is particularly disturbing is that 37 Education Technicians (14.4%) indicated that they received only one-two hours of training while another 29 Education Technicians (11.3%) reported that they hadn’t received any training at all.

These findings were surprising in that Maine school systems have 3-5 days each year dedicated to professional staff development. Upon further investigation, however, it was discovered that many school districts do not pay their paraprofessionals to attend staff development sessions as they do for the professional teaching staff. Clearly, this may explain why so many Education Technicians did not participate in in-service training programs even if they were in fact offered.

Perceived Current Training Needs
Respondents were provided with an opportunity to reply to the following open ended question: The two most important topics in which I currently would like more training are the following: Responses consisted of 378 items which were clustered, categorized and tabulated.

Overwhelmingly, the single topic for current needed training that was most frequently cited by Education Technicians was dealing with student behavior, emotional, and social challenges. One hundred and sixty-four (164) respondents (43.4%) cited this topic.

The second most cited topics were issues dealing with special education rules and regulations and the use of technology and adaptive equipment (n= 30; 7.9%) for each of these topics. Reading instruction was mentioned by 27 respondents (7.2%), while the topics: information about autism and math
instruction each were cited by 26 respondents (6.9%). Twenty-one (21) respondents (5.5%) mentioned communication skills as a topic for needed in-service training.

It is clearly evident that the primary concern of Education Technicians who responded to the open-ended training was how to work with students displaying behavioral, emotional, and/or social challenges. This finding is not surprising if one takes into account that Education Technicians are typically assigned to work with students with the most challenging behaviors. This particular finding was further verified in another study question in which 63.5 per cent of the respondents indicated either a major (39.9%) or critical need (23.6%) when asked ‘What are your training needs in assisting students with behavioral difficulties?’

In terms of personal/professional demographics, the profile characteristics of special education paraprofessionals have not appreciably changed since 2001 when a national survey conducted by SPeNSe found that the typical special education paraprofessional was a 44-year-old female with 6.5 years of experience in special education. The findings in this study of Maine paraprofessionals indicated 84 percent are female; 76 percent are age 40 or above; with 53.9 percent having more than 6 years of experience. One could speculate that for many of these individuals the position of paraprofessional represents a secondary income for the family and complements the schedule of mothers with school age children.

With respect to the issue of evaluation and supervision, it is implicit in the requirements of both NCLB and IDEA that paraprofessionals be formally supervised by qualified credentialed professionals. Results of this study indicated that a substantial number of participants (39.5%) stated that they never have had a performance evaluation. These findings are similar to those of Gerber et al. (2001) and Wallace (2003) suggesting that even with the strong wording contained in both NCLB and IDEA that little has changed with respect to the supervision of special education paraprofessionals during the past seven years.

With the current emphasis on teacher and student accountability regarding instruction, it is imperative that paraprofessionals, as key players in the academic programs for students with disabilities, be closely supervised in the performance of those duties. This might be particularly important in those schools in which the principle of full inclusion of students is practiced and in which the special education teacher functions essentially as a case manager overseeing the activities of many paraprofessionals who work with students in the regular classroom.

Special education paraprofessionals must not only be supervised in the performance of their duties but they also must be guided and consulted in the nuances of instruction for students with disabilities. Findings of this study indicate that 39.5% of the respondents had a direct interaction with the special education teacher on a less than weekly basis and further that 15.9% reported that they never had received consultation on the direct instruction of students from their special education teacher. This finding leads one to conclude that many Education Technicians are essentially left on their own to perform their instructional duties with students.

In their review synopsis of relevant court and procedural guidance, Katsiyannis, Hodge, and Lanford (2000) found that only appropriately trained paraprofessionals supervised by certified trained special education personnel may assist in the provision of special education services to students. Thus, given this stipulation, one then, could reasonably raise the question, are those students who are receiving much of their educational program from paraprofessionals who have been minimally supervised or evaluated by the special education teacher receiving an appropriate educational program?

Training
IDEA 2004 stipulates that paraprofessionals may assist in the provision of special education only if they are appropriately trained and supervised (20 U.S.C. § 1412(a)(14)(b)(iii). Unfortunately IDEA does not provide specific guidance in what is deemed appropriate. IDEA states that the qualifications must be consistent with any state approved or state-recognized certification, licensing, registration, or other comparable requirements that apply to the professional discipline in which those persons are providing special education or related services (20 U.S.C. § 1412(a)(14)(b)(ii). Many states have established competency guidelines for entry level certification and continued training for paraprofessionals while other states have minimal qualifications which often are associated with post secondary courses or passing a standard examination such as PARAPRO.
Neither of these strategies indicate competency in instructing students with disabilities. This study found that 46.3 per cent of the respondents indicated that their perceptions of the adequacy of their initial training to instruct students with disabilities was within the fair to very poor range. When asked about additional training 29.1 per cent of the participants indicated that they were either uncertain or strongly disagreed that they had received the necessary training to work with their current students.

Findings of this study suggest that many special education paraprofessionals are not receiving adequate preservice and/or inservice training and supervision in order for them to perform their duties successfully. These findings are not especially new, having been reported in previous research conducted during the 1990s (e.g., French & Picket, 1997; Giangreco et al. (1997); Marks et al, 1999; Picket (1999). Among the major questions that these researchers asked in their investigations were the very same ones that were raised in this study – with the answers to these questions essentially being the same.

1. Do all state licensing agencies have standards to insure that special education paraprofessionals have the skills and competencies required to work with students with disabilities? [No]
2. Do special education paraprofessionals have adequate and appropriate preservice and inservice training opportunities? [No]
3. Are special education teachers adequately prepared to supervise and perform adequate and appropriate supervision with paraprofessionals? [No]

The public education community cannot deny that special education paraprofessionals have become an increasingly important part of the educational service delivery system for students with disabilities. However, as the findings in this study confirm, paraprofessionals frequently are given responsibilities for which they have not received adequate training. Thus, one could continue to argue that the least qualified school instructional personnel frequently are being used to provide primary instructional supports for students with the most complex educational needs and challenges.

This is a fundamental issue that must be addressed. The need for competent special education paraprofessionals presumably will become even greater as the requirements of NCLB and IDEA 2004 for increased student academic accountability become more entrenched within our educational systems. Similar to special education teachers, special education paraprofessionals increasingly will be required to demonstrate basic instructional competencies as determined by clearly defined standards.

All states currently have specific certification standards for special education teachers regarding clear mechanisms for demonstrating instructional competencies as well as regulations for their ongoing professional development. Yet, many states presently have very loose practices for paraprofessionals with respect to these same standards. Thus, it is suggested that, at the very minimum, the education credentialing agencies in all states develop specific basic entry level competencies for paraprofessionals that are based upon standards similar to those cited in The CEC paraeducator standards workbook developed by the Council for Exceptional Children (2004). In addition, it is recommended that state and local school agencies establish ongoing professional development opportunities for special education paraprofessionals. States such as Iowa, North Dakota, Utah and Wisconsin have established such training opportunities for paraprofessionals and it is suggested that other states might want to follow their lead in this regard.

Although IEP teams are responsible for the identification, placement, planning, and program design for students with disabilities, it is the special education teacher, as the professional, who is responsible for the instruction, assessment, and accountability factors in the students’ educational programs. However, as these responsibilities increase and become more complex and time consuming for the special education teacher, it appears only reasonable to assume that special education paraprofessionals will be expected to play even a greater role than they do now with respect to the overall instructional service delivery system for students with disabilities. Thus, states and local education school districts must take the necessary steps to assure that special education paraprofessionals receive the appropriate and quality levels of supervision that will be required of them to perform their duties. Findings in this study confirmed previous research findings, indicating that many paraprofessionals receive minimal, or no, supervision and that the quality of that supervision frequently is inadequate.

Perhaps, as has been reported in several previous studies (Drecktrah, 2000; Etscheidt, 2005; French, 1998) the problem lies with the lack of knowledge and skills that many special education teachers
possess with respect to the supervision of paraprofessionals. If as French (2003) asserts, special education teachers have not been adequately trained in supervision, they should learn those strategies as part of their preservice training program. Although it is likely that preservice special education teacher preparation programs include components of supervision in their courses, it is evident from the results obtained in this study (and supported by other studies) that special education teachers either do not accept that role or are uncomfortable with performing that important function.

In conclusion, as the cost of special education services continue to increase rural school districts will be challenged in finding ways to cut costs and continue to offer equitable services. Few would disagree that in most rural school districts paraprofessionals will continue to play an ever-increasing role in the education of students with disabilities. Although many states have been proactive in developing programs and standards related to the professional qualifications of special education paraprofessionals, findings of this and other studies suggest that many small rural states and local education agencies should take a vigorous proactive role in assuring that these vital personnel are qualified and supported by: (1) establishing and mandating competency based qualification standards; (2) ensuring the ongoing availability of quality pre-service and continuing inservice training opportunities; and (3) assuring that consistent appropriate and useful supervision mechanisms are in place. In order to insure that students with disabilities receive services from highly qualified paraprofessionals’ state and local education agencies not currently having comprehensive staff standards related to the professional qualifications of special education paraprofessionals in their relative jurisdictions and make a commitment of resources necessary for change to occur. In these economic times this will indeed be a challenge. However, it is suggested that the end result of these efforts will justify the financial commitment by improving the quality and efficacy of special education paraprofessionals which will unquestionably improve the educational programming for all students with disabilities.

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A SPECIAL EDUCATION TEACHER’S NETWORKS: A FINNISH CASE

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This case study analyzed a special education (SE) teacher’s activity within his workplace community and external professional network in a Finnish special education context. The nature of the SE teacher’s networks and his networking role were examined using an interview and a questionnaire, completed by the teachers working in the community investigated; the methods of social network analysis (SNA) were employed. In addition, the SE teacher’s social embeddedness to his new workplace community was investigated, using event sampling and three interviews. The data were analyzed by qualitative content analysis. The results indicated that the principal participant utilized an SE-related multi-professional network and had very significant roles both as a knowledge source and collaborator. The results also revealed various challenges and obstacles related to his professional portrait, the new workplace and his position within the teacher community. It was concluded that this SE teacher may be characterized as a networked expert, who appears to work at boundary zones between school communities and the outside world, and to rely on hybridized expertise. The study also presents an innovative methodology that can facilitate researchers’ collection of data from SE teachers’ professional communities and complex environments.

Special education (SE) teachers work in multi-professional collaboration across organizational boundaries. They instruct students who have diverse needs regarding educational activity, behavior, and instructional arrangements (Fuchs & Fuchs, 1994); simultaneously, they consult other teachers on pedagogical issues regarding special education (Sugai & Tindal, 1993). Because of the SE teachers’ multifaceted actions, the problem addressed in present study is to examine the networked activity and expertise of an SE teacher, who is called the principal participant. There are, of course, many studies concerning collaboration between SE teachers and various domain experts. For instance, there have been investigations concerning collaboration between an SE teacher and a school psychologist (Arivett, Rust, Brissie, & Dansby, 2007), SE teachers and parents whose children need SE services (Croll, 2001), and relations of parallel SE and regular teaching (Weiss & Lloyd, 2002). The purpose of the present case study, in contrast, is to explicitly address a SE teacher’s expertise and professional activity from a multilevel perspective that integrates quantitative, qualitative, and visual analysis. The present investigators’ aim is to analyze the principal participant’s professional networking connections across three complementary levels by examining his network position in the teacher community, his personal professional network of special education and corresponding pedagogues, and his social embeddedness in a new school community.

Networked expertise and network environments
Expertise is been examined more and more as socially distributed and networked (Hakkarainen, Palonen, Paavola, & Lehtinen, 2004; see also Hakkarainen, Palonen, & Paavola, 2002). The present investigation analyzes the workings of the principal participant’s networked expertise (Hakkarainen et al., 2004) from a socially distributed viewpoint, i.e., we examine his demonstrated, high-level of professional competence as a special educator merging in a suitable environment as evidenced in sustained collaborative efforts to solve problems and build knowledge together with colleagues. An SE
teacher’s expertise as we said earlier, involves multi-layered actions; it can be seen in social interaction, knowledge sharing, and shared problem solving in interaction between individuals, communities, and broader networks (Hakkaraainen et al., 2004). Experts have typically diverse network relations that elicit successful solutions to challenging problems (Nardi, Whittaker, & Schwarz, 2000). Therefore, to obtain expert knowledge concerning their own domain, SE teachers have to create, keep up, strengthen, and dynamically develop multi-faceted network relations.

In the present paper, the network environment created by the selected SE teacher is examined in terms of personal social network (or intentional network; Nardi et al., 2000). Access to knowledge and novel ideas takes place through creating personal networks that cross-organizational boundaries (Nardi et al., 2000). Intentional networks are formed interactively through remembering and communicating, so that individual actors create, strengthen and activate the set of potential relations according to problems and questions they are trying to solve. Even if personal networks are egocentric in nature, they are often partially overlapping; hence a participant often gets access to network connections and resources provided by another agent (Nardi et al., 2000).

Methods of social network analysis (SNA) enable one to examine networked expertise and experts’ environments; these methods model the structures of social interactions, which permit analysis of both the community and individual level and, integrate data on individual attributes with data on interpersonal relations (Palonen & Lehtinen, 2001, 495). A social network consists of a limited number of actors and their mutual relations (see e.g., Marsden, 2005; Wasserman & Faust, 1994). Interacting individual actors can be, e.g., persons or groups; within the present study, actors are persons working in a teacher community, which refers, in this report of the present investigators, to the staff of a school organization responsible for instruction, i.e., teachers and principal. The community members’ mutual networking ties, such as providing advice and pursuing collaboration constitute the teacher community’s social structures. In present study, networked expertise will be examined by analyzing social networks within and outside of the SE teacher’s school. The analysis relies on a who can you reach approach (Lin, 1982, 2003), i.e., who are the actors and resources that the participant is reaching through his or her networks. Besides knowledge resources, people search through social ties for belongingness and collective experiences (Lin, 1982).

Social embeddedness
In the present context, social embeddedness is approached, from our viewpoint, as a socialization process, which enables the actor’s embedding in community’s social relationships, in its networks. The principal participant is a newcomer in his school organization and, therefore, his socialization in school’s social environments is a one of the main processes during the first semester. In an effort to gain an understanding of the relevant features of the organization, the newcomer is an active agent and turns to available information sources, including interpersonal sources, such as supervisor and co-workers (Miller & Jablin, 1991; Reichers, 1987).

As a newcomer spends time getting information from sources, he or she may establish a social support network or become integrated into the informal social network (Ostroff & Kozlowski, 1992). Usually the social support network is formed by certain network participants that a worker usually, more or less deliberately, selects and is able to identify (Shah, 1998). In the present investigation, the process, whereby the principal participant socializes himself in the school and its networks, provides him resources for integrating to the culture of the organization, developing his own professional role, and participating in various collaborative professional activities.

Method
Research questions
The purpose of the present study is to analyze the networked expertise of a selected SE teacher, whom we call the principal participant. In more detail, the present investigator’s aim is to answer the following research questions:

1. What is the SE teacher’s position in his teacher community’s internal networks of knowledge sharing, collaboration and informal interaction?
2. Who are the experts of the SE teacher’s professional network and what are the resources provided by the professional networking connections?
3. What kinds of issues does the SE teacher consider during the socializing process and what kind of support network does he rely on?
Setting and participants
The principal participant was a 46-year-old male SE teacher, who carried out professional duties with a very broad professional scope, i.e., he was an SE teacher in part-time special education; he worked in several schools and with changing student groups. He had functioned as an SE teacher and an SE teacher with a broad work description both in lower and upper primary education and in the vocational sector. He had a total of eight years of professional experience in his professional domain. Before becoming a teacher, he had been working in another occupation.

The SE teacher was a new member in his main school’s teacher community, which included a school principal and 13 teachers (ten females). He functioned part-time also as an SE teacher in two smaller lower-primary schools; in one of them, one day per week, and in another, one day in every two weeks. A detailed description of Finnish special education is provided, for instance, by Kivirauma, Klemelä, and Rinne (2006).

Data collection
Networking questionnaire
Data concerning the teacher community’s internal networking relations were collected by a networking questionnaire based on a name list of the members of the teacher community. This was performed at the end of the spring semester when the SE teacher had participated in the teacher community across eight and half months. The participants were asked to assess, in relation to each other member, the following networking dimensions and mark by x those community members from whom: 1) they ask advice concerning practices of school activity; 2) they ask advice or guidance concerning pedagogical issues; and 3) they get new information or ideas (concerning instructional issues). We further asked: with whom they are in collaboration; and if they have informal interaction (concerning those relationships that include discussions not directly related to their work or school but personal issues, such as family and hobbies). The instructions guided the participants to consider the networking interactions over the preceding six months. The networking dimensions were determined according to earlier studies by the present investigators and their collaborators (Palonen, Hakkarainen, Talvitie, & Lehtinen, 2004).

Beyond the SE teacher, the network questionnaire elicited responses from 12 members of the teacher community; the response rate was 87 %, and eight of the teacher community’s participants were females. Two teachers did not answer the questionnaire, and their data were removed before analysis, because the response rate was at an adequately high level. Five matrices were created to describe the internal relations between participants of the teacher community. These five networks corresponded to the five columns of the network questionnaire and were interpreted as partially overlapping dimensions. Columns 1–3 represent networks of knowledge sharing, and columns 4–5, respectively, networks of collaboration and informal interaction. In the present investigation, the networking relations concerning knowledge sharing are directional in character because they need not be reciprocal in nature. Collaboration and informal interaction are assumed to be reciprocal in character, i.e., acknowledged by both participants, and therefore, symmetric.

Interview of the principal participant regarding his egocentric network
Beyond analyzing the teacher community’s overall social network, we carried out an interview of the SE teacher, regarding his personal, i.e. egocentric, professional network. An egocentric network is one that emerges around a single actor (ego) and often extends beyond the immediate professional community (Marsden, 2005; Wasserman & Faust, 1994). The interview focused on two themes. The first theme includes the names of the professional experts who belonged to the principal participant’s network across the main school’s teacher community and external organizations. The second theme consists of the resources provided by the networking connections. The objective was not to examine the structure of the egocentric network, such as depth and strengths of network connections, but to analyze the existence and content of networking linkages. The interview produced 11 transcribed pages of data. The SE teacher’s egocentric network was also examined visually by paper-and-pencil technique (Hogan, Carrasco, & Wellman, 2007), and the visualization was reconstructed with a computer. A map-like picture was generated without proper names or the ego; it involved only the expert bodies (alters) to which the SE teacher was in a network relation.

Event sampling
We collected data concerning the SE teacher’s social embeddedness in the teacher community through event sampling (Ecological Momentary Assessment, Shiffman, 2000) based on reflective audio notes.
on an MP3 player. The chosen time sample was eight months, the first and major segment of his first year upon entering the new environment. Rather than asking a participant to remember or retrospectively generalize past experiences, the idea of event sampling is to record naturally occurring situations or contexts longitudinally in tens of snapshots of personal experiences and observations concerning the phenomenon of interest (Reis & Gable, 2000). The instructions of event sampling, in the present case, guided the participant to reflect on the following two open questions: 1) What kinds of issues you are considering related to your workplace community, teaching, and the new school? and 2) From whom are you seeking advice concerning the problematic issues? The SE teacher was instructed to make notes whenever issues corresponding the instruction emerge. The first author of this study made monthly visits to the SE teacher’s school and moved the audio files for further analysis. Altogether the principal participant created 47 audio recordings of event sampling across the period. The material corresponded to 41 transcribed pages. The advantage of using an MP3 player was that audio files were given accurate recording dates and times, which made systematic analysis possible.

**Complementary interviews**
Collecting information about the SE teacher’s first year in the teacher community by three, theme interviews with him complemented the event sampling. In two interviews, in the first and the third, and which took place in the beginning of the fall semester and in the end of the spring semester, the principal of the school was also present. This was because the interviews focused on socialization and initiation processes in which both worker as well as his or her supervisor has an essential role. The second interview, which took place at the end of spring semester, the SE teacher was interviewed of two topics, i.e. his adaptation to workplace community as well as his professional work description and role in the main school’s teacher community. The transcribed data consisted of 27 pages.

**Data analysis**

**Social network analysis**
Analysis among teacher colleagues was focused on the teacher community’s knowledge sharing and reciprocal interaction, and the SE teacher’s position in the associated network structures. The teacher community’s internal networks were analyzed with UCINET6 program (Borgatti et al., 2002). The analysis had two foci: 1) analyzing the cohesion of the networks that represent density and centralization of their networking relations; and 2) examining centrality of the participation (Borgatti et al., 2002; Wasserman & Faust, 1994, 167-215).

In order to simplify data analysis, we performed an analysis of QAP correlations (Borgatti et al., 2002) concerning the three matrices of knowledge sharing. The results indicated that the matrices correlated with one another (correlations varied between 0.38 (p < .05) and 0.50 (p < .05)), and we constructed one matrix for knowledge sharing in which the values of cells varied 0–3, by summing up the matrices. In addition, networks of collaboration and informal interaction were symmetrized in such a way that only those networking linkages that were confirmed by both parties were included in analyses.

In the first approach to data analysis, we examined network cohesion from two complementary perspectives. Density characterizes the general cohesion of network, i.e. how large a proportion of all possible ties between the community members are present in the data, whereas centralization indicates cohesion around certain central actors (Scott, 1991, 85).

In the second approach to data analysis, centrality was examined according to Freeman’s degree (Borgatti et al., 2002), which describes the amount of knowledge and interaction that an actor received or provides from other actors (Scott, 1991, 88). Freeman’s degree can be used to assess participants’ socio-cognitive centrality, i.e., how significant a role his or her expertise has within the social network (Burt, 1999). Another measure of centrality used in the context of knowledge sharing networks, was Freeman’s betweenness value, which assists in examining the participants’ activities as socio-cognitive brokers. This value is based on path distance; actors who are often at the shortest path between two other actors who are not directly interacting with one another have high betweenness values (Borgatti et al., 2002).

Further, networking relations were examined using multi-dimensional scaling (MDS). Scaling methods, such as MDS, are used to transform network graphs to metric distance measures that make visible complex network patterns providing visual representations of the networks investigated (Borgatti et al., 2002; Wasserman & Faust, 1994). In analysis, a non-metric analysis that keeps principal components in rank-order (Torsca) was used (Borgatti et al., 2002). The MDS -analysis
concerning knowledge sharing was counted on the valued matrices, where three matrices were combined (symmetrizing method Sum), and collaboration was counted on a matrix (symmetrizing method Minimum). Due to limited data, it was not reasonable to calculate a MDS map for informal interaction, as the SE teacher was not connected to any other worker with a reciprocated tie. Thus, he was socially isolated from the informal teacher community. By considering stress value, one can assess the quality of a MDS map; a low stress value indicates that path distances of the network can be presented in three-dimensional space. However, the value is dependent on the data: the number of actors and the scale of measures. Stress values are represented in Figures 2–3, which were constructed employing M3D program and MDS coordinates, and those values are at an adequately low level (for Figure 2 (0.110) and for Figure 3 (0.000)). There are differences in standards regarding the amount of stress to tolerate in MDS maps; we use here criterion close to the criterion of Borgatti (1997); anything under 0.1 is excellent and anything over 0.15 is unacceptable. The stress value of Figure 2 is acceptable and the stress value of Figure 2 (0.000) indicates that the three dimensions used in MDS analysis give better representations of the collaboration matrix data. The best possible presentation of the data can be achieved by increasing the numbers of dimensions that bring the stress value down to zero. Therefore, zero stress values are possible in three dimensional MDS configurations; as the number of dimensions used goes up, the stress must either come down or stay the same (Borgatti, 1997).

The analysis of the principal participant’s professional network, in contrast, was intended to depict more deeply resources provided by expert connections i.e., who can you reach knowledge. The interview data concerning egocentric networks were analyzed by listing the experts’ networking, his or her background organization and resources provided by the contact.

Qualitative content analysis
Transcribed data from event sampling and interviews were analyzed according to qualitative content analysis. In the first stage, we analyzed event-sampling data. In practice, this meant that all transcribed data were gone through; we sought to find answers to the research questions concerning the third level of analysis, forming subcategories and grouping those categories under themes and those themes under main dimensions. The resulting dimensions were an SE teacher’s professional identity, socialization and practical concerns. These dimensions (bolded) and main themes are below in Figure 1, which depicts a time line describing the SE teacher’s central reflections and practical needs for assistance across the eight-month period. Furthermore, the support network and its actors were analyzed by listing support persons from whom the principal participant had searched for help and advice. The nature of the connections was also determined.

![Figure 1](image)

The figure depicts a timeline, which presents the main themes and practical concerns that the SE teacher reflected on during the eight-month event-sampling period.
In the second stage, the interview data were analyzed using those three dimensions. Analysis revealed that the interview data and event-sampling data included very similar content and complemented one another (the analysis table formed while analyzing interviews is presented in Appendix A). It was decided that the event sampling data were to be taken as our hard data. In results section, transcriptions, translated from Finnish to English, are used to illustrate the analysis.

Results

Level 1: Social networks of the teacher community and the SE teacher’s position

At the first level, we will present the results from the overall teacher community’s networks describing both actor and network level measurements and especially concentrate on SE teacher’s position. It should be mentioned, in the Table 1 concerning knowledge-sharing network, both an actor’s own estimation (out degree) and that of the alters (in degree) are presented. The results rely; however, only on in degrees that represent the centrality of the actor estimated according to incoming ties that the other community members reported. In the cases of collaboration and informal interaction the networks, and consequently the degree values, are symmetrized. It is typical for SNA that some respondents assess the number of their own network ties as relatively large, which consequently overemphasizes their network centrality. Apparently, in degree values and symmetrized degrees provide a more reliable estimate of a person’s centrality.

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<th>Informal Interaction</th>
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<td>In degree (peer report)</td>
<td>Betweenness</td>
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Centralization %

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</tbody>
</table>

Table 1 indicates that the networks of knowledge sharing (65 %) and reciprocal collaboration (64 %) were the most dense network dimensions. In contrast, the network of reciprocal informal interaction was the least dense (23 %). Moreover, the results of the other cohesion analysis indicated that the network dimensions were not very centralized. In the case of the knowledge-sharing network, network centralization was highest (38%). Networks of collaboration (33%) and informal interaction (32%) were even less centralized in that only one third of networking linkages were concentrated around certain actors. It may be concluded that the participants of the teacher community were actively utilizing each other as knowledge sources and committed to reciprocal collaboration, but the informal teacher community did not include many mutual relationships. A summary of density and centrality values of the social networks is presented in Table 1. The SE teacher’s network values are bolded.

In Figures 2–3 closely located actors are engaged in more intensive interaction than actors who are farther away from one another. Color of the node indicates the gender of the actor. Grey indicates
females; white, males; and black indicates the SE teacher. For each node, we provided gender code (M=male, F=female), participant number, and centrality value (indicating how many other actors reported using the teacher in question as a knowledge resource or a collaborator).

Figure 2.
This is a visualization of the teacher community’s network of knowledge sharing (M= 7.8). The matrix has been symmetrized for this analysis. The stress value of MDS analysis is 0.110.

Figure 3.
This figure shows the teacher community’s network of reciprocal collaboration (M= 7.7). The stress value of MDS analysis was 0.000.

Table 1 and Figures 2–3, representing the knowledge sharing and collaboration networks, reveal that there are some actors, such as the principal participant (M11 (SE)), who had significant positions in formal interaction actions; those actors are located in a central position in the graphs, indicating that they carried out the main responsibility for knowledge sharing and collaboration within the community. The SE teacher’s Freeman’s centrality values were relatively high in the cases of knowledge-sharing (10) and collaboration (11) networks. Moreover, the Freeman’s betweenness value provided by Table 1 indicates that the principal participant also had the position of knowledge broker in the knowledge-sharing network. His betweenness measure is the highest of all community members, and it is about two standard deviations higher than the mean. Figures 2–3 demonstrate clearly and visually these central positions of the SE teacher.
In the informal-interaction network the SE teacher is an isolate (centrality value 0, see Table 1). Isolated persons are members of an organization who have very little or no networking contacts with other members and, consequently, are at the periphery of the network (Rogers & Agarwala-Rogers, 1976). From Table 1, it can be inferred that there is another teacher who did not have any reciprocal relations regarding informal interaction. This actor (F4) had one similarity with the SE teacher; they both taught the other teacher’s students and therefore had no class of their own. However, the SE teacher had a central position in knowledge-sharing and collaboration networks, whereas teacher F4 was also at the periphery in both corresponding networks.

**Level 2: Egocentric professional network**

At the level of analysis of the professional network, we will present the results by describing the experts and expert bodies included in the SE teacher’s professional network according to the resources provided by the professional interactions. Figure 4 presents the SE teacher’s egocentric professional network. Within the visual presentation, the same shade of gray is used to identify expert contacts similar in content: dark gray indicates connections to colleagues and comprehensive sharing of special pedagogical information, gray indicates administration of special education related resources, and the lightest gray indicates students and their support-related resources. The ego (the SE teacher) itself is not represented in the figure and the technique does not consider depth or strength of the connections, only existence and contents of the network connections.

![Figure 4. The figure presents the egocentric professional network of the SE teacher in a visual form](image)

In the field of education within the principal participant’s school, the other teachers and school assistants functioned as experts regarding particular students he was working with. This student-related information affected the planning and providing of special education. In addition, the school nurse, school curator, and school psychologist were part of the principal participant’s professional network, and were consulted according to their very specialized expert areas. The curator had specific student-, group-, and classroom-related knowledge and expertise whereas the school psychologist carried information from assessments and investigations concerning students. Moreover, the SE teacher considered the school nurse to be an especially important expert on student-related issues, because of the nurse’s long history in the school. The SE teacher’s within-school network also involved the principal and school secretary as experts of administrative issues. The school secretary, especially, was a link to the provincial department of education.

Further, in the field of social work and health care the Centre of Family Counseling and Child Health as well as the Child Psychiatric Outpatient Department represented bodies external to the school organization that had significant expertise concerning student-related issues. In the case of assessing and investigating students, the Child Psychiatric Outpatient department played an essential role. The social worker of the Centre for Family Counseling and Child Health was an expert with whom the SE teacher kept contact according to the problems concerning students in special education.

The SE teacher named as his experts two colleagues (the SE teachers A and B) in the same town representing the same domain of expertise. While addressing their collaboration, the SE teacher highlighted both professional and social dimensions on those collegial connections. On the one hand,
the principal participant revised knowledge, materials and experiences of special education, and on the other hand the collegial connections provided support and encouragement to do his duties.

**Level 3: The SE teacher’s central reflections and social support network**

We will begin description of the results from the third analysis level by presenting the main themes that the SE teacher reflected on during the event-sampling period. Those can be roughly divided to two categories; the first involves reflections regarding the SE teacher’s professional identity and the nature of special-education teaching. The principal participant contemplated his professional role and content of his work from various perspectives, and we will show that some these reflections are related to SNA results. The second category involved a new employee’s perspective; the SE teacher reflected on his own socialization process and factors that affected the process. After addressing these two main categories of content, we describe practical concerns that emerged during the first semester, while analyzing the content of linkages of the emerging support network.

Event sampling revealed that while reflecting on his professional identity and description, the SE teacher thought of his role in relation to various perspectives. One the one hand, reflected on his role in relation to other teachers:

*I’ve been pleasantly elated when I’ve realized that in this work community the special education teacher is relied upon a lot and considered to be important. They do seem to consider me a kind of an expert in my field, special education that is.*

These reflections and SNA results of the principal participant’s central roles as collaborator and knowledge source corroborate each other. Moreover, the principal participant brought up, in his reflections, the multi-faceted collaborative dimension of his work, which also became visible in SNA results of the overall and particularly in professional networks.

On the other hand, the SE teacher reflected on domains of challenges regarding his professional role and activity. He experienced that his role involved a great many expectations, firstly from parents, and secondly those from other teachers. Furthermore, the principal participant reflected on his own role as an outsider, transformer as well as his professional appreciation from a negative viewpoint. We start with the feeling of being an outsider; this is an intriguing issue if one takes the results of SNA into consideration, which showed that the principal participant was an outsider in the informal teacher community. He truly felt, correctly, rather isolated from other activities of the school:

*That is one problem with special education; the special education teacher might be kind of estranged from the school’s other action, so he easily turns into a kind of freak.*

Feelings of being an outsider were revealed in his reflections concerning organizing and participating in various school-wide events. The SE teacher did not know his own place and role in diverse events, such as Christmas and spring celebrations:

*For example when you go to a celebration or prepare a program, it always happens in a class, and because I don’t have a class, then I’m in a slightly different position compared to the other teachers in the school. I kind of feel like well, where do I belong? Should I go with this class to see the presentation, or should I be part of designed the program and such...*

The SE teacher also saw himself as a transformer. He had noticed that in his profession, there are unexpected and surprising situations, and one has to be flexible and get used to quick and transforming changes, especially in situations, when the principal participant was asked to be a substitute teacher. Consequently, he considered where the limit should be established so that his main task – special education – would not suffer from assisting the others.

Further, the SE teacher considered to what extent his work is valued. The principal participant experienced that his and other SE teachers’ work is highly regarded at the primary level, which can be seen from his central networking roles. He stated, however, that the appreciation was not necessarily present while organizing certain practical things. On the one hand, he reflected that while classroom teachers are provided a classroom substitute for the duration of their sick leave, it does not usually happen in the case of SE teachers. Secondly, the principal participant had problems with his workspace, i.e., the location of his workspace and sharing it, and he brought up a dark side concerning appreciation of special education, because according to him there are many SE teachers who do not have proper work spaces.
The SE teacher reflected on his socialization across the eight months from the perspectives of school community, creation of networking connections required by SE, and official initiation. We start with school community; the principal participant considered, especially, the importance of informal interaction while entering to a new school community and becoming acquainted with its teachers. However, according SNA results, mutual informal interaction between the principal participant and other members of the community was not visible even the end of the semester.

He also reflected on the significance of the creation of his professional network as a new professional in the town and as a representative of expertise in special education:

Yeah, they (the closest colleagues SE teachers A and B) contacted me and we agreed that we’d start to hold regular meetings. And so these have been very important in terms of knowledge acquisition and getting to know people.

Moreover, the SE teacher reflected on various aspects of his initiation to the new school. Firstly, he was thinking about a missing tutor. According to his assessment, initiation would have been more effective if he had been provided a tutor or a mentor teacher who would have assisted in facing those novel issues and challenges related to school practices.

Secondly, he mentioned that, due to the initial information flow, many of the issues introduced during the first weeks were forgotten. According to his reflections, the most important issues in which he needed assistance were related to physical spaces of the school and social practices enacted in the school community.

Here we will take a closer look to those practical concerns mentioned above, regarding the social support network, which involves the main school’s principal, the school secretary, a classroom teacher, a classroom teacher who functioned as ICT support person and another SE teacher who worked in other schools. Three out of these actors (the principal, the school secretary, and the other SE teacher) were also part of the present SE teacher’s egocentric professional network.

From the members of his support network within the main school, the principal was the main initiator of the SE teacher. The contacts involved initiation activities in the beginning of the school year. Besides the main initiator, the SE teacher asked practical help from the school secretary, whom he characterized as his personal counselor regarding practical school-related issues. Also, one of the classroom teachers was an important contact person. From him, the principal participant had obtained assistance and guidance in various issues related to the former’s work. Furthermore, the main school’s ICT support teacher played a crucial role. The SE teacher had, over the event-sampling period, problems and needs for assistance concerning various pieces of technical equipment; consequently, he asked assistance of the ICT support teacher frequently.

From outside of the main school, the SE teacher working in other schools functioned as an important support person. Assistance concerned issues related to special education (investigating how special education services can be funded within the municipality in question) as well as general and practical issues (such as buying a new computer).

**Discussion**

The present study analyzed the selected SE teacher’s networked activity and expertise within his main school and its internal teacher community, and across his external professional network. The results indicated that the principal participant was socially embedded in his new formal teacher community and functioned in the role of expert while having highly regarded positions as a source and a broker of knowledge, and collaborator. Practically all members of the teacher community recognized and utilized the SE teacher’s epistemic resources. The results of event sampling confirmed these findings by providing evidence of the SE teacher’s everyday functioning at school and his collaborative relations with the rest of teachers. Nevertheless, the SE teacher did not have any reciprocal informal interactions within the teacher community of his main school, and, thus, was not embedded in the informal teacher community.

The socialization process does not appear to completely account for the SE teacher’s peripheral position in the network of informal interaction. The reason for being considered as an outsider may be the SE teacher’s relational activity at the boundary zones of schools and the external world, or his professional (McLeod, 1988) as well as physical isolation (Hargreaves, 1992). Such isolation is a
serious problem of SE teachers, and one of the reasons behind this state of affairs is that a SE teacher’s role diverges from those of all other teachers (McLeod, 1988, 248–249). In addition, SE teachers’ isolation may frequently result from the physical environments of schools; SE teachers often have remote work spaces (Hargreaves, 1992, 224–225). Both McLeod’s and Hargreaves’ reports are supported by the present data; event sampling indicated that the SE teacher had problems with the work space, and his role as outsider was especially in evidence when one considers differences in classroom teachers’ and SE teachers’ work descriptions. In this regard, it is relevant that, unlike classroom teachers, SE teachers work in numerous environments with changing student groups.

The SE teacher’s naturally occurring reflections on an expert’s daily activities allowed the present investigators to extend an examination of his professional role beyond his structural position within the social networks. The results of the study suggest, on the one hand, that a great part of the SE teachers’ challenges encountered during the semester was related to clarifying his work description and professional identity. On the other hand, challenges related to practical matters also had a great role. For instance, the present investigation revealed that the SE teacher would have wanted to have a person who assisted in his initiation to the school community and its practices. We propose that, because SE teachers’ work descriptions diverge from those of other teachers, there should be special attention to designing their initiation. For instance, Rollag, Parise, and Cross (2005) have proposed that, rather than asking what a new employee should know, it may be more productive to ask who a new employee should know? Such a question reveals those experts and knowledge brokers with whom the employee has to interact so as the blend into a new workplace community. Nevertheless, for solving his practical problems, the principal participant had selected a few co-workers and the supervisor, who formed his social support network.

In describing the SE teacher’s professional network, we have deliberately examined from whom the SE teacher got professional resources needed for successfully carrying out his work. The results revealed that the SE teacher was mainly engaged in student-centered collaboration and networked with experts representing diverse domains of knowledge. In addition, the event sampling revealed that a part of the SE teacher’s social embeddedness was to build a special-education-related network and create contacts with colleagues working in the same domain of expertise. Overall, experts in workplace communities not only have an extensive knowledge base but also a network that they can personally access or direct other people to when necessary (Lesser & Prusak, 1999). The SE teacher’s position as a central broker (Nardi et al., 2000) in knowledge-sharing activities made it possible for him, presumably, to guide the flow of relevant expert and knowledge resources to his workplace community by relying on diverse contacts outside his immediate social network. Overall, the results indicate that this SE teacher with a broad professional scope may be characterized as a networked expert who is a collaborator dependent on his work community; he identifies resources from the environment according to the evolving needs of the student and appears to rely on hybridized expertise concerning individual students, school practices, pedagogy of special education, administration, psychology, health care, and social work.

In conclusion, we believe this study contributes by presenting an innovative methodology. SNA and event sampling complemented each other; the one analyzed networked expertise at a relational level whereas the other described its contents in everyday practices. However, it is important to find ways to collect data on the relational nature of networked expertise in more detail; for instance, to analyze experts’, such as SE teachers’, professional connections around a specific student case. In addition, one possibility is to use more regular sampling methods and collect such contextual data, which would enable one to revealing experts’ daily practices and networking. Therefore, in the future it is important to investigate how these kinds of complementary methodologies and multi-layered data can be utilized more effectively, for example, in detailed descriptions in analyzing dimensions of an SE teacher’s networked expertise.

References


Appendix A.

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Main themes</th>
<th>Subcategories</th>
</tr>
</thead>
<tbody>
<tr>
<td>An SE teacher’s professional identity</td>
<td>Work description</td>
<td>Being a part of school’s every day life</td>
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<td></td>
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<td>Wide collaboration field</td>
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<td></td>
<td></td>
<td>Challenge areas in special education</td>
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<tr>
<td>Role and position in school</td>
<td>Relied collaborator</td>
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<td></td>
<td>Outsider and isolated</td>
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<tr>
<td></td>
<td>Transformer</td>
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<tr>
<td></td>
<td>Appreciation according to experience and in practical matters</td>
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<tr>
<td>Socialization</td>
<td>School community</td>
<td>Teacher community’s warm and welcoming atmosphere</td>
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<tr>
<td></td>
<td></td>
<td>Meeting student community in informal situations</td>
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<tr>
<td>Official initiation</td>
<td>Lacks in initiation arrangements</td>
<td></td>
</tr>
<tr>
<td>Creation of SE–related connections</td>
<td>Meetings with SE–related professionals</td>
<td></td>
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<tr>
<td>Practical concerns</td>
<td>Equipments and materials</td>
<td>Problems with computer and printer</td>
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<td></td>
<td></td>
<td>Finding materials and using equipments</td>
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<tr>
<td></td>
<td>Participation</td>
<td>Teachers’ professional development training</td>
</tr>
<tr>
<td></td>
<td>Former’s work</td>
<td>The content of work duties</td>
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<td></td>
<td>Special education budget</td>
<td>Financing practices</td>
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Exclusionary discipline involves the use of suspensions, expulsions, and other disciplinary action resulting in removal from the typical educational environment; it is frequently used as a consequence for inappropriate student behavior. Because this form of discipline is associated with detrimental outcomes, it is of concern that in the United States of America the frequency of use of exclusionary discipline is consistently higher for the racial-minority group of African American students than for the majority racial group. This investigation utilized current district-level data from public schools in the state of Ohio to replicate previously documented findings of disciplinary disproportionality, to examine changes in overall use of exclusionary discipline over time, and to examine changes in disciplinary disproportionality over time. Results of repeated measures multivariate analyses confirm that African American students continue to be overrepresented as recipients of exclusionary discipline. Limitations of this investigation, implications related to public policy, and future directions for research are proposed.

Exclusionary discipline, expulsions and other disciplinary actions which require removal from the typical educational environment frequently have been used as consequences for inappropriate student behavior. In 2006, for example, approximately 3.3 million students (7% of the student population) were suspended and 100,000 students (0.2% of the student population) were expelled from school in the United States (Planty et al., 2009). Unfortunately, rather than promote appropriate behavior, these forms of discipline are associated with a variety of negative outcomes including academic failure (Gersch & Nolan, 1994; Safer, Heaton & Parker, 1981; MacMillan & Reschly, 1998; Rausch & Skiba, 2004), high school drop-out (Costenbader & Markson, 1998; DeRidder, 1990; Ekstrom, Goertz, Pollack, & Rock, 1986; Wehlage & Rutter, 1986), involvement with the juvenile justice system (Chobot & Garibaldi, 1982; Florida State Department of Education, 1995), grade retention (Safer, 1986), and illegal substance use (Swartz & Wirtz, 1990).

Given these detrimental outcomes, coupled with evidence that exclusionary discipline is ineffective at improving student outcomes (Fenning & Rose, 2007), the disproportional overrepresentation of African American students as recipients of exclusionary discipline is cause for concern. This issue was initially described by the Children’s Defense Fund (CDF; 1975) in the first large-scale study to investigate national data on school discipline. Results of the investigation showed African American students as two-to-three times more likely to be suspended than White students across all grade-levels. African American students were significantly more likely to be suspended more than once, were exposed to harsher discipline strategies, and were less likely to receive milder alternatives when referred for a discipline infraction.

Studies over the ensuing decades consistently have supported these results across a wide variety of settings and populations. For example, in a study of one urban and one rural school district, Constenbader and Markson (1998) found that while African American students composed 23% of the student population they represented 45% of those receiving disciplinary actions. Garibaldi (1992) reported similar findings: African American males composed 43% of the students in an urban school district, while receiving 65% of the school district’s suspensions and 80% of the school district’s expulsions. Consistent with these results, Mendez and Knoff (2003) found that African American
males in a large Florida school district experienced approximately 2.5 times as many suspensions per 100 students as White males, and African American females in the same district experienced approximately 3.6 times as many suspensions per 100 students as White females. Other researchers have documented parallel findings (Skiba, Michael, Nardo & Peterson, 2002; Skiba, Peterson & Williams, 1997; Thornton & Trent, 1988; Wu, Pink, Crain & Moles, 1982).

The overrepresentation of African American students in exclusionary discipline is not fully explained by an increased number or severity of problematic behaviors engaged in by African American students. Although some researchers have found differences in the actual level of behavioral functioning between African American and White students (Hosterman, DuPaul & Jitendra, 2008) other research suggests engagement in an equivalent number of problem behaviors (Bahr & Fuchs, 1991). Even when considering the same behavioral offenses, African American students tend to receive harsher consequences for less severe and more subjective offenses (e.g., excessive noise; Skiba et al., 2002). Researchers have also ruled out statistical artifacts as the primary explanation for disproportionality in discipline. Virtually all studies evidence some degree of disproportionality despite the measurement criteria utilized (Skiba et al., 2002). Finally, although poverty does contribute to disproportionality, a strong ethnicity effect remains even after controlling for poverty (Skiba et al., 2002).

Unfortunately, relatively little research has been done to examine longitudinal trends in either general use of exclusionary discipline or disciplinary disproportionality. As a result of several historical events that have occurred since the seminal CDF (1975) study, it can be anticipated that rates of both may reduce in response. For example, the passage of the No Child Left Behind Act (NCLB; 2001) has ushered in an era of accountability in which schools are expected to meet federally mandated achievement criteria. Fenning and Rose (2007) suggest that such expectations may have heightened pressure for administrators to remove children from classrooms who ...do not fit into the norms of the general student population (p. 537). Cultural differences in what is determined as normal behavior may also be influential. Finally, some researchers have postulated that the increased adoption of zero-tolerance policies inadvertently may increase reliance on exclusionary discipline techniques (Skiba & Peterson, 2000). More specifically, zero tolerance policies may lead to increases in disciplinary disproportionality by failing to tolerate cultural differences and establishing a combative environment (Monroe, 2005).

It might also be expected that the increased focus on the potential negative impact of exclusionary discipline would prompt decreases in overall use of exclusionary discipline as well as disciplinary disproportionality over time. For example, the Individuals with Disabilities Education Improvement Act (2004) legislation extended the provisions of its predecessors by providing State and Local Education Agencies the responsibility to define and enact policies to prevent disproportionality in special education identification and placement as well as the incidence, duration, and types of disciplinary actions used. Data collection may generate increased awareness and sensitivity to an issue that previously was absent. A plethora of recommendations for reducing exclusionary discipline use (Dupper, Theriot & Craun, 2009) and disciplinary disproportionality have been made (Monroe, 2005). Although this speculation warrants more research attention, it might be anticipated that exclusionary discipline and disproportionality rates would decrease as school administrators become more aware and increasingly adopt these strategies.

Although data examining trends in the use of exclusionary discipline over time is sparse, recent research suggests that although the number of such incidents is increasing, the proportion of the student population affected has remained relatively stable in recent years (Planty et al., 2009). There have been a few studies exploring changes in disciplinary disproportionality over time. Krezmein, Leone & Achilles (2006) found that the likelihood of African American students being suspended increased from 1995 to 2003, whereas the likelihood for White students remained relatively stable during the same period. In addition, Nichols (1999) found that disproportionality in discipline decreased over a three year period in a large urban school corporation, although African American students continued to be suspended at twice the rate of White students. However, the researchers disclose that the results should be interpreted with caution due to potentially flawed data collection techniques during the first two years of the study. As a result of this limitation, coupled with the general lack of longitudinal research on the topic and the contradictory results found by Krezmein et al. (2006) and Nichols (1999) further longitudinal research is warranted.
It is clear that a historical precedent of exclusionary discipline use and its disproportional application to African American students has been well established. However, preliminary research on changes in exclusionary disciplinary use and disciplinary disproportionality has been limited and at times contradictory (Krezmein et al., 2006; Nichols, 1999; Planty et al., 2009). Further research is needed to (a) establish the degree to which general use of exclusionary discipline and disciplinary disproportionality have changed in recent years, and (b) expand prior research to incorporate methods of discipline other than suspension (expulsion). To this end, the current study sought to answer the following research questions:

1. Do significant differences exist in exclusionary discipline rates between White and African American students in Ohio during the period 2000-2001 through 2008-2009 when controlling for school district poverty? (i.e., effect of ethnicity; although disciplinary disproportionality has been documented since the 1970s, replication using current data and extension to diverse discipline types is warranted).

2. Are there significant differences in general rates of exclusionary discipline in Ohio from the 2000-2001 school year through the 2008-2009 school year when controlling for school district poverty? (i.e., effect of time; given the potential negative outcomes of exclusionary discipline, it is important to consider the degree to which rates are changing over time in a bellwether state).

3. Has the gap in exclusionary discipline between White and African American students changed significantly in Ohio from the 2000-2001 school year through the 2008-2009 school year when controlling for school district poverty? (i.e., interaction between time and ethnicity; although disproportionality in discipline is a well-established phenomenon, the degree to which disproportionality rates have changed in response to initiatives and legislation aimed at addressing the issue is unclear).

Ohio data comprise the data-set for this study because the state is a bellwether that reflects national educational and political trends (Noltemeyer, Brown & Mcloughlin, 2009; Rubin, 1997) and the percentages of White and African American individuals statewide approximate national averages based on census data (United States Census Bureau, 2008).

**Method**

**Procedures**

All data were obtained from the Ohio Department of Education website (www.ode.state.oh.us). To answer the research questions, the Power Users Report tool was used to create a spreadsheet of discipline incidents per 100 students for the academic years 2000-2001 through 2008-2009. Data were disaggregated by school year, school district, and race. Data were reported for three types of discipline incidents: Suspensions, expulsions, and other disciplinary actions. (see Table 1) The spreadsheet was exported to Microsoft Excel, where the columns and rows were sorted to eliminate (a) data on students from other ethnicities (e.g., Asian American), (b) data on schools that did not represent one of the seven school typologies of interest (see Figure 1 for a detailed description of each typology), and (c) districts with an NC in the data fields for White or African American ethnicity, indicating a total district population of fewer than 10 students for that ethnicity. Finally, the data were exported to SPSS for analysis.

**Table 1. Abbreviated Definitions for the Three Types of Discipline Incidents (adapted from Ohio Department of Education, 2006)**

<table>
<thead>
<tr>
<th>Type of Disciplinary Incident</th>
<th>Abbreviated Definition</th>
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<tbody>
<tr>
<td>Expulsion</td>
<td>The involuntary removal of a student from school by the superintendent.</td>
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<tr>
<td>Out of School Suspension</td>
<td>The denial of attendance at school for no more than 10 days</td>
</tr>
<tr>
<td>Other Disciplinary Actions</td>
<td>Includes in-school suspension, emergency removal by district personnel, in-school alternative discipline class, and removal by a hearing officer.</td>
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Data on the proportion of economically disadvantaged students from each school district were also acquired using the Power Users Report tool. These data were exported to Microsoft Excel and then integrated into the existing SPSS database. According to the Ohio Department of Education (Ohio Department of Education, 2006), a student must meet one or more of four criteria to be considered economically disadvantaged: (a) qualify for free or reduced priced lunch (the family must be at or below 130% of the federal poverty level to qualify for reduced price lunch and at or below 185% to
qualify for free lunch); (b) reside in a household where another member qualifies for free or reduced price lunch; (c) receive public assistance or live in a household where the guardians receive public assistance; or (d) meet the family income guidelines to qualify for Title I services for economically challenged families.

Typology 1. Rural/agricultural – high poverty, low median income
These districts are rural agricultural districts and tend to be located in the Appalachian area of Ohio. As a group they have higher-than-average poverty, the lowest average median income level, and the lowest percent of population with college degree or higher compared to all of the groups. N=96, Approximate total ADM=160,000, Poverty count as a % of ADM for 2004=21.3%, Percentage of minority students in 2004=3.2%.

Typology 2. Rural/agricultural – small student population, low poverty, low to moderate median income
These tend to be small, very rural districts outside of Appalachia. They have an adult population that is similar to districts in Group 1 in terms of education level, but their median income level is higher and their poverty rates are much lower. N=161, Approximate total ADM=220,000, Poverty count as a % of ADM for 2004=8.4%, Percentage of minority students in 2004=3.3%.

Typology 3. Rural/Small Town – moderate to high median income
These districts tend to be small towns located in rural areas of the state outside of Appalachia. The districts tend to have median income levels similar to Group 6 suburban districts but with lower rates of both college attendance and managerial/professional occupations among adults. Their poverty percentage is also below average. N=81, Approximate total ADM=130,000, Poverty count as a % of ADM for 2004=5.4%, Percentage of minority students in 2004=2.8%.

Typology 4. Urban – low median income, high poverty
This category includes urban (i.e. high population density) districts that encompass small or medium size towns and cities. They are characterized by low median incomes and very high poverty rates. N=102, Approximate total ADM=290,000, Poverty count as a % of ADM for 2004=23.2%, Percentage of minority students in 2004=16.6%.

Typology 5. Major Urban – very high poverty
This group of districts includes all of the six largest core cities and other urban districts that encompass major cities. Population densities are very high. The districts all have very high poverty rates and typically have a very high percentage of minority students. N=15, Approximate total ADM=360,000, Poverty count as a % of ADM for 2004=44.3%, Percentage of minority students in 2004=62.2%.

Typology 6. Urban/Suburban – high median income
These districts typically surround major urban centers. While their poverty levels range from low to above average, they are more generally characterized as communities with high median incomes and high percentages of college completers and professional/administrative workforce. N=107, Approximate total ADM=420,000, Poverty count as a % of ADM for 2004=8.2%, Percentage of minority students in 2004=9.3%.

Typology 7. Urban/Suburban – very high median income, very low poverty
These districts also surround major urban centers. They are distinguished by very high income levels and almost no poverty. A very high percentage of the adult population has a college degree, and a similarly high percentage works in professional/administrative occupations. N=46, Approximate total ADM=240,000, Poverty count as a % of ADM for 2004=2.6%, Percentage of minority students in 2004=9.0%.

(from http://tinyurl.com/OH-typologies)

Figure 1. Description of the school district typologies. Frequency of Participating Schools by School Typology with Annual Daily Membership, Poverty-count and Proportion of Minority Students

Sample
The initial number of school districts for which both school typology and disciplinary data were accessed was 595.; however, 307 districts were eliminated from the sample due to insufficient exclusionary discipline data in one or more of the school years of interest (i.e., these schools had an NC
in the data field as described in the Procedures section). This resulted in a final sample of 288 school districts.

The final sample represented 48.4% of all school districts across the seven typologies identified within the state of Ohio. See Table 2 for an analysis of the degree to which the districts in the sample represent the districts across the state of Ohio using school typology as an indicator. It is evident that some differences between the sample and the state emerged. For example, urban schools were overrepresented in the sample and rural/small-town schools were underrepresented in the sample when compared to their representation in the state. This discrepancy was expected and unavoidable due to characteristics of the dependent variable and the proportion of racial minority students attending districts within the typologies. For example, rural/small-town school districts have an average minority enrollment of 2.8%; therefore, many of the districts might not have the minimum number of 10 African American students needed to report disciplinary data for that ethnicity. In contrast, urban schools have an average minority enrollment of 62.2%; therefore, it is certain that most urban districts will have sufficient African American participants to report disciplinary data.

Table 2. Comparison of the Typology of Participating School Districts to the State of Ohio

<table>
<thead>
<tr>
<th>Typology</th>
<th>N in Ohio</th>
<th>N in sample</th>
<th>Percentage of representation in Ohio*</th>
<th>Percentage of representation in sample**</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>96</td>
<td>27</td>
<td>15.8%</td>
<td>9.34%</td>
</tr>
<tr>
<td>2</td>
<td>161</td>
<td>25</td>
<td>26.5%</td>
<td>8.68%</td>
</tr>
<tr>
<td>3</td>
<td>81</td>
<td>17</td>
<td>13.2%</td>
<td>5.9%</td>
</tr>
<tr>
<td>4</td>
<td>102</td>
<td>84</td>
<td>16.8%</td>
<td>29.17%</td>
</tr>
<tr>
<td>5</td>
<td>15</td>
<td>14</td>
<td>2.5%</td>
<td>4.86%</td>
</tr>
<tr>
<td>6</td>
<td>107</td>
<td>79</td>
<td>17.6%</td>
<td>27.43%</td>
</tr>
<tr>
<td>7</td>
<td>46</td>
<td>42</td>
<td>7.6%</td>
<td>14.58%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>608</td>
<td>288</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

* Indicates the percentage of districts from the entire Ohio school typology database that represent the typology of interest
** Indicates the percentage of districts from the sample that represent the typology of interest

Although an exact number of students attending the schools included in the sample was not readily available and not necessary because the dependent variable is reported in incidence per 100 students in attendance we estimate that the data reflect the average daily membership (ADM) of over one million students. This estimate was derived by identifying the percentage of Ohio schools represented in the sample for each typology and then identifying the same percentage of the total average daily membership for that typology (see Table 3 for overall estimate as well as estimates per typology).

Table 3. Estimated Average Daily Membership for Sample Schools

<table>
<thead>
<tr>
<th>Typology</th>
<th>Percentage of Ohio Schools Included in Sample</th>
<th>Average Daily Membership (ADM) for All Schools</th>
<th>Estimated ADM for Sample Schools (Column 1 multiplied by Column 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>28.13</td>
<td>160,000</td>
<td>44,960</td>
</tr>
<tr>
<td>2</td>
<td>15.53</td>
<td>220,000</td>
<td>34,166</td>
</tr>
<tr>
<td>3</td>
<td>20.99</td>
<td>130,000</td>
<td>27,287</td>
</tr>
<tr>
<td>4</td>
<td>82.35</td>
<td>290,000</td>
<td>238,815</td>
</tr>
<tr>
<td>5</td>
<td>93.33</td>
<td>360,000</td>
<td>335,988</td>
</tr>
<tr>
<td>6</td>
<td>73.83</td>
<td>420,000</td>
<td>310,086</td>
</tr>
<tr>
<td>7</td>
<td>91.30</td>
<td>240,000</td>
<td>219,120</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td>1,210,422</td>
</tr>
</tbody>
</table>

Analysis
Repeated measures multivariate analysis of covariance (repeated measures MANCOVA) was used to answer all research questions. This data analysis technique was selected because the study involved multiple measurements on multiple dependent variables. Specifically, the dependent variables were: (a) suspensions per 100 students, (b) expulsions per 100 students, and (c) other disciplinary actions per 100 students (each of which was measured annually for nine academic years). In addition, univariate ANCOVA was used to follow up all significant findings in order to discern the specific dependent variable(s) that contributed to the overall significant effect. Finally, descriptive statistics and trend analyses were used to supplement the results of repeated measures MANCOVA.
Results

Effect of Ethnicity
A repeated measures MANCOVA on the district-level data revealed significant differences in the use of exclusionary discipline between ethnic groups when controlling for school district poverty, $F(3, 571) = 64.551, p = .000, \eta^2 = .253$. Using one-way ANCOVAs, these differences were deemed to be significant for suspensions, $F(1, 573) = 187.893, p = .000, \eta^2 = .247$, expulsions, $F(1, 573) = 53.315, p = .000, \eta^2 = .085$, and other disciplinary actions $F(1, 573) = 68.380, p = .000, \eta^2 = .107$. Specifically, the average rate of suspensions, expulsions, and other disciplinary actions for African American students ranged between 1.8 and 2.3 times the rate for their White peers. Overall, ethnicity explained 25.3% of the variability in disciplinary actions.

Effect of Time
When considering the overall use of exclusionary discipline, repeated measures MANCOVA revealed significant changes in rates over time, $F(24, 13742) = 1.749, p = .013, \eta^2 = .003$. However, univariate ANCOVAs reveal these differences were significant only when considering suspensions, $F(5.771, 3259.041) = 2.576, p = .019, \eta^2 = .004$. Tests of within subject contrasts suggest a quadratic effect, $F(1, 573) = 9.167, p = .003, \eta^2 = .016$. This effect is displayed in Figure 2. Although non-significant, graphical depictions of the data for expulsions and other disciplinary actions over time are included in Figures 3 and 4.
Estimated Marginal Means of Expulsions per 100 Students

Figure 3.
Estimated marginal means of expulsions per 100 students in Ohio from 2000-2001 through 2008-2009

Estimated Marginal Means of Other Disciplinary Actions per 100 Students

Figure 4.
Estimated marginal means of other disciplinary actions per 100 students in Ohio from 2000-2001 through 2008-2009
Interaction Between Time and Ethnicity

A repeated measures MANCOVA on the district-level data revealed that significant differences in disciplinary disproportionality also exist over time, \( F(24, 15134.000) = 5.893, p = .000 \), \( \eta^2 = .004 \). Univariate ANCOVAs revealed this difference was only significant when considering suspensions, \( F(5.687, 3588.528) = 5.629, p = .000 \), \( \eta^2 = .009 \). Tests of within subject contrasts suggest a significant linear effect, \( F(1, 631) = 16.213, p = .000 \), \( \eta^2 = .025 \). This effect is displayed in Figure 5.

![Estimated Marginal Means of Suspensions per 100 Students](image)

**Figure 5.**
Estimated marginal means of suspensions per 100 students in Ohio by ethnicity from 2000-2001 through 2008-2009

![Estimated Marginal Means of Expulsions per 100 Students](image)

**Figure 6.**
Estimated marginal means of expulsions per 100 students in Ohio by ethnicity from 2000-2001 through 2008-2009

Using an analysis of slopes (slope for African American students is \(-.3737\) and slope for White students is \(.1977\)), it appears that if in theory this pattern of suspensions continued at the same rate, the two groups of students would experience equal numbers of suspensions per 100 students part-way through the 2026-2027 school year at 12.98 suspensions per 100 students. Although non-significant, graphical
depictions of the data for expulsions and other disciplinary actions by ethnicity are included in Figures 6 and 7.

![Estimated Marginal Means of Other Disciplinary Actions per 100 Students](image)

**Figure 7.**
Estimated marginal means of other disciplinary actions per 100 students in Ohio by ethnicity from 2000-2001 through 2008-2009

Discussion

Research documenting trends in the general use of exclusionary discipline is limited. Although findings consistently have documented the overrepresentation of African American students as recipients of exclusionary discipline (Children’s Defense Fund, 1975; Mendez & Knoff, 2003; Skiba et al., 2002; Skiba et al., 1997), further research using current data is warranted. There has been limited research exploring the changes in disciplinary disproportionality over time. The current investigation utilized data from public schools in Ohio to explore these three complex and interrelated issues.

Results indicate that African American students continue to be the recipients of significantly more suspensions, expulsions, and other disciplinary actions than White students. In fact, ethnicity accounts for over 25% of the variability in exclusionary discipline rates. This effect of ethnicity on exclusionary discipline rates was significant across all three discipline types considered (i.e., suspension, expulsions, and other disciplinary actions). These findings are consistent with prior research demonstrating disciplinary disproportionality; however, the effect was found to be notably stronger when considering suspensions and notably weaker when considering expulsions. One speculation for the more pronounced effect of suspensions than expulsions is that there may be less subjective judgment required in determining an expulsion than a suspension because expulsions are typically preceded by either single dangerous act or a series of non-dangerous acts. This explanation is consistent with previous findings that African American students often are disciplined more aggressively for engaging in trivial behaviors since suspensions may result from these acts while expulsions would be unlikely. It is likely that although the final decision rests with the school district superintendent, expulsions result less from unilateral decision-making and more from collaborative decision-making involving multiple individuals over time. This likely reduces the possibility of bias in decision-making.

This study suggests that significant differences exist in the use of exclusionary discipline from 2000-2001 through 2008-2009; however, these differences were significant only when considering suspensions. Examination of suspension data suggests a trend that is currently on the decline. Concurrently, although not statistically significant, we noted an upward trend with relation to other disciplinary actions. Although again only a speculation, it may be that due to an increased awareness of
the potential negative consequences of out of school suspensions schools are opting for more proactive (Schoolwide Positive Behavior Supports) or alternative discipline programs. Given the documented negative effects of out-of-school suspensions these results suggest that the trend is promising; however, more research to determine why this effect was noted only for suspensions is warranted.

Finally, results indicate that significant differences in disciplinary disproportionality exist over time. Specifically, when each discipline type was separately considered, only suspensions emerged as significantly different over the period of interest. The general trend over time is a decrease in suspensions among African American students concurrent with a more subtle increase in suspensions among White students. Again, reasons for this trend can only be speculated and warrant further investigation. Recent legislation and policy (NCLB, 2001) increasingly have been requiring states and local education agencies to assess disciplinary practices and develop interventions to address disproportionality. It would be reasonable to assume that these efforts would result in decreased disproportionality because schools would be more aware when disproportionality exists due to the requirement to investigate it, and be more motivated to address it given sanctions for failing to do so. As a result, the findings should not be surprising. However, an unanticipated result was the rise in suspensions for White students; more research is warranted to explore whether these trends.

There are several limitations associated with the current investigation. The study relies on examination of existing data and the degree to which data were consistently recorded and reported by school districts is unknown. However, it is unlikely that any between-school variations in reporting had a significant effect on the findings because within school reporting for the two ethnic groups of interest was likely consistent. The effects of ethnicity may be confounded by other variables; although poverty was used as a covariate to minimize this likelihood, other variables such as academic achievement or family involvement may also partially explain the findings. The degree to which our findings generalize to other regions across the nation is unknown; although Ohio is considered a representative bellwether state, trends in disproportionality may be found to vary by state or by region. Finally, this study did not examine the types of behaviors reported to have led to the disciplinary consequences. It would be useful to explore which behavioral infractions explain disproportionality.

Despite these limitations, our results are important for several reasons. They demonstrate that efforts to decrease reliance on exclusionary discipline as well as disproportionality in discipline have met with some success. Although the researchers cannot conclusively determine due to the design of the study, it appears that increased awareness, monitoring, and intervention of disciplinary practices may have resulted in overall decreases in suspensions as well as decreases in disciplinary disproportionality in suspensions.

Notwithstanding the slightly narrowing gap in discipline between White and African American students in suspensions, it is important to note that ethnicity still accounts for over 25% of the variance in exclusionary discipline rates (even after controlling for district poverty level). This remains a startling difference. Additionally, no significant changes in disproportionality over time were noted for expulsions and other disciplinary actions. Several explanations may explain why this trend of disproportionality persists. Because the majority of teachers are White, there may be an increased likelihood that cultural differences would lead more African American children to be viewed as exhibiting such atypical behaviors. Since African American students have been documented to evidence lower average passing rates on standardized achievement tests (United States Department of Education, 2007) the increased pressure for accountability may result in increased acting-out behaviors due to frustration and/or a desire to escape the demands of the instructional environment. Past research has been inconsistent regarding the existence of differences in behaviors between ethnicities (Bahr & Fuchs, 1991; Hosterman et al., 2008; Skiba et al., 2002). Also, the increasing use of zero-tolerance policies may contribute to an unwelcoming instructional climate, which ultimately may lead to decreased student engagement (Skiba & Peterson, 2000). This factor may particularly be problematic for African American students who have traditionally been disenfranchised and may feel less welcome in the academic environment. Finally, the contribution of institutional and/or individual bias in disciplinary referral has been suggested (Skiba et al., 2002).

It appears evident that strategies aimed at reducing the overall need for exclusionary discipline for all students appears warranted. One framework for schools to consider is Schoolwide Positive Behavior Support (SWPBS). SWPBS is a comprehensive approach designed to promote the appropriate behaviors of all students and enhance the capacity of systems to design positive environments for
students (OSEP Center on Positive Behavior Interventions and Supports, 2004). This approach has been demonstrated to result in decreases in out of school suspensions (Barrett, Bradshaw & Lewis-Palmer, 2008), office disciplinary referrals (Barrett et al., 2008), and lost instructional time due to disciplinary incidents and referrals (Scott & Barrett, 2004). To minimize disproportionality in discipline, schools should also consider training teachers in culturally appropriate classroom management strategies. Since inappropriate behaviors warranting disciplinary outcomes will continue, it is important to consider alternatives to exclusionary discipline that have more positive outcomes.

Several additional areas for future research deserve attention. It is important to identify factors that predict high- or low-use of discipline and disproportionality in implementing discipline. For example, regression or path analyses could be used to identify school demographic variables, (e.g., ethnicity of teachers, student to teacher ratios, percentage of highly qualified teachers), school process variables (e.g., positive behavior support implementation, home-school collaboration programs, intervention assistance teams), and student demographic variables (e.g., gender, disability status, socioeconomic status) that predict high or low rates of exclusionary discipline for different ethnic groups. This could lead to the development of a conceptual model detailing what factors have direct and indirect effects on exclusionary discipline and disciplinary disproportionality. Next, it may prove useful to examine schools that have demonstrated significant decreases in exclusionary discipline and disciplinary disproportionality over time to better understand the programs and processes that contribute to such decreases. Given the complexity of factors that likely contribute to the changes, qualitative methodologies may serve an appropriate starting point. Finally, it may prove useful to examine patterns in the types of behaviors reported to precede application of exclusionary discipline. This may reveal key types of infractions that explain a large proportion of the variability in exclusionary discipline use and disciplinary disproportionality and may also lead to a better understanding of how observed behaviors differ by ethnicity.

Exclusionary discipline is a commonly used technique for responding to student misbehavior. The overrepresentation of African American students in exclusionary discipline has been a longstanding issue. Given the increasing diversity of students entering our nation’s schools, coupled with the potential negative effects of exclusionary discipline, the importance of addressing disproportionality can only intensify. This study presents one attempt at examining both the current status and recent trends in the overall use of exclusionary discipline as well as the disproportionate application of these techniques for African American students. These results can serve as an impetus for further commentary and research that ultimately will lead to the identification of the specific contributing factors to high reliance on exclusionary discipline and disciplinary disproportionality and consequently to interventions for creating more equitable and positive learning environments for all students.

References
Negro Education, 61, 4-11.
A MODEL FOR THE EDUCATION OF GIFTED LEARNERS IN LEBANON

Ketty M. Sarouphim
Lebanese American University

The purpose of this paper is to present a model for developing a comprehensive system of education for gifted learners in Lebanon. The model consists of three phases and includes key elements for establishing gifted education in the country, such as raising community awareness, adopting valid identification measures, and developing effective curricula. An important consideration is to embed the model in non-traditional views of intelligence and giftedness so that programs are diversified and identification is not limited to high scores on standardized tests. As such, the model is based on DISCOVER, a non-traditional system for identifying and educating gifted learners. Research is needed to determine the effectiveness of such a model for Lebanon. The model could be emulated by other Arab countries where it can be adopted and adapted to the unique needs and particulars of each culture.

Lebanon is one of the smallest countries in the Middle East (10,452 square kilometers), about the size of the State of Connecticut. Programs for the gifted are virtually non-existent in the country. In Beirut, the capital, some private schools that cater to students from high socio-economic status, offer some enrichment programs to high-achieving students. However, these programs are limited in content and scope and are not comparable to the well-grounded programs available to gifted students in American schools. Rather, these programs represent attempts to nurture the talent and ability of students with high grade-point averages through a variety of enhancement activities (Sarouphim, 2009).

The reason for this deficiency in gifted education in the country is due, to a large extent, to the lack of a fundamental understanding of the construct of giftedness. Also, the country lacks measures and assessment procedures for identification purposes. The only tests used to assess intelligence in Lebanon are imported from the West (mostly France and the United States) and translated into Arabic, the native language of the Lebanese, or even on occasion, these tests are administered in English or French, as most Lebanese students are fluent in at least one of these two foreign languages (Diab, 2006). Thus, these measures yield at best a rough estimate of the students' ability, a process loaded with dangerous consequences. Hence, a great need exists for reliable and valid instruments for the identification of gifted Lebanese students, as well as for programs for gifted students grounded in well-established theories.

The purpose of this paper is to propose a model that delineates key elements for developing a comprehensive system for the education of gifted learners in Lebanon. Based on insight from the literature, the paper describes the steps needed to design such a system and implement it on the national level. The significance of this paper is its uniqueness in the literature, as it represents the first document about a structured model for developing a nation-wide program for gifted learners in Lebanon. In fact, one would be hard pressed to find any literature on gifted education in Lebanon (Sarouphim, in press).

The System of Education in Lebanon

Schools in Lebanon follow a lock-step system, with grade levels extending from K-13. Thus, students in Lebanon finish high school at about 18 years of age. Those who pursue a college education enter college at the sophomore level and graduate with a Bachelor’s degree in about three years. Upon successful completion of the ninth grade, students are given a choice between one of four possible tracks: Mathematics, Natural Sciences, Economics, and Philosophy (Ayyash-Abdo, Bahous, & Nabhani, 2009). These tracks are fundamental and preset the student’s choice of a college major. Thus, students who choose to follow the Mathematics track at school will study usually engineering or mathematics in college. Similarly, students who choose the Natural Sciences track will study typically...
Compulsory education in Lebanon covers grades K-8 (Ayyash-Abdo et al., 2009). In public state schools access is free, but the quality of education is poor compared to that of private schools. Public schools in Lebanon cater to students from low socioeconomic status and parents who can afford high tuition fees would rather send their children to private schools, as these have higher rates of student success on national and university entrance examinations (Bahous & Nabhani, 2008).

The first national Lebanese curriculum was established when Lebanon was still under the French mandate (1920-1943). It consisted of a duplicate of the French curriculum at the time, with the addition of four subject-matters taught in Arabic: Arabic language, local history, geography and Arabic philosophy. The first revision of that curriculum took place about four decades later in 1968 (Frayha, 2003), with a focus on learning a large body of information, and little emphasis on the development of analytical, evaluation, critical thinking and other necessary skills and competencies (p. 84). However, the latest curriculum revision in 1995 witnessed a major shift in emphasis from that of rote memorization to a focus on hands-on activities and the development of students’ higher-order skills (Frayha). The objectives were to promote sound educational practices and increase students’ learning outcomes for the sake of rebuilding the country after 16 years of a brutal civil war (1975-1991). Specifically, the aims of the educational reform were to strengthen national affiliation and social cohesion among students, and to provide the new generation with the basic knowledge, skills, and expertise, with emphasis on national upbringing and authentic Lebanese values, such as liberty, democracy, tolerance and rejection of violence (National Center for Educational Research and Development [NCERD], 1995, p. 8).

All schools in Lebanon, public and private, follow a unified national curriculum mandated by the Ministry of Education. In the latest revision of this curriculum (NCERD, 1995), catering to students with special needs was made mandatory. As stated, provisions include support services and remedial classes offered to students with learning disabilities, but exclude services of any sort to gifted students. In addition, Public Law 220 approved by the Lebanese Parliament in May 2000 has provided a legislative framework for people with disabilities (Wehbi, 2006, p. 323). Article 59 of the Law guarantees the right to equal educational and learning opportunities for all people with disabilities. In addition, Article 60 asserts that a disability should not restrict access to any educational institution or setting in Lebanon. However, no mentioning of the education of gifted students exists in the Lebanese law. Clearly, the scope of special education in Lebanon is limited to students with disabilities, as neither the Lebanese law nor the revised national curriculum have made any stipulations concerning the issues and concerns of educating gifted students in Lebanese schools. In other words, the matter of educating gifted learners is neither encouraged nor discouraged in the Lebanese national curriculum, but rather simply ignored.

Lebanon has the highest literacy rates, highest percentage of females in the work force, and the best universities in the Arab world (Ayyash-Abdo et al., 2009). In such a thriving environment and at a time of national renewal, establishing a model for educating gifted learners in Lebanon seems timely and critical, as the country is in need of developing all potential talent in its citizens. As such, this paper describes a model for establishing gifted education in Lebanon. The model is based on non-traditional conceptions of giftedness and on implementing the identification procedures and curriculum content of a well-established model for the education of gifted learners, the DISCOVER model (Discovering Intellectual Strength and Capabilities while Observing Varied Ethnic Responses), developed at the University of Arizona (Maker, Rogers, & Nielson, 1994).

**Designing a program for the gifted**

Programs for gifted learners in American schools did not emerge from a vacuum. Rather, scholars and educators have extended great efforts to shed light on the importance of fostering the abilities of gifted students and establishing policies and programs to ensure that all gifted students are provided with adequate education. In Lebanon, a similar process must be put in motion. The following is a model that consists of three phases; preparation, implementation, and evaluation, for establishing a comprehensive system of education for able learners in Lebanon (see Figure 1).

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Figure 1
Model for Establishing a System of Education for Gifted Learners in Lebanon

**Phase I: Preparation**
This phase consists of preliminary action steps to ensure that the system is ready to be put into action. The steps include educating the Lebanese community in the concept of giftedness, embedding the program for gifted learners in a solid theoretical basis, and developing teacher training programs.

**Step 1: Raise national awareness.** A common misconception of giftedness in Lebanon is the notion that highly intelligent individuals are those who excel in mathematics to the exclusion of other criteria, such as high performance in languages or the arts. This misconception is well-ingrained in the minds of the Lebanese and dates well before Lebanon became an independent and sovereign country in 1943, when school curricula were still influenced by the French system of education (Ghaith, 2003). Therefore, one of the first tasks needed to start a program for the gifted in Lebanon is to develop an understanding of what constitutes giftedness, as well as an understanding of the needs and characteristics of gifted children. Such a task is complex and will demand commitment and dedication from scholars who will pioneer in developing such programs for Lebanon, as changing the beliefs of individuals in a particular culture is a demanding and time-consuming process.

Another popular misperception prevalent in the minds of the Lebanese is that highly able students will thrive in any environment, mostly without much assistance from teachers or parents (Sarouphim, 2007). This predominant belief is one of the obstacles that have hindered the introduction of programs for the gifted in the country. Basically, radical changes in people’s attitudes and understanding of the construct of giftedness are a must, but the challenge does not end in explaining to the public the meaning and components of giftedness. If a program for the gifted is to survive in Lebanon, the Lebanese must also develop respect for such a program. Administrators and teachers must believe in the value of nurturing the ability of gifted learners before they are able to convince others of the importance of providing services to gifted learners.
The enlightened few will have the difficult task of educating the general public in the importance of making special provisions for gifted students. Awareness programs could start in a few schools, mostly private schools in the capital Beirut, followed by large scale campaigns to spread this awareness nationwide. Booklets, public lectures, letters to parents, all constitute possible venues for the awareness campaign. Also, for the campaign to succeed in Lebanon, the assistance of the Ministry of Education is vital, which leads to the next step in this first phase of establishing a program for gifted learners in Lebanon.

**Step 2: Involve the Ministry of Education.** In Lebanon, the Ministry of Education is the key authority on all major decisions concerning the school curriculum. Even though schools in the private sector are mostly autonomous and administrators have some latitude in choosing what they deem best for their own school (Bahous & Nabhani, 2008), all schools in Lebanon must abide by a national curriculum mandated by the Ministry of Education (NCED, 1995). Thus, in theory, private schools have the freedom to administer special programs for the gifted, but in reality such programs do not exist in Lebanese schools, given that the Ministry of Education does not mandate special provisions for gifted learners. If programs for the gifted are to gain momentum and expand nationwide, they must have the seal of approval of the Lebanese government. Therefore, all efforts in this regard have to be coordinated with the Ministry of Education. A few attempts already have been made in that direction. Some educators, including the author of this paper have approached government officials with a list of suggestions to implement programs for gifted learners in Lebanese schools. At the time this paper was written, nothing tangible had been initiated yet. However, the fact that educators in Lebanon have made such a move is significant enough and constitutes major progress toward reaching the goal of establishing programs for gifted learners in Lebanese schools.

**Step 3: Develop teacher training programs.** At present, teacher training programs in Lebanon focus mostly on mainstream education, with the exception of a few graduate programs available at some prestigious universities in Beirut. For example, the American University of Beirut and the Lebanese American University offer a Master’s degree in education, with an emphasis on special education. However, the emphasis is mostly on the area of learning disabilities and does not address the specialty of giftedness. Consequently, teachers trained in educating gifted learners are scarce in Lebanon. If teachers are to be involved in the process of identifying and educating gifted students, they need to be trained in understanding what constitutes giftedness. Jacob (as cited in Gross, 1999) found that unless teachers are given specific training in how to identify a gifted child, they are more likely to misidentify a cooperative child who seeks the teachers’ approval for one of high intelligence. Also, unless teachers understand the characteristics of gifted children, they might feel threatened by a child who seems to know more than they do about a certain subject-matter. Lebanese teachers will need a comprehensive training in the fundamentals of giftedness, the methods used for identifying gifted students, and the techniques needed for developing curricula for gifted learners.

An important component of this training is to expose teachers to the instructional strategies used with gifted learners. One useful approach advocated in most models for the gifted is the constructivist approach (Maker, Muammar, Serino, Kuang, Mohamed, & Sak, 2006). Lebanese teachers have to be trained in the role of the constructivist teacher. Rather than imparting knowledge, the teacher’s task in this approach is that of a coach, providing scaffolding, and affording experiences at the zone of proximal development (Eun, Knotek, Heining-Boynton, 2008). Problem-solving, creativity and discovery become the focus of instruction (Maker et al.). In Lebanon, such an approach to instruction constitutes a major paradigm shift, as teachers follow mostly traditional instructional methods and classrooms are teacher-centered rather than student-centered, especially in public schools where highly qualified instructors are mostly missing (Frayha, 2003).

**Step 4: Adopt non-traditional definitions of giftedness and theories of intelligence.** The modern conceptions of giftedness and theories of intelligence have shifted focus from conceptualizing high ability as a global construct to that of a more diversified and multi-dimensional paradigm. For example, Maker (1996) has stipulated that the key element in giftedness is the ability to solve complex problems in the most efficient, effective, or economical ways (p. 44). Similarly, Renzulli (1978) defined giftedness as an interaction between three clusters of basic traits: above average general ability, high levels of creativity and high levels of motivation or task commitment. In the same vein, Gardner (1983) defined intelligence as the multiple abilities that permit an individual to solve a problem or create a product that is valued within one or more cultural settings. Sternberg (1991), another scholar who
criticized the narrow scope of IQ testing, has proposed three kinds of intelligence: analytical, practical, and creative.

A program for gifted students in Lebanon must be embedded in these modern conceptualizations of intelligence and giftedness. Of particular interest is the widening of the curriculum scope beyond the traditional mastery of the 3Rs. Also, identification procedures have to be diversified and must examine a multitude of abilities. As Gardner (2009) stated: ...MI can be a useful vehicle for broadening the remit of education: to include subjects that address the several intelligences and ways of thinking, as well as teaching methods that speak to individual differences, and assessments that go beyond standard, short-answer language-and-logic instruments (p. 14). Without adequate instruments and sound program content and scope, a system of education for the gifted might be doomed to fail anywhere in the world, let alone in Lebanon where education for gifted learners is still in its early stages. Therefore, one has to be particularly diligent in establishing the program on solid basis from the very beginning to increase its chances for continuity and success.

Phase II: Implementation

This phase consists of implementing the model in schools. Its aim is to put into operation a system for educating gifted learners in Lebanese schools. This phase consists of implementing major tasks, such as adopting valid identification measures and designing effective programs, as well as involving the parents and developing national policies on assessment and placement procedures.

Step 1: Adopt effective identification procedures. The issue of identifying gifted students has been much debated in the literature (e.g., Maker, 1992; Sarouphim, 1999). Traditionally, students identified as gifted were those who scored at or above the 97th percentile on either standardized achievement or intelligence tests (Ford, Harris, Tyson, & Trotman, 2002). However, in Lebanon, these tests do not exist. With the recent paradigm shift in identification that calls for instruments other than standardized tests, different measures could be used in Lebanon, namely alternative assessments. Also, these relatively new measures match the non-traditional conceptions of giftedness and intelligence that will be adopted in the Lebanese program. Another benefit of these instruments is the effectiveness of their use with diverse groups and the ease of adapting them to the particular cultural setting in which they are administered (Whiting & Ford, 2006). Also, students from lower income groups in Lebanon will have a higher chance of being identified through the use of performance-based assessments, as these instruments were found to be more effective with economically disadvantaged students (Ford et al.).

Several studies have shown that the use of alternative assessments (also called performance-based assessments) for identification purposes has yielded mostly positive results (e.g., Borland & Wright, 1994; Clasen, Middleton, & Connell, 1994; Hafenstein & Tucker, 1994; Maker et al., 2006; Reid, Romanoff, Algozine, & Udall 2000; Sarouphim, 2009). The use of alternative assessment for identifying gifted students has witnessed an increase in the last two decades (Baldwin, 2005). This increase has coincided with the rise of non-traditional theories of intelligence (e.g., Gardner, 1983; Sternberg, 1991) and unconventional conceptions of giftedness (e.g., Maker, 1996; Renzulli, 1978). Advocates cite many advantages for the use of these instruments, such as assessment of higher-order skills, reducing the gap between testing and instruction, coverage of broad areas of intelligence, and assessing students in life-like and complex situations (Maker, 1996; O’Neil, 1992). Ortiz (2002) suggested that the use of alternative assessment provides qualitative and valuable data on the ability of students through observing the strategies used while they complete items on the test, thus providing insights into how they are reasoning about information.

One such alternative instrument, called DISCOVER, was shown to produce positive results with students from a wide cultural diversity (Sarouphim, 2001, 2005, 2007). The DISCOVER assessment was developed by Maker and her colleagues and is grounded in Gardner’s MI theory (Maker et al., 1994). The assessment includes tasks that increase progressively in complexity and openness. Basically, three activities are performed in class during the administration to assess spatial, mathematical, and oral linguistic intelligences. Logical-mathematical and written linguistic intelligences are measured a day or so following the classroom assessment through paper-and-pencil tasks. Bodily-kinesthetic and the personal intelligences are assessed by observing the behaviors of students throughout the group administration, which lasts about two and a half hours.

Sarouphim conducted two studies to examine the effectiveness of DISCOVER in identifying gifted Lebanese students. The first study (2007) included a small sample and had for its purpose to examine
whether the assessment could be used effectively in Lebanon. In that study, DISCOVER was administered to 49 fifth graders taken from one private school in Beirut. The results showed that 19% of the participants met the criteria for identification. Also, no significant gender differences were found. The results were corroborated by interviews with teachers and the students’ grade reports, indicating that DISCOVER could be used effectively in Lebanon. In the second study (in press), the sample consisted of 248 boys and girls in grades 3-5 from two private schools in Beirut. Students’ DISCOVER ratings were compared to their school grades and their scores on the Raven Standard Progressive Matrices (RSPM). The results showed evidence for DISCOVER’s concurrent validity with RSPM, as correlations between students’ DISCOVER ratings in spatial intelligence and their Raven scores were high whereas correlations between students’ DISCOVER ratings in linguistic intelligences and their Raven scores were low. Also, the students’ school grades matched their DISCOVER ratings. Interviews with teachers and parents corroborated the results, with a few exceptions. Of the total sample, 14.5% were identified, with no gender differences.

Hence, DISCOVER seems to be a promising instrument that could be used as one measure for identification purposes. However, identifying gifted Lebanese students should not be based solely on the use of DISCOVER; rather, this instrument could constitute the basis for further screening and assessment of the students’ strengths. Other data sources must be considered, too, such as parents’ and teachers’ nominations, as well as evidence of high academic achievement in one or several areas, as demonstrated through portfolio assessment. Riley (2005) argued that schools must use multiple methods of identification embedded in the cultural context to ensure that all students, including students from diverse populations are given a fair chance in identification and consequently, in being placed in programs for the gifted.

Step 2: Design an effective curriculum. Much research has been conducted on designing the appropriate curriculum for gifted students (Gallagher, 1985; Maker et al., 2006; Renzulli & Reis, 1985). Most models focus on three aspects: pace, breadth, and depth. For example, Maker and Nielsen suggested that programs for the gifted must have the following four objectives: to enrich the content of instruction, to emphasize process or problem-solving strategies, to encourage creativity in students’ products, and to create a supportive classroom climate that enhances creativity and talent. Conversely, Renzulli and Reis argued against pull-out programs and focused on moving enrichment to the regular classroom, as shown in the School Wide Enrichment Model that they have developed and applied successfully in many schools.

More recently, Eyre (2007) developed the structured tinkering model based on the following assumptions, also shared by Hickey (as cited in Eyre, 2007):

- Gifted students are a heterogeneous group; therefore, the best provisions have to vary from one child to the next.
- The best provisions have to extend that which is available to all students rather than provide a completely different curriculum for gifted learners.
- The learning environment has to permit capable students to develop their potential while interacting with their peers.
- The learning climate has to enhance intellectual ability, talent, creativity, and decision-making.
- Gifted learners have to be encouraged to use higher levels of thinking, such as analysis, synthesis, and evaluation.

These assumptions constitute a sound basis for the model to be developed for able Lebanese learners. The key in this model is that gifted students will not be provided with a completely different curriculum than that used in the regular classroom, but rather the model stipulates that provisions for the gifted have to be extended from that which is already available to all learners. The Lebanese model will have for its aim to nurture the multiple intelligences of students by providing them with the necessary material and classroom environment that will capitalize on their strengths, talents, and creativity.

Typically, in developing programs for the gifted, an important consideration is that the curriculum has to match the identification measures (Whiting & Ford, 2006). Given that the main instrument to be used for identification is the DISCOVER assessment, it follows that the curriculum of choice to be adopted in Lebanese schools is the DISCOVER curriculum model (Maker et al., 2006). This model is embedded in Gardner’s MI theory and is based on a constructivist approach to teaching and learning. The model is based on teaching students through actively involving them in their own learning. Developing problem-solving skills, building new knowledge on prior experience and acquiring higher
order thinking skills are the main learning objectives of the DISCOVER curriculum. Also, in this model, teachers play the role of coaches and facilitators, rather than disseminators of information. The model has been applied in several countries outside the United States, including China, Taiwan, and the United Kingdom. Research in all these countries on the effectiveness of the DISCOVER curriculum has shown a significant increase in students’ academic success (Maker et. al). Given that the application of the model has yielded positive results in different countries with a population of students from diverse cultural groups, it is expected that adapting it to the Lebanese context will yield similar positive results as well.

Step 3: Develop policies. A program for gifted students in Lebanon cannot survive without the formulation of policies relevant to the Lebanese setting. Policies on identification, placement, access, and evaluation have to be developed to meet the needs of able learners. One of the important policies to consider is that concerning nondiscriminatory assessment and placement to ensure that all the children of Lebanon, of different gender, religion, and socioeconomic class have an equal opportunity to access programs for the gifted. Typically, minorities and economically disadvantaged students have been under represented in programs for the gifted (Ford et al., 2003). In Lebanon, students at risk for being under represented are those from lower socioeconomic groups who attend public schools. Therefore, care must be taken to ensure that identification procedures and placement policies protect these students’ rights for equal access to programs for the gifted.

Another policy of similar importance is that of making the availability of services for gifted learners compulsory in the Lebanese educational system. Just as services for students with disabilities have been mandated by the Ministry of Education in Lebanon (Wehbi, 2006), provisions for gifted students must be mandated as well, as in the hiring of experienced staff and establishing resource rooms in all schools across the country.

One important consideration is that policies on gifted education should be implemented on the national level with the cooperation of the Ministry of Education. Moreover, inspections of whether schools are abiding by these policies must be effected on regular bases. At this time, inspectors pay yearly visits to schools in Lebanon. They examine mostly whether school officials are abiding by governmental guidelines on teacher qualifications, curriculum applications, and school facilities (Frayha, 2003). When policies on providing services for gifted students are established, inspectors should examine whether schools are indeed providing these services to gifted students, as well as their quality. If infractions are found, sanctions must be imposed to ensure that provisions for gifted students are made available in all schools.

Step 4: Involve the parents. Several studies have documented the advantage of parents’ involvement in the identification and placement of gifted children (Baldwin, 2005; Callahan, 2005). Parents’ involvement must exceed the mere granting of their permission to test or place their children, to that of an active participation in the program. At first, Lebanese parents should be trained in what constitutes giftedness and in how to recognize the signs of high ability in their children. Secondly, parents should be educated in how to nurture and develop their children’s abilities (e.g., games, activities, material, etc.). In one study, parents who were provided with a booklet on giftedness were successful in identifying signs of giftedness in their children and in helping them develop higher order skills, such as problem solving, creativity and leadership (as cited in Baldwin, 2005). Involved parents who believe in the value of the program could become important advocates in spreading awareness among the Lebanese population on the significance of gifted education in the country. Also, when these parents perceive the success of the program in meeting their children’s academic needs, they will be more willing to encourage their children and others to participate in such program (Callahan, 2005).

Phase III: Evaluation
This last phase has for its aim to determine the success of the model. It consists of action steps, such as enhancing successful procedures, correcting flaws, making revisions, and conducting research on the overall effectiveness of the model.

Step 1: Test the application. The main task in this action step is to assess the quality of the program. How well is it functioning? What are its strengths and weaknesses? Are the instruments used for identification effective? Are identified students given adequate services and support? The purpose in this phase is to investigate all aspects of the operation by examining students’ performance,
interviewing teachers and parents on their satisfaction with the program, and assessing the added value of the program to the education of gifted students.

**Step 2: Make necessary modifications.** The feedback provided by students, teachers, administrators, and parents will serve to revise the program. Identified strengths will be enhanced and flaws will be fixed. To ensure the continuity of the program, assessing the outcomes must be an ongoing process. Models other than DISCOVER could be introduced at this point, such as the School Wide Enrichment Model (Renzulli & Reis, 1985) or other models found to be effective with diverse populations. No matter which models are used, care must be taken to adapt their scope and content to the needs of students in the Lebanese educational setting.

**Step 3: Encourage research.** No discipline could survive without research. Given that the field of giftedness is new in Lebanon, studies on the effectiveness of the model are of great importance. At first, research must focus on the Lebanese public’s perceptions of the program to assess how well it was received by the consumers, namely administrators, teachers, parents, and students. Next, research must focus on the effectiveness of the program in meeting its objectives. Then studies investigating program revision and quality enhancement must be conducted at a later stage.

**Conclusion**

Giftedness can be found in all cultures and is expressed through a variety of behaviors (Baldwin, 2005). Parents, teachers, and school officials need to be made aware of the characteristics of giftedness and its determinants so that they become talent spotters, always on the look-out for untapped ability. An important consideration in this process is to adopt broad views of the concepts of intelligence and giftedness that exceed high academic performance and encompass a wide range of abilities. Such a consideration is of particular importance in Lebanon where efforts on developing identification procedures and programs for gifted students are still in their initial stages. One advantage for the current lack of programs for gifted students in the country is the clean slate phenomenon; that is, educators can start working afresh, molding the field of education of the gifted based on empirical evidence yielded by the pool of research findings already available in the literature, a process potentially less problematic than that of attempting to fix flaws in already pre-existing programs. A thorough examination of the body of literature on giftedness is needed; however, for optimal results, the research findings must be fine-tuned and adapted to the Lebanese educational setting. In sum, establishing a discipline of education for gifted learners in Lebanon, effective and unique to the country is timely and critical.

The steps outlined in this paper are neither exclusive nor final. When the model is launched, modifications will be tailored to emerging needs. At this time, the initial efforts must focus on finding a starting point and an amenable climate where education of the gifted can thrive in Lebanon. The strategy to adopt is along the following lines: start small, evaluate constantly, revise and expand according to needs. In a country with a history troubled with repetitive wars, it is the civic responsibility of scholars and educators to recognize and nurture the talents of its gifted citizens who represent the untapped promise for a better future for Lebanon. When the success of the model is established, other countries in the Middle East could adopt the model and adapt it to their own unique and particular needs.

**References**


A STUDY OF THE EXPERIENCES OF PARENTS WITH HOME-SCHOOLED PRE-ADOLESCENT CHILDREN WITH SEVERE MULTIPLE HEALTH PROBLEMS

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This study examines the difficulties encountered by parents caring for pre-adolescent children who have severe multiple health problems. Working within the frameworks of narrative psychotherapy (Spence, 1982; Viederman & Perry, 1980; Vitz, 1992; Benjamin, 1998), the researcher examined parents’ discourses and identified the strategies they employed to deal with their situations (Maynard, 2003). The results show that the participants’ ability to tell their stories to others who empathize with them provided an essential therapeutic function (Obeng, 2008). The most important discourse strategy identified was the use of words that have strong implications for dealing with emotional valence.

The importance of understanding the narratives of parents of children with severe multiple health problems cannot be over emphasized. This is because narratives constitute an important way of learning about the self (Bruner 1990; 1994). Also, narratives offer special form of talk in interaction for understanding and explaining human action (Polkinghorne 1988). According to Bruner (1990) and McAdams (2001), the stories people construct about themselves and their social worlds are key aspects of their identities. Luckmann (2008) bolsters the above claim by noting that the constitution of meaning in experience and action forms the basis of social and communicative interaction and also provides the basis for an analysis of the communicative formation and transmission of personal identity, knowledge, and historical social words. Pearrow and Sanchez (2008) also discuss the role of personal epistemology in providing a framework for researchers to understand how individuals view their world. It comes as no surprise, therefore, when psychotherapists, especially narrative psychotherapists, use narratives or storied nature of human conduct Sarbin (1986), as an important operational construct in dealing with their clients.

The importance of a narrative-based model in interpreting and understanding clients’ pasts is discussed in the literature on psychotherapy by notable scholars such as Viederman and Perry (1980) and Viederman (1983). The above authors used short life histories for interpreting relatively healthy clients facing acute crises. Spence (1982) also introduced the notion of narrative truth, as distinct from historical truth, for understanding clients’ pasts. Vitz (1992) bolsters the claim about the importance of narrative in psychotherapy by calling for the introduction of a narrative model to help enrich psychotherapy and counseling. For their part, Frank (1961), Spence (1982), and Adler and McAdams (2007) discuss, in some detail, therapeutic gains of storied narratives during psychotherapy sessions. With respect to therapeutic discourse, Leahy (2004) defines this as talk-in-interaction that represents the social practice between clinicians and clients. It is a kind of discourse that helps victims to cope with or adapt to their difficult situations (Goffman, 1967) in order to remove what is emotionally burdensome off their chests and consequently to restore them to a condition better than the existing one.

According to narrative psychotherapists (Sarbin, 1986), there is the tendency for humans to make sense of otherwise unrelated events by imposing a narrative structure on them in order to help give meaning to a specific situation and also to assist in predicting or anticipating how such a situation will likely evolve.

Narrative psychotherapy helps to deal with a large range of issues, such as self-hate, guilt, and family problems. Observing clients experiences through their narratives helps one to understand their individual lives. It also gives an insight into their specific problems and how they deal with them.
From the above literature, we observe the important role of narratives in helping to provide insight into the social and emotional lives of people. This study, therefore, examines the extent to which narratives of parents caring for children who have severe multiple health problems serve as a communicative means to convey their personal emotional states and how that helps to stimulate responses from people around them. In particular, the study examines discourse strategies used by parents to express the problems they encounter in caring for the children, how they deal with these problems, and the extent to which they felt powerful or powerless.

Method

Study Design

The data for this study consist of transcripts of the recorded narratives of parents with children who have severe multiple health problems. Data were collected in 2007. The data are composed of participants’ narratives of their bad news and frustrations (Maynard, 2003). Participants were also asked about their experiences in raising children with health problems. Participants were recruited within a 50-mile radius from Indianapolis, the capital of Indiana, in the United States.

Participants were selected for this study through the snowball and purposeful sampling techniques (Patton, 1990). Ten parents with children who have health problems were contacted for the pilot study and all agreed to take part in the study. Two parents (3 excerpts) qualified for this case study work because their children had various severe multiple health problems and were home-schooled because of the severity and multiplicity of the children’s illness.

Another reason for selecting the two parents for this case study was that their children were in pre-adolescence, and as noted by Feldman (2007), children in pre-adolescence (children in middle childhood) spend most of their time in school and outside parental control of their conduct. However, the children whose parents participated in the present case study were home schooled and spent almost all their time with their parents. This situation provided a unique opportunity to examine the caring environment of such families.

Also, parents of children of the above age group were selected for this research because, by their very nature, pre-adolescence and adolescence constitute periods during which children develop psychologically and emotionally (Chavand, Grandjean & Vignes, 2007). Regarding children with severe multiple illness who are in these age groups, if such periods are not appropriately managed, their illnesses can disrupt their families’ cohesion and adversely impact their lives.

Procedure

Data collection began after authorization from an institutional review board was received and after participants had been contacted and agreed to take part in the study. The participants were interviewed separately and were encouraged to narrate their experiences about caring for their home-schooled pre-adolescent children, more specifically how they dealt with their problems. The interview questions were preset, however, as the interview progressed, more questions were developed based on the contributions of the interviewees.

Participants’ narratives were audio-recorded by the author and her graduate research assistant and later transcribed orthographically by them. The participants were interviewed again at a later date through the process of renewal of connection. In the transcription, pseudonyms were used instead of participants’ real names to conceal their identity and to create anonymity.

Coding and Data Analysis

Two people independently assessed the content of the participants’ stories with the intent to identify common communication strategies used by the participants in expressing their problems and in indexing their emotional states. In a way, the coding was both descriptive (it identified the way and manner in which the stories were told) and interpretive (what the communicative strategies signified). The coding took two months to complete and both coders agreed on the descriptive and interpretive categories.

Data analyses involved closely examining the content of participants’ narratives and making claims based on the narratives. By so doing, we explore the notion of meaning and how stories are used as vehicles by which participants communicate meaning. Specifically, we examine the kinds of words used by the participants to index specific situational feelings. We synthesize and analyze how
Participants deconstruct meaning of the reality of their lives (self-identity) and relationships (Strupp & Binder, 1984). Claims made will be supported with excerpts drawn from the narratives to ensure evidentially and to give credence to such claims.

Theoretical Underpinnings of the Study
The study is done within the framework of narrative psychotherapy (Benjamin, 1998; Kalmykova and Mergenthaler, 1998; Labov and Fanshel, 1977). According to Sarbin (1986), narrative psychotherapy refers to a viewpoint or a stance within psychology which is interested in the storied nature of human conduct. Working within the framework of narrative psychotherapy requires the researcher to listen to and to give attention to each participant’s dominant story. Through participant’s narratives, we explore the notion of meaning and how stories are used as vehicles through which meaning is communicated.

In this study, we examine the kinds of words used by the participants to index specific situational feelings. Thus, besides examining the semantic import of specific words used by the participants, we also explore the emotional valence associated with and/or indexed by such words. Working within the framework of narrative in psychotherapy will enable us to examine the ways that the research participants experienced the problem areas of their lives, their expectations, and suggestions for other people dealing with similar situations as theirs.

Results
Case Study 1
Context: A woman in her thirties talks about caring for 12 year-old child who was diagnosed with multiple physical problems (e.g., hearing loss and vision impairment), cognitive problems (e.g., autism and language disorder) and behavioral/emotional problems (e.g., hyperactive behavior, obsessive-compulsive disorder, personality disorder and anxiety disorder). She noted that the child’s health problems were identified at birth, but not officially diagnosed until age four and half.

The woman noted:

Excerpt 1

Parent: The emotional trauma of caring for a child who is mean is stressful, exhausting, and overwhelming. His episodes of meanness, anger, and frustration sometimes made me feel crazy. But I know all these problems are due to his sickness. I put in so much love and energy, and to have him to be so mean sometimes makes me unhappy. Anyway, I know his unpredictable behavior has something to do with my divorces. There’s no way my family can get out of this loop. The stress on my children and me is chronic.

The above excerpt provides considerable insight into the participant’s personal emotional state. Specifically, a systematic attention to the excerpt shows that the participant was emotionally overburdened. Several discourse markers indexed the above emotional state. For example, the participant used emotionally charged adjectives such as crazy, emotional, and mean, all of which denote cognitive burden. Other adjectives used, such as exhausting, stressful, and overwhelming, all have the semantic feature [+desperation]. Another adjective used to index the participant’s emotional state was that denoting perpetuity of a negative event or state of affair. The word, chronic, used in the sentence The stress on my children and me is chronic, shows the perpetuity of the participant’s emotional state and/or burden. Furthermore, the participant’s use of antithetic construction, I pour so much love and energy into him, and to have him to be mean back sometimes make me unhappy” indexed the emotional state of experiencing lack of reciprocity, not being appreciated, and the state of feeling betrayed.

Another discursive strategy that provided a window of opportunity for us to observe the participant’s personal emotional state was her use of nouns such as trauma and stress. The above nouns have the semantic features [+ high emotional valence] and [+ high (physical) sensation].

In expressing the emotional state of entrapment, the participant resorted to the use of an existential sentence: There’s no way we can get out of this loop. Like other existential sentences, use of the above existential sentence is evidentiary and a confirmation of being in a state that cannot be changed or altered by the participant. It signifies absolute and complete shutting off of all possible scenarios and an acceptance of the status quo.

On the question of how and/or whether a participant’s narrative could itself be viewed as therapeutic, an observation of the excerpt below shows that, telling others about her problems, getting emotional
support from people around her, and reading books that dealt with the problem she was dealing with helped to mitigate her anxiety and stress and made her feel loved.

Excerpt 2.
Context: Participant responds to a question about the extent to which talking to others, especially a professional, helped to ease the emotional burden on her (the participant) and what suggestions she had regarding assisting caregivers in a situation similar to hers.

Parent: I got lots of help from my therapist. She would let me call and talk to her, and this helped tremendously. She understood what I was dealing with in a way that no one else could. She told me that things felt crazy because I was dealing with a crazy situation, and this helped me a lot. I got a lot of support from her. I also coped by reading lots of books about his problems—it helped to understand his problems better and read about ways to help him and to help my children and myself. I also coped by getting lots of love and great results from my other two children. They responded in normal, expected ways to my parenting efforts. As a suggestion to help other caregivers, I will say: Respite care!!!!!!!!!!!!! Adequate, help from others so I can have a life sometimes and universal healthcare for such children [sic].

From the above excerpt, we observe the participant indexing the type of help she received from a professional therapist with expressions and words such as lots of help and helped tremendously. The quantifier lots of and the adverb tremendously signify and/or index a situation in which the recipient got more than an anticipated assistance and a sense of assurance and a subsequent mitigation of a stressful situation. Use of the first person singular pronoun, I, as well as the active voice, signify contentment, being in charge, and hence, being in a situation of power, taking charge of a situation, and trying to make things better.

An important issue raised in the above discourse is the participant’s suggestion about ways of helping other caregivers dealing with a situation similar to hers. Her suggestion points to the fact that caregivers caring for children with severe multiple health problems face an unusual life, may not have a life at all, and that assistance in the form of baby-sitting and universal care could ease the burden on such caregivers. The participant’s use of 12 exclamation marks signifies the importance she attached to respite care. In discourse-pragmatics, the use of more than the required number of punctuation, such as exclamation marks, signifies the importance the discourse participant attaches to the point being made (Moonwomon, 1995).

Case Study 2
Context: A thirty-three year old woman whose daughter (age ten) was suffering from several health problems talks about her experiences. She noted that her daughter’s health problems included such physical disorders such as low muscle tone, a seizure disorder, hearing problems, rapid transit of digestive function with incontinence, malformed left ear, bladder/kidney problems, heart problems, vision problems, paralyzed right side of face, bladder incontinence, growth hormone deficiency, high blood pressure, frequent respiratory and ear infections, malformed jaw, loose joints, hyper-nasality in speech, and a swallowing disorder requiring gastrointestinal tube feedings daily.

She noted:
Excerpt 3.
Parent: Her care has been challenging for us and we have suffered a lot and this has impacted my life. My daughter experiences stigmatization from her physical looks. The stress of caring for her numerous health problems may have led to our divorce. The care of our daughter is covered partially by insurance, but we owe a lot of money, and this is burdensome and stressful to me. Sharing my pain and burden lessens my stress and brings me some relief. But, I normally don’t have anyone to tell my problems. People get fed up very easily. Children with special needs severely interrupt parents’ normal roles and activities including sleep. Parents are often overwhelmed by the amount of medical visits. It is very emotionally challenging to handle all these problems. We have considerable stress.

A careful and systematic attention to the above excerpt and others found in the data shows that participants use specific word categories such as verbs, adverbs of manner, quantifiers, gerundive adjectives, and other discourse categories to index their emotional states (such as stress) and their unique difficult circumstances (such as divorce and/or financial difficulties). Also, participants’ ability
to narrate their problems is viewed by them as therapeutic since it lessens their pain and brings them relief.

In talking about the extent and scope of the problems she encountered in raising her daughter, the participant used the quantifiers numerous, considerably, most, significant, and wider. Apart from the word wider, which has the syntactic feature [+comparative], all of the above adjectives have the syntactic feature [+superlative]. Also, all of them have the semantic feature [+excessive]. Thus, through the narrative, we see that the participant’s condition, be it emotional, financial, or social, constituted a rather difficult experience; one that she would have wished never happened or whose occurrence and impact on her personal, social, and emotional life could have been mitigated.

Furthermore, the participant’s use of verbs, like suffer and impacted, that denote physical sensation suggest that she may not have been at ease, that she may have been emotionally troubled, or that her relationship with people around her may have been in jeopardy as a result of the child’s condition. Like the other participant, this participant alludes to the fact that her divorce and loss of friends were the result of her child’s condition.

Also, the verbs lost and separated index both a social and an emotional space or gap created by the impact of the child’s condition. In showing the extent of the child’s developmental deviations’ and the impact on her own life, the participant used emotionally-laden expressions, such as emotionally challenging, we have considerable stress, and stress of caring for her numerous health problems may have led to our divorce. Such expressions explicitly unveil the narrator’s social-emotional state.

With respect to whether the participant felt powerful or powerless, we observe from the excerpt that she felt powerless. She spoke about being overwhelmed, about having interrupted sleep, about challenges with professional care, and about not having people ready to listen to her. All the above suggest that, as much as she may have wanted to be in control of the situation, the medical system setup and the social-emotional context within which she had to operate made her powerless, exacerbated her plight, and made her overly dependent on a not-so-helpful system.

Discussion
An observation of the data shows that, through their narratives, participants conveyed such emotional states as, frustration, the feeling of sadness, desperation, being stressed out, and being overwhelmed. With respect to ways in which they experienced the problem areas mentioned above, we learned from the participants’ narratives that they experienced and/or underwent the above emotional states as a result of inadequate professional assistance and having to stay home almost all the time caring for the children. Other reasons included lack of understanding of the children’s condition by relatives and hence insufficient support from them, and sometimes, through the meanness meted out to them by the children with behavior problems.

Regarding the extent to which participants felt powerful or powerless, an observation of the participants’ narratives and the results showed that, although they were motivated by the desire to care for their children to be as successful as possible, the participants felt powerless. They felt overwhelmed by the enormity of the daily tasks of caring for the children and barely got by, whereas sometimes they felt entrapped, guilty (although the children’s condition was not their making), helpless, and overcome with anger and the thought of not being in control.

Furthermore from the data, we learn that, although giving bad news about diseases or one’s difficult circumstance may be hard and face threatening for a narrator given the stigma attached to some diseases and difficult circumstances, being able to narrate such news to a sympathetic individual offers relief to the narrator. In the words of Maynard (2003) the capacity of people encountering difficulties in life (be it illness or social-emotional), being able to narrate their plight in an atmosphere that bolsters social solidarity helps to generate effective remedial action thereby making such narratives therapeutic. This study contradicts Weenig, Groenenboom, and Wilke’s (2004) assertion that bad news is transmitted more often if the recipient was a friend rather than a stranger. In this study, not only were the participants willing to narrate their experiences to us strangers, given the fact that they saw their narratives as therapeutic, they were willing to tell their stories again during subsequent visits (Obeng, 2008). There is no doubt that the sympathy and empathy that we may have shown toward the participants may have contributed to the ease and frequency with which they narrated their plights. The researchers learned from the results that the most difficult things faced by the participants were the
impact of their children’s disability on their married lives (the fact that they had been married at least twice at the time of the study and yet were divorced).

Also, the participants’ narratives suggested that their social lives were greatly impacted by their children’s disability given the fact that they spent long hours with the children. They complained about getting inappropriate care for the children, dealing with stress, dealing with some family members who were in a denial, and dealing with relatives and neighbors who sometimes did not understand what they were going through.

With respect to discourse strategies, participants’ use of words with strong implications for dealing with emotional valence shows the extent to which language, cognition, and emotion inform each other.

Conclusion
This study has implications for views on children’s health, for the field of social work, and for the field of children’s emotional health. In particular, it highlights the plight of physically and mentally challenged children, especially the problems they encounter in their daily lives and the impact of the problems on their immediate family members and on issues relating to their acceptance or rejection by society. The study also highlight the help such children need in order to survive in a world in which they require the goodwill and sacrifice of their caregivers. Furthermore, the study highlights issues relating to adaptation to the children’s home-schooling environment and the amount of effort needed to function in such contexts.

With respect to the parents, the study has shown the sacrifices they make, their frustrations, their determination in ensuring that their children succeed despite their difficult circumstance, and their joy and satisfaction with the occurrence of success in bringing up such children even if such success is minimal. An important lesson learned from this study is the fact that there is the need for a holistic approach in dealing with the problems faced by parents who have children with multiple severe health problems. Specifically, such approach should look at the child by taking into consideration the nature of their health problem, the child’s persona, his needs, as well as his overall context or environment. The parents’ socio-economic, cultural, and socio-emotional state, as well as the social services available to her and her child or children should also be taken note of and be adequately addressed.

With respect to emotional health, the study highlights the importance of psychotherapy and the need to provide a platform for parents caring and schooling physically and mentally challenged children to air their frustration and to seek help. Creating such a platform or avenue and providing professional help will help reduce instances of stress and will help them achieve optimal health.

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INCLUSIVE EDUCATION IN DEVELOPING COUNTRIES IN THE SUB SAHARAN AFRICA: FROM THEORY TO PRACTICE.

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The various policy documents that have emerged over time stressed the principles of human rights, social justice, quality education for all, the right to a basic education; equality of opportunity, and re-address of past educational inequalities. This paper gives the background of inclusion and further tries to motivate and suggest how developing countries can move from theory to practice. It looks at inclusive education and its demands, the position of regular schools, a discussion on constraints experienced by developing countries in relation to the demands of inclusion, implications for integration and special schools as well as teacher training.

When the subject of inclusive education is introduced one cannot help thinking of its demands and all it calls for, it seems like raising an umbrella against a storm. On one hand, this position or attitude is a cause for concern, and yet on the other end inclusive education is about the transformation of the education system. Education is a conservative enterprise and change of this nature must surely result in wide scale skepticism (Naicker, 2000). Given the financial and human resources constraints, that developing countries experience, the seemingly unclear situation at governments level, ideological socialization, large classes, lack of awareness of what inclusion entails, an unrealistic sense of urgency of some with regards to implementation, are good enough reasons to scare many. At this juncture proponents of inclusive education must realize the enormity of the task at hand. Developing countries cannot afford an overnight change of attitude or position on Inclusive Education. Policy endeavors must evolve grassroots participation so that all stakeholders are well informed and in order for the process to enjoy the support of the majority of teachers, parents, children, the community and those who are generally involved in education.

The inclusion debate has essentially developed along moral and ideological lines, with access to mainstream schools seen as a basic right for all. Tilstone, Florian & Rose (1998) suggest that we live in an ideological climate favouring the inclusion of all handicapped pupils into ordinary schools. Inclusion of pupils with disabilities into regular schools came about as a legislative mandate for special education service (Aefsky, 1995). This is supported by legislation in many countries. One of the most significant events to change the nature of education and special education was the passage and Education of All Handicapped Children’s Act gazetted by the United States Congress in 1975. The Public Law 94-142 (PL 94-142) enabled access to public school classrooms for thousands of children who previously were not eligible for regular school education due to the nature and severity of their disabilities. This law was reauthorized in 1990 as the Individuals with Disabilities Education Act (IDEA). In 1990 at the Jomtien conference in Thailand, the World community pledged to ensure the right to education for all, regardless of individual differences. In addition to this the Salamanca Statement on Principles, Policy and Practice in Special Needs Education (1994) made the proclamation that all children with special educational needs must have access to regular schools. In Italy the 1971 Education Act enforces the inclusion of all handicapped pupils into regular schools (Buzzi, 1995). In developed countries there is a swift move towards inclusion, for example in the United States of America, the United Kingdom and in Australia (Mittler, 2000; UNESCO, 1993). In developing countries Educational Institutions were still working on improving integration and have now been caught in a wave of change towards inclusion. Most developing countries get their literature and other educational resources from developed countries, mostly England, United States of America, Australia and Canada (UNESCO, 1994). Therefore it would appears as though major developments or transformation that occurs in developed countries has a direct influence on developing countries that
rely heavily on the literature and resources from these developed countries. Winter (2000) points out that due to lack of relevant research and literature, developing countries continue to develop trailing behind developed countries. They cannot afford to develop far behind because most of their personnel are educated and trained in developed countries with the use of the latest technology, current educational innovations and literature. It is therefore imperative that developing countries are likely to continue to embrace new changes before they fully implement existing programs.

Inclusion according to Mittler (2000b) implies a radical reform of the school in terms of curriculum, assessment, pedagogy and grouping of pupils. He goes on to point out that inclusion is based on a value system that welcomes and celebrates diversity arising from gender, nationality, race, language of origin, social background, level of educational achievement or disability. Booth (1999a) argues that inclusion cannot be considered in isolation from exclusion, therefore it is a process of increasing participation of learners and reducing their exclusion from the curricula, cultures and communities of neighbourhood mainstream centers of learning. Ainscow (1999) contend that inclusive education should be concerned with overcoming barriers to participate that maybe experienced by any pupils. While the tendency is to think of inclusion as involving the movement of pupils from special to mainstream contexts, with the implication that they are included once they are there, in contrast inclusion is a process that takes time to develop within mainstream schools. Inclusive education is provided in the regular classroom but is not incompatible with the notion of support (Booth, 1999b). The implication is that all teachers are responsible for the education of all children irrespective of individual differences or disability.

**Inclusive education and its demands**

Inclusion is a vision, a road to be traveled, but a road without ending since it is a process rather than a destination and a road with all kinds of barriers and obstacles, some of them invisible and some of them are in our own heads and hearts (Mittler, 2000a). Inclusion involves diversity, change of mind-set, values for schools and for society, social justice, universal human rights and equal opportunity. Inclusive education allows all students to have access to any school of their choice in their area regardless of their strengths, weaknesses and disability. They are included in the feeling of belonging among other pupils, teachers and support staff.

The federal Individuals with Disabilities Education Act (IDEA) and its 1997 amendments make it clear that schools have to educate children with disabilities in general education classrooms. As spelt out by James Grant, Director of UNICEF (1991), if the 21st century is to be a better one for mankind than the 20th has been, then it is essential that the principle of first call for children becomes part of the new political intellect. The Jomtien conference held in Thailand, organized by UNICEF, UNESCO, the UN Development Programme and the World Bank, had the goal Education for All by 2000 by providing free education to 200 million children worldwide. According to the figures published by UNESCO (1994), 16 countries in sub-Saharan Africa account for almost all children in Africa between six and eleven years. However, the enrollment rates have fallen and the trend seems to continue. The report indicates that this region accounts for one-third of the world’s children who are out of school. It is estimated that on current trends, the proportion will rise to three-quarters or 75% by the year 2015. Although the Jomtien documents made explicit references to children with disabilities, very few governments have reported new initiatives to enable children with disabilities to attend regular schools. The Salamanca conference marked a major milestone on the road to inclusion. While there is consensus on the implementation of inclusion it is the writer’s view that developing countries have not yet arrived at the point where every school in each and every developing country would have to implement inclusive education. This must be discouraged at all costs, all stakeholders need to be educated, informed and have full knowledge of the journey of inclusive education and how it is to be traveled. This way the project will enjoy support from all players, thus regular class teachers, support staff, parents, children and the community at large.

In developed countries Italy passed legislation in 1971 that led to the closure of most special schools thereby transferring all children with special educational needs to regular schools with support. Spain invited schools to volunteer and in return enjoy a 25% reduction in class size and the guaranteed services of a support team. Hegarty (1987) asserts that in England the 1981 Education Act encouraged more inclusion of children with disabilities in ordinary schools. Canada encouraged the policy of inclusion as early as 1983 (UN, 1993). In Australia inclusion was encouraged from as early as 1965 (Center & Ward, 1987). Germany, the Netherlands and France established isolated inclusive practice while retaining special schools and systems at national level (UNESCO, 1996). Apart from the above-
In developing countries, inclusive education is receiving strong government backing in China (UNESCO, 1996).

In developing countries, Uganda has shown commitment to universal primary education and in particular inclusive education. Despite civil wars and the AIDS pandemic, Uganda has opened its education system to a number of underprivileged children. Four in every family have access to free primary education and any child who has a disability or is a girl has first priority. The number of children attending school has increased within a short time (Kristensen and Kristensen, 1997). Policy and practice throughout the world is moving towards inclusion (Daniels & Gartner, 1999) but this process seems to be happening with more commitment and more enthusiasm in some of the poorest countries of the world. Poverty is not the sole explanation for not implementing inclusion; it is a matter of political will and priorities. Some poor countries invest in education (UN, 1993); these include Cuba, Sri Lanka, Vietnam, Indonesia, Guyana, parts of India and Zimbabwe. A good example is Lesotho one of the poorest countries in the sub-Saharan Africa. Despite major economic problems, the government of Lesotho sees education as a priority. It launched a pilot programme in 1993 in which ten rural primary schools included all local children with disabilities in the regular classroom (Khatleli, 1995). About 300 children with disabilities took part in the pilot programme, out of an enrolment of over 9000 pupils. In support of this programme nearly all the teachers in the selected schools were given an intensive three-weeks training. When the programme was evaluated, it was noted that there was full commitment and a feeling of confidence and empowerment in the teachers concerned (Mittler & Platt, 1995). The interaction was total, both socially and educationally. Despite the class sizes of 50 to 100 pupils, a wide range of teaching strategies was noted, small group work, one to one teaching and peer tuition. The report also indicates that teachers never lost track of including all children all the time and so were naturally inclusive.

The actual demands of inclusive education are nothing new. Teachers already have much of the knowledge and skills they need to teach inclusively (Mittler, 2000b), what they lack are confidence in their own competence. The provision of support systems both within schools and from outside, are key to progress. Teachers need to be professionally developed and prepared for the situation psychologically, socially and attitude wise in order for them to support inclusion all the way. With time, workshops, seminars and exposure, teachers will build on their experiences and skills in reaching all children. It is the writer’s conviction that developing countries have not yet reached a stage where all regular schools can practice inclusion. Therefore selected schools throughout the regions or villages could be properly resourced to include all children. Schools in rural areas and remote places where infrastructure is less developed, work under difficult conditions with a shortage of resources and lack of support. Groundwork has to be done in schools and communities in order to cultivate positive attitudes towards inclusion. Where attitudes are positive, inclusion is likely to succeed. A study by Croll and Moses (1985 and 2000) in Mittler (2000b), where they interviewed 48 head teachers and 300 class teachers in 60 primary schools, indicate that nine out of ten teachers thought the regular class was the right place for children with special educational needs. Teacher perception and attitudes are fundamental to their (teachers) response to new policies on inclusion and will affect how they react to and implement the programme. Staff development programmes should be intensified in all schools to equip teachers with the necessary skills to teach in an inclusive environment.

Regular schools
If inclusion is going to work, all teachers in regular schools should be prepared to teach all children irrespective of the children’s individual differences. The programme should be supported by education authorities, school boards, head teachers, parents, children and all members of the external support staff. Some schools will quickly adjust to accommodate the inclusion programme, others will need more time to adapt and put more facilities in the schools. Each school will encounter different obstacles along the way, but all schools will find that the most difficult barriers spring from deeply ingrained but not necessarily expressed doubts about whether inclusion will work or not. Governments and schools should work towards the implementation and enforcement of the philosophy, values and principles of inclusion as set out by UNESCO (1994). These are some of the major challenges that developing countries face in implementing inclusive education:

1. Inclusion and participation are essential to human dignity and to the enjoyment and exercise of human right.
2. Human differences are normal.
3. Learning differences must be adapted to the needs of the child.
4. Ordinary schools must recognize and respond to the diverse needs of their students.
5. Regular schools with an inclusive orientation are the most effective means of combating discriminatory attitudes, creating welcoming communities, building an inclusive society and achieving education for all.

6. While regular schools provide an effective education to the majority of children, they also improve the efficiency and ultimately the cost effectiveness of the entire education system.

7. Governments should adopt as a matter of law or policy the principle of inclusive education, enrolling all children in regular schools, unless there are compelling reasons for doing otherwise.

The foundation of inclusion must be classrooms and teachers that already provide support naturally as part of daily practice. In this case schools should ensure that all pupils are fully involved in lessons and have opportunities to interact meaningfully with the teacher and with one another and that they benefit. In order for the programs to be effective, there is need for support personnel to help teachers. Support should not devalue or deskill the existing quality practice. It can be offered in the natural environment of the ordinary classroom and using the teacher’s experiences and natural repertoire of skills in ensuring that all pupils participate and are included. Regular schools should ensure that extra-curricular activities encourage the participation of all children and draw on their knowledge and experience within and outside the school. Learning programmes are to be responsive and accessible to all children catering for their individual differences. The learning environment should allow children to be actively involved in their learning and also enjoy cooperative learning. Discipline is to be based on individual understanding and respect. Teachers are to prepare a variety of activities to minimize barriers to learning and participation for every student. It would be important for teachers to adopt partnership in teaching to support the learning and participation of all children. School resources are to be made known and distributed fairly throughout the school to support inclusion. Staff expertise is to be fully utilized so that child difference is fully supported in learning and participation. Curriculum materials should be adapted to suit and reflect the background and experience of all learners. All learning and other school activities should be accessible to all children. Teachers and other members of staff need to be aware of the physical effort required to complete tasks by some learners with impairments or chronic illness. Some children with impairments will require additional time to use equipment in practical work. Members of staff should be able to provide alternative ways of giving experience or understanding for children who cannot engage in particular activities for example using science equipment during experiments, some exercises in physical education or exercises that may require observation and recording where blind children may be involved. Planning and preparation of lessons should include a variety of activities to cater for all children irrespective of their limitations, abilities and disabilities. Assessment procedures should suite individual children taking into consideration their limitations and how best they can be assessed. Therefore schools cannot afford to have one standard way of assessing children’s performance since this will disadvantage children with special educational needs. A variety of assessment procedures will have to be put in place in order to realistically measure different children’s performances.

It must be pointed out that this is not going to achieve easily since there are difficulties and challenges to be overcome on the way. Availability of resources is one area of concern. A research team could be put in place to find out the needs of schools and then make recommendations for learning materials to be made. More time would be needed by both teachers and children in order for them to cover all the skills in the curriculum. This could be achieved through a combination of individual, group, class, theme and project teaching. Teachers and support staff could be given more training to develop and enhance their skills in teaching children with special needs. This could be achieved through seminars, workshops and short courses. While it would appear to be more expensive due to increased teaching materials and personnel involved, special schools have not been cheap either (Farrell, 1999). The cost of education and training through inclusion should be weighed against the cost of supporting these individuals through out their life span. It would be important to in place monitoring strategies and have a multi-disciplinary assessment team that comprises of specialist teachers, psychologists, speech and language specialists, physio and occupational therapists, counselors and other relevant professionals to monitor, evaluate and review the program.

*Teachers supporting each other*

Teachers can support one another whenever they have an opportunity to discuss problems and barriers of inclusive learning. A visiting specialist teacher could hold meetings with regular class teachers and discuss problems they face and she can facilitate the exchange of information and ideas. While the presence of a second adult in a classroom might be a new experience for most teachers in the
mainstream classrooms and may not be prepared for it, partnership in teaching can strengthen and further the cause for inclusion. Classroom and support teachers should plan, review lessons and share ideas in working with individual children, groups and the whole class. More support teachers can be trained and work together with mainstream teachers switching roles such that when one is working with a group the other is working with individuals. Studies by Farrell (1999) confirm that support-staff play a key role in acting as the main source of support for children with exceptional needs in mainstream schools. Other members of the support team can spend the whole of their time helping one or more children in the mainstream setting. Although teachers were responsible for planning schemes of work that were then implemented by support teachers, in many cases support teachers took the lead in adapting programmes of work and in planning new programmes (Farrell, 1999). While the use of trained para-professional staff plays a vital role, the moral and ethical implications associated with their involvement are disturbing. It is a dilemma that many developing and developed countries have learnt to live with. Teachers and support staff should work as a team and share practical ideas on how they can deal with children who are more challenging and demanding.

Children supporting one another
Successful inclusion and participation in lessons and in the life of the school depends to a large extent on other children. In general, help and support are given casually and without teacher planning or intervention. In developing countries where schools experience large classes, children are grouped in mixed ability groups so that the more able children help the less able ones. The other form is that of peer tutoring that has been found to be effective and natural through the play-way method (Winter, 2000). Research reviews on inclusion of children with severe learning difficulties report that other children in the schools are generally supportive and accepting (Farrell, 1997 and Sebba & Sachdev, 1997). Another study by Lewis (1995) of groups of children working together in one school provides more insight into the process of inclusion from the perspective of the children involved than any number of scholarly reviews. In general research studies indicate positive results on mainstream children supporting other children with special educational needs. This process can further be encouraged and implemented in developing countries.

Implications for special schools and integration
The process of working towards a more inclusive society has to start long before children first go to school. Its foundations lie in a society in which parents can feel supported, both economically and socially, in bringing up a family in a society in which children are valued and cherished and given an opportunity to flourish. In some of the developing countries (UNESCO, 1993) most children with disabilities are now identified early and many are in mainstream provision of one kind or another, such as playgroups, day nurseries, nursery schools and pre-schools attached to mainstreams. Special schools can join hands with mainstream schools and slowly reduce their numbers off loading into mainstream schools. With careful planning special schools could avoid enrolling children who can benefit from the mainstream and only enroll extreme cases like bedridden children who require medical treatment regularly and those who frequently rely on medicine to calm them down. It would not be a sensible venture to include all children without taking into consideration whether the child benefits or not.

Integration programs could be adapted to inclusion. Integration involves preparing pupils for placement in ordinary schools. Pupils go through educational and social readiness before they are transferred to ordinary schools (Blamires, 1999). Appropriate equipment for pupils with special educational needs and specialist support is available in the mainstream school. Specialist teachers service individual children or groups of children in units in particular subjects. Integrated children could remain in the mainstreams with reduced support but with total involvement in the life of a regular school. It would be a good starting point for inclusion. Schools already running integration programmes could be the first to introduce inclusive education on full scale because the resources and personnel are already in the schools.

Initial teacher education is to ensure that newly qualified teachers have a basic understanding of inclusive teaching. Teachers need to be made aware that inclusive schools are the most long-term beneficial investment that can be made for children with disabilities. All teacher-training courses could make the inclusion of special needs element a condition for the approval of training courses. This aspect could be embedded in all educational courses. Training programs could be extended from three years to four years in order to cover the aspect of inclusive education. Special needs training should cover children from pre-school so that qualified teachers can teach pre-school children in mainstream whether it is a day care center or nursery school. This would help to include children from an early age.
and it would just become a natural system. Although some colleges have implemented this, the programmes do not adequately prepare students. A study by Vlachou (1997) indicates that newly qualified teachers who had received some elements of special needs during their teacher training expressed that they were not well prepared to teach children with special needs. It is also possible that they may not have been prepared socially and psychologically. However, the goal is to prepare every teacher to teach all children. Success for a few was an option in the past and success for all is the challenge now (Blunkett, 2000).

Conclusion
The road to inclusion is not an easy one; it involves change of attitudes, change of values, change of teacher training programmes and change of school systems. While change is one of the few permanent aspects in life, not many people are comfortable with it for fear of losing control of the known. As pointed out before, there is need for change of mindset such that the society at large and the school in particular cultivate norms that include pupils with special needs both in society and at school. Communities need to plan buildings, accommodation, roads and sporting facilities accommodating the needs of people with special needs. Schools need to adapt their facilities in order to easy the movement and operational activities for children with special needs. This calls for change of attitudes and a shift in values. If developing countries are to implement inclusive education meaningfully, schools need to re-think their value systems, restructure their organizations and curriculum and assessment procedures in order to overcome barriers to learning and participation and cater for the full range of children in their schools and in their countries. The degree to which education authorities, head teachers and mainstream teachers understand and are committed towards inclusion is reflected in the quality of the support they give and the amount of time they commit to the programme. While developing countries have financial constraints, the main issue is not about poverty, it is about attitudes, values and beliefs and political will. A number of poor countries that have implemented inclusion have been cited and their programmes are on the road to success. It is about time that developing countries use the little available resources they have and do what is practical and feasible in their situation. There is need to map out strategies in order to develop sound policies and clear objectives that support the implementation of inclusion.

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CHILD-REARING PRACTICES AND DELINQUENCY IN CHILDREN AND ADOLESCENTS

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The present paper is an overview of studies examining the way family influences the development of delinquency in adolescents. The review focused on published papers dealing with the association of adolescent delinquency and their families. The association between family practices and juvenile delinquency, with potent predictive value is established and bidirectional effects exist. However the influence from parents to adolescents is stronger. In addition indirect evidence, from early intervention studies, supports the causal role of family variables in the development of juvenile delinquency. Effective family functioning, in spite of several social adversities, exerts a buffering influence on children, thus protecting them from delinquent behavioural manifestations. Finally, the assumption that genetic influences are responsible for both poor child-rearing practices by the parents and juvenile delinquency is not well supported by the literature, suggesting that effective parenting exerts an independent influence in the socio-emotional functioning of children and adolescents. The evidence suggests that effective child rearing practices is a necessary though not sufficient factor for the psychosocial development of children and adolescents. Educational programmes, of a preventive nature, could be promising in reducing levels of delinquency. The protective role of effective family functioning in protecting children and adolescents from antisocial behaviours is evident from many studies internationally. The role of a supportive family environment could be suggested as a protective factor for juvenile delinquency.

Neglect in the family has been considered a risk factor for multiple problematic outcomes in adolescence. Parenting has been consistently found to be related and predictive of juvenile delinquency; thus, it is considered a general risk factor for juvenile delinquency and general socio-emotional functioning (Loeber & Farrington, 1998; Pedersen, 1994). Research has followed a variable-oriented strategy, and family functioning has been viewed as a single attribute responsible for many adverse outcomes, including delinquency and substance abuse among others, following the principle of multifinality (Thornberry, Ireland, & Smith, 2001). On the other hand, regarding adolescent delinquency, it has been proposed (Rutter, 1994; Rutter et al., 1997; Rutter, Giller, & Hagell, 1998) that the causes of antisocial and offending behaviour are not easily captured under one causal factor – rather, many factors are operating in adolescents’ and young adults’ offending behaviour, consistent with the principle of equifinality (Thornberry et al., 2001). A combination of various risk factors with either additive or interactional effects has been proposed (Farrington, 1995).

Longitudinal Studies Predicting Juvenile Delinquency from Child-Rearing Practices
McCord (1979), reviewed files of 201 boys, participating in a treatment program of delinquency prevention between 1939 and 1945, who were reared by their natural mothers. The files contained information about their home environment and compared them with court reports thirty years later to obtain an index of offending. This methodological procedure had the advantage that measures of home atmosphere were uncontaminated by retrospective biases and measures of subsequent behavior were uncontaminated by knowledge of home background (McCord, 1979). These two sources of data were independent, not coded by the same individuals and they were oblivious of the other source of data. Results from the study indicated that more than a third of the variance in both number of convictions for property offenses and offenses against persons could be predicted from six variables reflecting the child’s home environment.
In addition, the most potent predictors were related to child-rearing namely supervision, maternal affect and parental conflict. Furthermore, 75% of the sample could be classified as ever criminal or non-criminal, as youngsters, while a higher 80% could be classified as criminal or non-criminal as adults, that is, after the age of 18, better than chance. The results are limited to the population from which the sample was selected. However they provide support for the possible detrimental effects of poor parenting on the development of juvenile and adult delinquency. Additionally clearly identify home environment, and more specifically, parental child-rearing practices, as potent predictors of juvenile and adult criminality.

Farrington (1995), identified poor parental child-rearing behavior as among the most important independent predictors of juvenile delinquency, based on the results from the Cambridge Study In Delinquent Development, *a prospective longitudinal survey of the development of delinquency and antisocial behavior in 411 South London boys*. A main focus of this study was on continuity or discontinuity in behavioral development, on the effects of life events on development, and on predicting future behavior (Farrington, 1995: 930). He noted that strict, controlling discipline, lack of supervision, intermarital conflict and separation from parents constituted the basic elements featuring family functioning that had the most detrimental effects on juvenile male development and the development of delinquent behavior. Farrington (1995), further argued that juvenile delinquents differed significantly from unconvicted juveniles (the measurement of delinquency based either on official convictions or self-reported delinquency, both of which provided similar results), at age eight to ten before anyone in the sample was convicted. On several aspects of their familiar environment, They tended to be receiving poor parental child-rearing behavior, characterised by harsh or erratic parental discipline, cruel, passive, or neglecting parental attitude, and parental conflict. The parents tended to supervise them poorly, being lax in enforcing rules or under-vigilant (p. 939). Furthermore, potential juvenile delinquents were more likely to have experienced separation from their parents and their parents tended to have authoritarian child-rearing attitudes.

Moreover, at age 14, those boys who later became delinquents, showed the same pattern of characteristics with regard to their family environment as at age eight to ten, suggesting a continuity of those family characteristics that are related to delinquent behavior over time, and their pervasive influence on child and adolescent psychosocial development. Although the predictive efficiency of poor parenting behaviour, independently of other predictors, was established, it was not possible, as Farrington (1995) argued, to distinguish the possible influence that genetic factors might have played. The study did not include a behaviour genetic design, examining twin brothers and/or adopted children. If this was done they could have partialled out the influence of biological factors and the environment on delinquent behaviour. Thus genetic influences could account for both poor parenting practices and juvenile delinquent behaviour.

Henry, Moffitt, Robbins, Earls and Silva (1993), in a prospective longitudinal study, attempted to examine the predictive utility of family related variables with children and adolescent antisocial behavior. This was measured from different sources of information, self-reported, official and parents’, teachers’ and peer ratings. Certain aspects of family functioning were related to general psychosocial child and adolescent functioning, being associated with both externalizing (delinquent behavior) and internalizing (anxiety/ depression/ withdrawal symptoms). The study supported the suggestion that dimensions of the relationship between parents and children could be regarded as general nonspecific risk factors for the psychosocial development of children and adolescents. The study also compared adolescents who showed delinquent behavior and those with other disorders, mainly internalizing symptoms, in an attempt to identify those familial variables that are exclusively related and predictive of different and distinct psychosocial problems in adolescence, with the aim to identify factors possibly uniquely and causally related to delinquency as opposed and compared to internalized psychosocial problems. The results revealed that the two most important predictors of antisocial behavior at age 11, measured by times of police contact, was parental disagreement on discipline when the child was five years old and the number of parent changes experienced in childhood. Cumulative summation of the number of parent changes to age 13 was the most important predictor of the number of police contacts by that age, suggesting a possible causal role of family stability in early adolescent delinquent behavior. Although the percentage of variance explained was quite modest, it provided evidence for unique predictors of antisocial behavior in late childhood and early adolescence.

As Henry et al (1993) noted, several other characteristics could also have been measured, for example, paternal characteristics and family criminality, which could account for higher percentage of variance.
in delinquent behavior. Moreover, delinquent behaviour could have been operationalised as a continuous variable. If this was done, a higher proportion of the variance could have been accounted for by the predictor variables. Yet the approach of group membership provided more confidence in identifying unique correlates and predictors of delinquent behavior, especially stable and pervasive antisocial behavior. It is worth noting that the socio-economic status of the family and pre-school behaviour problems, were controlled. This was done, to statistically partial out the possibility that social adversities and early temperamentally difficult children could tax the skills and patience of parents and influence the stability and quality of the parent-child relationship. Thus, it was possible to assess the relative contribution of other aspects of the family life in the prediction of adolescent delinquency. The two aforementioned variables were identified as possible confounding variables of other correlates of adolescent delinquency. The procedure followed permitted, statistically and to a certain degree, to estimate the relative contribution of variables of a more dynamic psychological nature, as opposed to static social class and biological determinants.

Kolvin, Miller, Fleeting and Kolvin (1988), report similar results from the analysis of the data of the Newcastle Thousand Family Study. The study was a birth cohort longitudinal study of one thousand one hundred and forty two infants, boys and girls. The aim of the study was to investigate the relative contribution of several indices of deprivation in the prediction of delinquency and the possible transmission of deprivation and delinquency across generations. There were included indices reflecting social deprivation, and ratings about marital instability, poor physical care of the children and poor mothering ability. It was found that poor physical care of the child and the home by the mother emerged as the most significant factor associated with general delinquent behavior. It was also consistently related with different types of delinquent behavior such as violent offenses, theft, fraud, criminal damage, drinking and motor offenses. Additionally, male offenders tended to have parents who were rated as ineffective in their parental role and more aggressive fathers. They concluded that although the operative mechanisms linking deprivation to delinquency are not clear, taken together, the findings again emphasize the importance of poor supervision, direction, and guidance of children in the genesis of delinquency (p. 89).

In support for the role of poor child-rearing practices in the prediction of juvenile delinquency comes from a review of the most potent predictors of male delinquency, by Loeber and Dishion (1983). According to the evaluation of several studies measuring parental skills and child-rearing practices to predict future delinquent behavior, parental family management techniques emerged among the most potent ones in predicting male adolescence delinquent behavior. The authors stressed the importance of family related variables both for prediction purposes and preventive actions against the development of delinquency, as family dysfunction can be measured early in the life of children and proper intervention applied. Furthermore, the research showed that children and adolescents from families employing poor family management techniques accounted for approximately half of the offences committed, although they represented a small proportion of the children (approximately 11% to 16%). This finding revealed that offending was gathered within families. The authors suggested that some families were more at risk of delinquency than others, and child-rearing practices could be responsible for that discrimination. A similar pattern emerged from the Cambridge Study In Delinquent Development, where five percent of the families accounted for half of all the convictions of all family members (Farrington, 1995: 939), providing extra support for the assertion that environmental factors, expressed by family environment, might be encouraging juvenile delinquency.

In terms of prediction and according to many longitudinal studies (Farrington, 1995; Henry et al, 1993; McCord, 1979), child-rearing practices, operationalised in different ways, consistently predict antisocial behavior and contacts with the law during adolescence. The measurement of child-rearing practices was made at a time when the children were at a young age and prior to any manifestation of antisocial behavior by the children it seems likely that parental management is a probable antecedent of juvenile delinquency and antisocial behaviour.

*Intervention Studies Suggesting a Causal Role of Child-rearing Practices in Antisocial Behaviour*

Larzelere and Patterson (1990) and Patterson (1986) reported that interventions aimed at parental education and training to deal with delinquent and antisocial behavioral manifestations in children and adolescents, resulted in reductions in the antisocial conduct of the adolescents. Patterson and Reid (1973), replicating an earlier study of parental education on monitoring and effective use of behavioral principles for reducing antisocial behavioral manifestation of their children, reported that nine out of eleven families showed reductions of greater than 30 per cent (targeted deviant behaviour) from
Evidence of the causal status of parenting in the development of antisocial behavior and delinquency across the life span comes from early intervention programs targeting those risk factors that have been consistently associated and predictive of antisocial conduct. Yoshikawa (1994) reviewed the programs that had been designed to provide early family support and education to children and their families who were under the influence of risk criminogenic factors. The interventions were intensive during the children’s first five years and were designed with a clear research orientation and assessment of progress in view. They included control groups and random assignment to intervention with extensive follow-ups that enabled the researchers to assess possible sleeper effects and stability of gains over time. The studies actually postulated two pathways in the development of resiliency against delinquency, one through the effects of cognitive development and school achievement and the other through the enhancement of parenting for buffering socio-emotional dysfunction. The interventions were designed to facilitate the general development of children and functioning of the families.

Yoshikawa (1994), had noticed sustained improvements in the socio-emotional functioning of the children, which included school attainment, reduction in delinquency and antisocial behavior and less chronic delinquency rates in comparison to the controls. Although these results are helpful in estimating the efficiency of early intervention programs, the evidence for the effects of parenting in the general socio-emotional functioning in children, including delinquency, over time can only be inferred indirectly, as the components of the programs targeted many risk factors. However, mainly family support and children education (Danos, 2003; Kavoura, 2001) with those targeting both achieving better results than those that targeted either of them, may be mainly due to their cumulative or interaction effects. Despite the difficulty inherent in the studies, to assess the relative contribution of improved parenting on the delinquent behavior of the children, it seems that effective parenting is a necessary, while not sufficient, factor for the normal development of children and the inhibition of antisocial behavior and delinquency in childhood and adolescence.

**Reciprocal Parent-Child Effects in the Development of Antisocial Behaviour**

Although the association between parental rejection and persistent juvenile offending seems supported, it is not evident that parental rejection causes delinquency and persistent offending. It is equally plausible to assume that delinquency induces parental rejection or there is a bi-directional relationship (Borduin and Schaeffer, 1998). Liska and Reed (1985) examined the reciprocal effects of ties to conventional institutions and juvenile delinquency, and the results from family studies, measuring parental attachment, supported the idea that low attachment precedes delinquency. They noted that parental attachment is implied by many theories of juvenile delinquency as a causal antecedent of delinquency, although they may disagree on the underlying processes that account for the association. By examining two main institutions that have been consistently associated with juvenile delinquency, family and school, they hypothesized that the effects might be reciprocal. Lower family and school attachment to influence juvenile delinquency and delinquent behavior had an effect on family and school ties by inducing reprimanding and rejecting behavioral responses by parents, teachers and classmates. They reanalyzed the data from the Youth in Transition study (Bachman, 1975 cited in Liska and Reed, 1985) a four-wave, multistage, national probability sample of 1,886 boys to test their hypotheses.

Liska and Reed (1985) concluded most of the observed negative relationship between parental attachment and delinquency comes about because of the effect of parental attachment on delinquency (p. 557). In general it was supported that parental rejection had a direct effect on adolescent delinquent behaviour and that the relationship between the two was bi-directional. In addition variability of intervening processes for that relationship has been proposed.

Similar results are reported by Simons, Robertson and Downs (1989). In a two wave panel data of adolescents aged between 13 and 17 years it was found that the path coefficient for the effect of parental rejection on delinquency was significant, whereas the reciprocal path, that is, from delinquent behavior to parental rejection, was not. The results suggest that parental rejection has a possible causal effect on adolescent delinquency and that reciprocal effects are not probable, noting the importance of the quality of the parent - child relationship in the development of antisocial behavior in the adolescent. Evidence, however, for reciprocal, transactional effects between children and parents, for the development and expression of conduct disorder in children and adolescents, has been reviewed by
Lytton (1990). Despite the evidence reviewed, it was recognized that family factors, and especially maternal affection, could act as a buffering factor for the expression of conduct disorder.

Rutter et al (1998), in evaluating research about parents-children effects in the relation of coercion and hostility with antisocial behavior, reported that, although children effects on the behavior of their parents exist and the relationship seems to be bi-directional, this cannot be the principal explanation. Family circumstances have been shown to be predictive of adolescent criminality even from the preschool years. The authors concluded that a reciprocal dynamic process can be suggested which is more evident in younger children than adolescents and that the relative strength of each part of the bi-directional relationship remains to be established.

**Patterson’s Coercion Model of Reciprocal Parent-Child Effects in the Development of Antisocial Behaviour**

The recognition of reciprocal parent-child effects in the development of antisocial behavior in children and adolescents has been incorporated in performance models advanced by Patterson (1986) and Patterson Dishion and Bank (1984) for antisocial boys. The first of the models deals with the learning of antisocial behavior in the home, within a social-interactional perspective. The assumption central to the general model is failure by parents to effectively punish garden variety, coercive behaviors sets into motion interaction sequences that are the basis for training in aggression. The process set into motion involves family members in patterned exchanges of aversive behaviors; the exchanges are such that both members train each other to become increasingly aversive. This process is labeled coercion. (Patterson, 1986: 436).

The central and important parental determinant of aggressive patterns in the boys is suggested as being ineffective discipline by parents. Analysis of interaction sequences at the micro social level within the family of antisocial children, revealed that parents respond to disciplinary confrontations with verbal aggressive responses. Some of these include, threats, nagging and lecturing, while they fail to follow their verbal warnings with concrete punishment, in terms of withdrawal of privileges, time out, etc. On the contrary, infrequent, sudden explosions from parents with physical punishment were often observed.

In general, Patterson (1986) and Patterson, Dishion and Bank (1984) suggested that a vicious cycle of coercive exchanges within the family provide a training of coercive patterns to both children and parents. These patterns can potentially escalate to aggressive behaviour and generalize to other settings where children function such as, school, and peer groups. Thus coercive patterns substitute for social skills in everyday social exchanges. The consequences from coercive behavioural patterns of the children in these settings include rejection by peers, low academic attainment and low self-esteem. Furthermore, Patterson (1986) suggested that this process would be more detrimental for children when a combination of poor parental skills and difficult temperament of the child is evident. The presence of other stressors such as substance abuse is expected to exert a negative influence on parenting, thus initiating, maintaining and escalating the coercive exchanges of parents and children within the family. Within the coercion theory the reciprocal effects of parent-child bi-directional relationship have been most accurately described and incorporated into a model of development of antisocial behavior in children and adolescents.

In line with the theoretical model proposed by Patterson (1986), Stice and Barrera (1995), examined the reciprocal relations between parenting and adolescent substance abuse and externalizing behavior. Utilizing data from a two-wave study with an one year interval, and employing structural equation modeling techniques, the authors reported that full prospective reciprocal relations were found between perceived parenting and adolescent substance use, such that deficits in both parental support and control prospectively predicted adolescent substance use, and adolescent substance use was prospectively related to lower levels of parental support and control. In addition regarding externalizing symptoms, the prospective effects of adolescent externalizing behaviour on parenting practices are consistent only with that aspect of the reciprocal effects model that allows for child influences on parenting practices (Stice and Barrera 1995: 30)

While the results by Stice and Barrera (1995) suggest a two-way transactional relationship between parent and adolescent behavior, externalizing symptoms are usually manifest earlier in childhood and, by adolescence, they may have been stabilized and the influence of parenting on adolescents’ behaviour may not be observable, while adolescents’ behavior effect on parental support and control would be easier to trace. Consistent with the view that the association between parenting and antisocial behavior may change over time, adolescence, as a distinct developmental period, might not be very
informative for the study of parental effects in the initiation of externalizing symptoms, as they are more likely to exert an influence earlier in the child’s life. Moreover it is equally plausible to assume that, parental influences in the initial learning of externalizing and anti-social behaviours are prominent in childhood. However during lifespan development, other factors and agents, such as deviant peers and school failure, become more prominent in the maintenance, further development, escalation and generalisability of those behavioural patterns. This makes the study of the parental influences on the manifestation of externalizing symptoms difficult to reveal in adolescence.

**Genetic Mediation of Child-Rearing Effects on Juvenile Delinquency**

The recognition of reciprocal parent-child effects in the expression of antisocial and delinquent effects is evident mainly in childhood. Interventions aimed at changing child-rearing practices resulted in reductions of children’s anti-social behaviour. Parental childrearing practices showed predictive efficiency accounting for both self-reported and official reported delinquency. The probable primary effects of parents on children and adolescents in the expression of antisocial and delinquent behaviour seems supported. However this does not mean that these could be the main sources of delinquent adolescent behaviour. It is equally plausible to assume that both, harsh, rejecting and coercive parenting, and, delinquent behavior of children, in addition to the fact that many young offenders have parents that show antisocial behavior themselves, including convictions (Farrington, 1995) are both manifestations of the same tendency for antisocial and delinquent behavior. That is genetically transmitted from parents to their offspring, thus accounting for the relationship of poor parenting and adolescent delinquent behavior (Rutter et al, 1998).

Rutter et al (1998), in reviewing studies, mainly adoptee and twin studies, deals with the genetic influences in the development of antisocial and delinquent behavior. He concluded that there is a rather strong genetic influence in the case of hyperactivity and that of liability which overlaps greatly with that of antisocial behavior when the two are associated (Rutter et al, 1998). While there is a stronger environmental influence in the case of self-reported antisocial behavior, which is not associated with hyperactivity and peer relationship problems. For delinquency the genetic influence is much weaker, in contrast to aggressive or anti-social behaviour. In addition the genetic influence appears to be influential in the case of early onset and persistence into adulthood rather than in adolescent limited delinquency. Rutter et al (1990a) argues that different genetic research designs have different methodological limitations. Furthermore, multiple methodology should be employed so that the strengths of one method cancel out the disadvantages of the other. Despite any methodological deficiencies in either adoption and twin studies, and their variants, when results tend to be replicated with different methods and are consistent with different methodological designs and operationalisations, the results should be viewed with greater confidence.

Rutter et al (1990a) argued that twin designs assuming that the family environments for monozygotic and dizygotic twins are comparable. Monozygotic twins are more likely to be treated in the same way in comparison to dizygotic twins. Being a member of an identical twin pair may influence development in a unique way, and having an unusually close relationship with an identical twin sibling, are likely to be factors that make monozygotic twins show more behavioural similarities in comparison to dizygotic twins. Rutter et al (1990a) argued that these environmental factors not captured in the twin designs are likely to overestimate the genetic influence of behaviour manifestations of monozygotic twins in comparison to dizygotic twins. Rutter et al (1990a) further argued that the disentanglement of genetic and environmental forces in shaping behaviours is better achieved by adoption studies. In such studies the behaviour under investigation is examined in the biological parents and the adopted-away children. Adoption studies are often characterized by a lack of data on the biological father and they cannot easily estimate the environmental interactions and biases that may arise from the difficulties of being an adoptee child. Rutter et al (1990a) noted that while the rate for psychiatric disorders in adoptees is higher than the general population norms, rates of criminality are not and this finding is suggesting that the rate of psychiatric disorders in adoptees is likely to, at least partially, derive from the stresses associated with being an adopted child.

However, regarding the genetic influences in antisocial behaviour that have been argued by adoption studies Stoolmiller (1999) suggested that they should be interpreted with caution. The author suggested that the relatively less influence of family environment found in adoptee studies could be attributed to the restricted range of family environments sampled in such studies. This is possible since the families finally participating in the studies are subject to several selection processes. Such processes are the
criteria of adoption agencies for placing children, self-selection by future adoptive parents and volunteering in a study, Stoolmiller (1999), argued that those selection processes are likely to provide an adoption study with a sample characterised by a restricted range of family environment as all the selection processes are highly likely to result in families with good family environment and child-rearing practices, with limited within group variability, thus almost rendering child-rearing practices into a constant. The same degree of restriction in the values of other family characteristics like socio-economic status or intelligence is not likely to occur to the same degree. This is possible only to the extent that they are correlated with the criteria of the selection processes. This means that studies including adoption families appear, at the first glance, to be representative of a general population, and in fact to be on many socio-demographic characteristics. However they can still be restricted to those family characteristics that are more important and more proximally related with children’s behavioral outcomes.

Stoolmiller (1999) further continued by arguing that the same range restriction of family environment could account for the high correlations of twins who have been adopted by different families. It was assumed that range restriction of family environment was not regarded as an inherent problem in twin designs. However this assumption may be premature as the restriction of family environment in the sample of those studies could still be operative through volunteer bias. That is families providing a generally supportive environment for their children to participate in the studies.

Stoolmiller (1999) concluded that, possible genetic influences in the development of antisocial and delinquent behavior are likely to operate. However the application of adoption and twin design in examining those issues, is likely to be limited by a restricted range of variability in child-rearing practices used by the families. This makes any associations of child-rearing practices with children’s behavioral manifestations difficult to reveal.

**Child-rearing Practices as Mediators of the Relationship between Social Disadvantage and Family Structural Variables and Juvenile Delinquency**

However, as the experience of adverse family environment does not lead everyone to experience of poor psychosocial functioning, a within-person approach has been followed for the identification of pathways or mediational mechanisms that translate experience of family functioning into developmental problems in adolescence (Bolger & Patterson, 2001; Cicchetti & Rogosch, 1996; Kiriakidis, 2006; 2000). The mediational role of family functioning is more evident in the relation between social disadvantage and delinquency.

Several researchers (Barrera et al., 2002; Conger et al., 2002; Farmer & Farmer, 2001; Wadsworth & Compass, 2002) considered child-rearing practices as mediators of the relationship between social disadvantage and family structural variables and juvenile delinquency. Such an assumption is consistent with the ecological systems theory (Bronfenbrenner, 1979) that problematic behaviour of children and adolescents could not be examined outside the contexts they live in. Such an assumption has been advanced by Rutter (2005) that adverse environmental experiences are a critical factor of psychosocial poor adjustment. Rutter (2005) argued that the development of poor psychosocial functioning, including antisocial and delinquent behaviour, is actually mediated through several processes. He argued that adverse experience has a long-erm effect on psychosocial functioning through cognitive and/or affective working models, representation of the self, interpersonal interaction and several environmental and social experiences and interactions. Among the most important factors exerting a significant influence on the development of adolescent behaviour is the family environment they are living in. Neglect has been repeatedly related with: 1) antisocial and delinquent behaviour (Stouthamer-Loebber, Loebber, Homish, & Wie, 2001), 2) the development of psychological problems in the general population (Cohen, Brown, & Smailes, 2001), 3) dysfunctions in the neuroendocrine operation (Cicchetti & Rogosch, 2001), 4) the development of multiple dysfunctional behaviours in adolescence (McGee, Wolfe, & Olson, 2001), and 5) reduced resilience in the face of several stressors during adolescence and adulthood (McGloin & Widom, 2001).

Wilson (1980) reported that child-rearing practices and, especially parental supervision, in deprived inner city areas, exerted a buffering influence on juvenile delinquency by imposing strict rules limiting children’s mobility, and examined the possible effects of parental supervision in variable settings representing different levels of social handicap. Overall she reports that juvenile delinquency was significantly higher in families employing less supervision practices and that, in areas with high delinquency rates, the effects of parental supervision were more important than the effects of social
handicap. She further argues that the effects of strict parenting in socially handicapped areas restrict children’s involvement with delinquent peers, as their parents have expressed their disapproval towards offending behavior and those peers who express the behaviour. Those messages are internalized and turned into self-control, therefore inhibiting mixing with antisocial peers. It is evident that the author implied a process linking parental supervision with juvenile delinquent behaviour, where involvement with antisocial peers is a key mediating variable. However the explanation process remains at a narrative level and is not directly empirically tested.

The role of parental factors as correlates and predictors of delinquency in young people and adulthood were examined by Glueck and Glueck (1950 cited in Laub and Sampson, 1988) in Unraveling Juvenile Delinquency. Laub and Sampson (1988), provided an assessment of the longitudinal study and commented that the data base collected by Glueck and Glueck (1950 cited in Laub and Sampson, 1988) provided a unique source of information that could be very informative about potential correlates and predictors of delinquency. They noted that their work has been criticized on methodological, statistical and ideological grounds. They recognized that their ideological perspective of biological influences in delinquent behavior and their finding that mesomorphy was a predictor of delinquency resulted in their work being severely criticized, mainly from scholars working within the social criminological perspective, and while their statistical analysis was not optimal, they suggested that criticisms about their methodological design were overstated. In fact, Laub and Sampson (1988), believed that the methodological design of the Glueck and Glueck (1950) study, was very strong and they report that it involved the comparison of 500 delinquent males and 500 non-delinquents matched, case by case, on age, race/ethnicity, general intelligence and low-income residence all criminological variables thought to influence both delinquency and official reaction (p. 356). In addition, the samples were followed up when the participants were aged approximately 25 and 31 years old. Laub and Sampson (1988), concluded that using multiple sources of information, the Gluecks collected data on a variety of interesting and important indicators relevant to understanding the causes of serious, persistent delinquency. Indeed, the Gluecks’ data, in all likelihood, are superior to many of the current longitudinal data sets in criminology (p. 376).

Recognizing the possibility that re-analysis of the data set could be informative of the possible correlates of delinquency and the identification of intervening family variables between structural factors and delinquent behavior. The authors re-examined the data of the study with the aim to examine closely, and with the use of multivariate data analysis techniques, the potential predictive role of family functioning on delinquent behavior. Erratic discipline by mother and father, poor maternal supervision, parental rejection of the boy and parental attachment were found to be significantly related to delinquency. Background factors such as paternal and maternal criminality, parental alcohol abuse, home overcrowding, economic dependence of the family on social welfare and absence of parents during childhood were related both to family functioning and delinquency. More interestingly, the effects of those background structural factors on delinquency were almost totally mediated by family functioning variables, and their effects on delinquency behavior were minimized when family functioning variables were taken into consideration. The only variable that continued to exert a direct effect, although considerably minimized, on delinquency was the number of family relocations. The results are even more supportive of the proposed mediating family processes, since the samples were matched on age, race/ethnicity, general intelligence and low - income residence. The role of family supervision and attachment as potent predictors of delinquency is supported. In addition the hypothesis of the authors that the effects of social structure on delinquency, in a considerable way are, mediated by parental rejection, harsh discipline and poor supervision are further supported as well. These hypotheses are supported by the data, even when other, generally static correlates of delinquency are held constant. The authors concluded, This model has considerable significance for future research in that it explains how key background factors influence delinquency. A concern with only direct effects conceals such relationships and leads to erroneous conclusions (p. 375).

Larzelere and Patterson (1990), who hypothesized that the effects of socio-economic status on delinquency are mediated by parental management, have reported similar results. They noted that socio-economic status was a central construct of most sociological theories of crime, although the theories differed in the way they conceptualized the impact of social class on delinquency. They reported that while Merton’s (1957) anomie-strain theory proposed that greater frustration of lower social class juveniles led them to crime, Sutherland’s (1947) differential association theory suggested that lower social class youths would probably be exposed to and influenced by criminal elements of society. Hirschi’s (1969) social control theory held that lower social class youths were not sharing and
were not committed to the same familial, vocational and scholastic values common to middle class youths, thus making them more prone to delinquent behavior. The common element in all these theories, Larzelere and Patterson (1990) noted, was the direct effects of socio-economic status on delinquency, while these effects seemed to be rather weak and inconsistent, especially when the individual was the unit of analysis.

The authors further hypothesized that parental management would mediated any effects of socio-economic class on delinquent behavior, as child-rearing practices have been associated with juvenile delinquency and have actually been potent predictors of delinquency. The hypothesis is derived from the coercion theory (Patterson, 1986). The coercion model emphasizes the central role of the family and peer group in providing the positive and negative contingencies that maintain the performance of both prosocial and deviant child behaviors (Larzelere and Patterson, 1990: 305). This was examined in the longitudinal Oregon Youth Study of 206 boys coming from schools within an area with the highest police arrest rate per capita. The study measured parental discipline and monitoring, with different methods, resulting into multiple indicators, in order to minimize any bias resulting from one measuring method. They concentrated on these two aspects of parental management as mediators of the effects of socio-economic disadvantage on delinquency. The boys in the study were followed up from the fourth to the seventh grade at school. The authors reported that parental management, a combination of measures of parental discipline and monitoring, fully accounted for the relation between socio-economic status at fourth grade and self-reported delinquency at seventh grade, supporting the hypothesis of a mediational role of family child-rearing practices between the link of socio-economic disadvantage and delinquent behavior. The results, however, are informative of the possible role of parental management in early adolescent delinquency behavior, while socio-economic disadvantage could exert an independent influence on later adolescent delinquent behavior, as the authors noted.

The results of the study are in accord with McLoyd (1998), who stated the link between socio-economic disadvantage and children’s socio-emotional functioning appears to be mediated partly by harsh, inconsistent parenting and elevated exposure to acute and chronic stressors (p. 185). Reviewing the literature on the effects of socio-economic disadvantage on the general socio-emotional functioning of children, McLoyd (1998) reported that there was enough evidence to support the hypothesis. That is, prolonged economic stress, combined with subsequent negative life events and chronic adversities, results in parental dysphoria. This is expressed in the form of anger, irritability and/or depression. This in turn increases the parents’ tendency to use harsh, punitive, arbitrary and inconsistent ways of discipline for their children and ignore their dependency needs by withdrawal from their children. The author continues that such a pattern results in a range of, both externalizing and internalizing, socio-emotional problems of the children. These problems include anxiety, depression, temper tantrums, irritability, negativism and delinquency.

McLoyd (1998) provides complementary evidence of the role of parenting in the psychosocial development of children that comes from studies actually in search of protective factors that buffer possible effects of deprivation, disadvantage and chronic stressors on children’s development and which instill in to them a sense of resilience. The author reviewed studies of children exposed to a high number of chronic adversities and negative events and tried to distinguish stress resilient children from those affected by stress. The factors that generally characterised resilient children were no separation of child and primary caregiver during infancy; positive parent-child relations during the preschool years; a strong sense of parenting efficacy by the primary caregivers; and parental use of reasoned, age-appropriate, consistent disciplinary practices (p. 197). The author stated that effective parenting or the existence of non-parental adults in the children’s environment, providing positive role models or having the role of a mentor for the child, seemed to be factors that could buffer any negative, effects which adversities and hardships, could have on the psychosocial development of children faced with them.

Similar conclusions were reached by Yoshikawa (1994), by reviewing effects of family support on chronic delinquency. From several studies reviewed, he argued that there is evidence for a mediation role of family variables such as parental discipline and maternal affection between juvenile delinquency and socio-economic disadvantage. In any case he warned that the link between socio-economic disadvantage and delinquency is more evident when the former is measured as a community-wide characteristic, thus the link at the individual level of analysis appears to be prone to the ecological fallacy and any inferences for the individual should be made with extreme caution and only after the link is replicated with the two levels of analysis.
From the literature reviewed it could be argued that the role of the family in the prevention of delinquent behavioural manifestations by children and adolescents is an important one. It seems that effective parenting exerts an influence for the general socioemotional functioning of children and adolescents (Kiriakidis, 2007). From the theoretical studies point of view, the initiation of programmes teaching effective parenting to adolescents and young adults, especially those facing several adversities and in risk of delinquency themselves, could be helpful. They could be helpful in both reducing the risk of delinquency of their children and empower them. In that way they could enjoy a normative and satisfactory psychosocial development (Bitsani & Panagou, 2002).

Discussion
The protective role of parenting is generally supported and a supportive family environment could be suggested as a protective factor for juvenile delinquency. The evidence reviewed suggests that effective family functioning is a necessary although not sufficient factor for the normal socioemotional development and functioning of children and adolescents. This argument is in line with the assumption that delinquency is an international phenomenon. It could be attributed to several factors, postulated and actually identified, to be related to delinquency (Kiriakidis, 2007; 2008). From this point of view, any programmes of educational nature initiated at teaching properly and effective child rearing practices, targeted at youngsters at risk facing several adversities, shouldn’t be viewed as the only solution to the problem of delinquency and there should be realistic expectations of their results. However, another reason is the fact that delinquency has been associated with several factors, most of which are mainly static and not readily amenable to change, or even if they are, their change relies to a considerable degree to substantial social and political change that is not always possible or desirable. For the professional who deals with problems of social instability in general and issues of delinquency and its prevention, the improvement of parenting skills in the community appears as an interesting, satisfactory cost-effective and efficient alternative, especially within the line of research suggesting that improvement in parenting skills is associated with improved general socioemotional functioning of children and adolescents and reduced rates of delinquency in particular.

Theoretical implications
The protective role of parenting is generally supported. The role of a supportive family environment could be suggested as a protective factor for juvenile delinquency. Bowlby (1977) argued that a secure attachment of the children to their primary caregiver results in children that are more able to explore and in that respect refine and employ their skills and talents in a constructive way. Belsky and Cassidy (1994), argued that the concept of attachment has been employed as a domain specific model as well as a broad general model that depicts attachment security as foundational to a variety of features of development. Thus, sensitivity to attachment signals promotes attachment security, which fosters development in a wide variety of domains (Belsky and Cassidy, 1994: 382-383). This argument reflects Rutter’s (2005) proposition that multiple psychological outcomes might be related and be due to general underlying factors influencing multiple developmental problems. From this general perspective the results of the review seem not surprising. Children and adolescents who perceived their parents as less supportive seem not to be able to function adaptively and to regulate their lives in constructive ways, both for them and society. The results of the review show that inadequate parenting is related with many psychosocial problems including delinquency.

References


DEMOGRAPHIC PROFILE AND ATHLETIC IDENTITY OF TRAUMATIC SPINAL CORD INJURED WHEELCHAIR BASKETBALL ATHLETES IN GREECE

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An epidemiological study conducted across the country of Greece was conducted in order to determine the profile and the athletic identity of spinal cord injured (SCI) wheelchair basketball athletes who participated to the 13th Greek Wheelchair Basketball Championship and Cup. The Disability Sport Participation questionnaire was used for data collection, which was conducted by Williams. A total of 29 Greek athletes with SCI were participated between November 2007 and May 2008. Twenty-eight men and one woman wheelchair basketball players participated in the study (mean age of 36 years, range 19 – 56 years). The most common cause of injury was traffic accident (75.9%) then falls (20.7%) and injuries from diving (3.4%). Half of the athletes live alone (51.7%) and sixteen athletes (55.2%) graduated from senior high school. Nearly half of them (n = 14; 48.3%) performed about three training sessions per week. From the results it can be deduced that the spinal cord injured athletes of wheelchair basketball constitute the 31.5% of the total number of athletes. They have a basic level of training hours and days per week, they are not trained in a professional class and as result they did not met the relevant criteria to be in an elite class of athletes. Further research is needed to focus on athletic identity and training patterns of all Paralympics sports in Greece in order to evaluate the growth of its sports separately.

Spinal cord injury (SCI) is a life threatening condition that requires a coordinated multidisciplinary approach to manage the injury itself and the potential secondary complications satisfactorily (Inman, 1999). SCI, which results in disruption of the nervous transmission, can have considerable physical and emotion consequences to an individual’s life (Eng, Teasell & Miller, 2006).

Competitive sports for individuals with disabilities have experienced an unprecedented growth since the First International Wheelchair Games held in Ayloesbury, England, in 1948 (Steadward, Wheeler & Watkinson, 2003). Wheelchair basketball is one of the most popular sports in the Paralympics Games. Wheelchair Basketball is invented in 1946 in California and New England, USA. Wheelchair sports development at the international level began at the Stoke Mandeville Rehabilitation Hospital. Dr. Ludwig Guttman, in an attempt to help in the rehabilitation of war veterans who had fought in the Second World War, organised Wheelchair Basketball games (IPC, 2008).

Wheelchair basketball is now played in more than 80 countries by some 25,000 men, women and children with a physical disability, which prevents them from playing competitive basketball on their feet. The International Wheelchair Basketball Federation (IWBF) is the governing body for international wheelchair basketball. In 1993, the IWBF became an independent sports federation with 50 member nations. Wheelchair Basketball has been part of the Paralympics program since the Rome 1960 Paralympics (IPC, 2008).

Wheelchair basketball was held for the first time in Greece in 1988 during the first Greek Championship of Persons with Physical Disabilities in the capital of Athens between two teams. In 1995 newly established Hellenic Wheelchair Basketball Federation (H.W.B.F.) (Evaggelinou &
Vanlandewijck, 2000) organizes the Greek wheelchair basketball championship. Today, this organization is the governing body for the teams playing North and South. The National wheelchair basketball team represented Greece during Paralympics Games of Athens 2004. There are published data about the relationship of functional potential and field performance in wheelchair basketball players (Vanlandewijck, Evaggelinou, Daly, Verellen, van Houtte, Aspeslagh et al, 2004). In addition research has been written about the proportionality of wheelchair basketball classification (Vanlandewijck, Evaggelinou, Daly, van Houtte, Verellen, Aspeslagh et al, 2003) and the profile and opinions of wheelchair basketball players in Greece (Evaggelinou & Katartzi, 1999). However, there isn’t any published data on the epidemiology of SCI in Greece.

Internationally, there is not much published about demographic profile and athletic identity of wheelchair basketball athletes with SCI. A study conducted in Japan and especially in Konagawa Rehabilitation Center, which described a recreational sport for tetraplegics in 1980 and also gave some demographic data about these athletes (Uchida, Yamagushi, Hayashi, Inasaka, Fukuda, Hasegawa et al, 1994). Another study conducted in Turkey, described training patterns of wheelchair basketball players and referred educational level, wheelchair basketball classification score and some demographic data of the athletes (poliomyelitis, amputation and spinal cord injury) (Tatar, 2008). To our knowledge, a nation-wide epidemiological survey on wheelchair basketball athletes with spinal cord injury has not yet been available. The need for investigation of the development and growth of wheelchair basketball in Greece is important in order for the sport to grow and attract more and more new athletes. The present study attempts to provide an epidemiological description of the group of spinal cord injured wheelchair basketball players in Greece.

Method

Procedure and data collection
The Disability Sport Participation questionnaire was used for data collection, which was conducted by Williams (Wu & Williams, 2001). The SCI wheelchair basketball athletes were interviewed at the end of each game using a self-report interview format by the researcher, during the championship session, which was carried out from November 2007 to May 2008. The questionnaire was administered by the same person, in order to avoid the influence of variability among different interviewers. The inclusion criteria consisted of being a participant of the Greek Wheelchair Basketball Championship, participating in the Greek Wheelchair Basketball Cup from the period 2007-2008 and participating in least half of games of the national championship and cup. Questions were grouped under the headings of athlete’s personal information; age, sex, date of injury, level of injury, cause of injury, marital status, employment, occupation, years of injury and athletic identity; classification grade, days of training per week, hours of training.

Data analysis
Demographic and medical data was analyzed descriptively in terms of percentages. Cross tabulation was used between level of injury; cervical, thoracic and lumbar) and extent of injury; complete and incomplete. For this statistics, the statistical software program Statistical Package for the Social Sciences was used (SPSS, 2000). Averages are expressed as mean ± standard deviation (std.).

Results
In this study, 29 athletes with SCI were identified. The wheelchair basketball athletes included 29 SCI (31.5 %) and 63 others (68.5 %) including athletes with amputation, polio, cerebral palsy, hemiplegia, and others neurological diseases.

<table>
<thead>
<tr>
<th>Table 1</th>
<th>SCI wheelchair basketball athlete’s cases in 2008. Distribution of cause of injury</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cause</td>
<td>N (%)</td>
</tr>
<tr>
<td>Traffic</td>
<td>22 (75.9)</td>
</tr>
<tr>
<td>Car</td>
<td>11 (37.9)</td>
</tr>
<tr>
<td>Motorcycle</td>
<td>8 (27.6)</td>
</tr>
<tr>
<td>Other</td>
<td>3 (10.4)</td>
</tr>
<tr>
<td>Falls</td>
<td>6 (20.7)</td>
</tr>
<tr>
<td>From less than 1 m</td>
<td>4 (13.8)</td>
</tr>
<tr>
<td>From more than 1 m</td>
<td>2 (6.9)</td>
</tr>
<tr>
<td>Sports</td>
<td>1 (3.4)</td>
</tr>
<tr>
<td>Diving</td>
<td>1 (3.4)</td>
</tr>
</tbody>
</table>
Causes of SCI

The most common cause of injury was traffic accident (75.9 %) followed by falls (20.7 %) and injuries from diving (3.4 %). From all traffic accidents, 11 athletes (37.9 %) were car drivers; eight (27.6 %) were motorcycle drivers and three other vehicles. This falls from less than 1m (13.8 %) were twofold than falls from more than 1m (6.9 %). (see Table 1 above)

SCI level and extent of injury

Two athletes (6.9 %) had cervical injuries, 24 (82.8 %) thoracic injuries and three (10.3 %) lumbar injuries. The most common level of injury was T12 (27.6 %) of all levels with a second peak in the mid-thoracic region T7 (13.8 %) as shown in figure 1.

![Figure 1. Distribution of SCI by level of lesion](image)

Paraplegia was the most common neurological disability. The majority (62.1 %) of the athletes had an incomplete SCI. Eleven athletes (7.9 %) had complete paraplegia. Six point nine percent (6.9 %) had an incomplete tetraplegia and 55.2 % presented an incomplete paraplegia.

<table>
<thead>
<tr>
<th>Extent of Injury</th>
<th>Tetraplegia</th>
<th>Paraplegia</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cervical</td>
<td>Thoracic</td>
<td>Lumbar</td>
</tr>
<tr>
<td>Complete</td>
<td>2</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>Incomplete</td>
<td>1</td>
<td>14</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>2</td>
<td>24</td>
<td>3</td>
</tr>
</tbody>
</table>

Time of SCI

With respect to the timing of SCI it was noted that March, July and August had the highest incidences for injury. On a week-to-week basis, Saturday and Sunday were the days on which nearly 45 % of injuries occurred.

<table>
<thead>
<tr>
<th>Month</th>
<th>Number of patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>0</td>
</tr>
<tr>
<td>February</td>
<td>1</td>
</tr>
<tr>
<td>March</td>
<td>4</td>
</tr>
<tr>
<td>April</td>
<td>3</td>
</tr>
<tr>
<td>May</td>
<td>3</td>
</tr>
<tr>
<td>June</td>
<td>2</td>
</tr>
<tr>
<td>July</td>
<td>4</td>
</tr>
<tr>
<td>August</td>
<td>4</td>
</tr>
<tr>
<td>September</td>
<td>3</td>
</tr>
<tr>
<td>October</td>
<td>3</td>
</tr>
<tr>
<td>November</td>
<td>2</td>
</tr>
<tr>
<td>December</td>
<td>0</td>
</tr>
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</table>
Table 4
Day of injury

<table>
<thead>
<tr>
<th>Day of week</th>
<th>Number of patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>2</td>
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<tr>
<td>Tuesday</td>
<td>4</td>
</tr>
<tr>
<td>Wednesday</td>
<td>3</td>
</tr>
<tr>
<td>Thursday</td>
<td>4</td>
</tr>
<tr>
<td>Friday</td>
<td>3</td>
</tr>
<tr>
<td>Saturday</td>
<td>6</td>
</tr>
<tr>
<td>Sunday</td>
<td>7</td>
</tr>
</tbody>
</table>

**Gender and age**
There were 28 males and one female with SCI. The mean age was 36.34 years (range 19-56). The average age at injury was 23.9 ± 8.41. The most prevalent age group was 20-29 (48.6 %) following by 0-19 (31 %) and 35-39 (17 %). In addition, 79.6 % were aged between 0-29 years.

Table 5
Characteristics of SCI wheelchair basketball athletes

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>%</th>
<th>Mean</th>
<th>Std Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>28</td>
<td>96.5</td>
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<td></td>
</tr>
<tr>
<td>Female</td>
<td>1</td>
<td>3.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td>36.34</td>
<td>7.84</td>
</tr>
<tr>
<td>0-19</td>
<td>1</td>
<td>3.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-29</td>
<td>5</td>
<td>17.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30-39</td>
<td>14</td>
<td>48.3</td>
<td></td>
<td></td>
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<tr>
<td>40-49</td>
<td>8</td>
<td>27.6</td>
<td></td>
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<tr>
<td>&gt; 50</td>
<td>1</td>
<td>3.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age of injury</td>
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<td></td>
<td>23.9</td>
<td>8.41</td>
</tr>
<tr>
<td>0-19</td>
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<td>20-29</td>
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<tr>
<td>30-39</td>
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<td>17</td>
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<tr>
<td>&gt; 40</td>
<td>1</td>
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<td></td>
</tr>
<tr>
<td>Marital status</td>
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<td></td>
</tr>
<tr>
<td>Single</td>
<td>19</td>
<td>65.5</td>
<td></td>
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</tr>
<tr>
<td>Married</td>
<td>6</td>
<td>20.7</td>
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<tr>
<td>Divorced</td>
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<td>6.9</td>
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<td></td>
</tr>
<tr>
<td>Widowed</td>
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<td>6.9</td>
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<td></td>
</tr>
<tr>
<td>Living situation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alone</td>
<td>15</td>
<td>51.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wife and children</td>
<td>8</td>
<td>27.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parents</td>
<td>6</td>
<td>20.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Educational level</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>High school (&lt;14)</td>
<td>5</td>
<td>13.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Senior high school (&gt;14 and &lt;18)</td>
<td>16</td>
<td>55.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technological institute</td>
<td>3</td>
<td>10.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>University</td>
<td>5</td>
<td>20.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retired</td>
<td>16</td>
<td>55.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Municipal employee</td>
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<td>24.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Freelancer</td>
<td>4</td>
<td>13.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employee in private sector</td>
<td>2</td>
<td>6.9</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Marital status and living situation**
The age group 30-39 years accounted for the largest number of athletes with SCI (48.3 %). Sixty five point five per cent were single and only six athletes (20.7 %) were married. Half of them (51.7 %) lived alone and were independent for their all day living activities. Eight athletes (27.6 %) were living with their wives and children and 20.7 % living with their parents (Table 5).

**Educational level and occupation**
Table 5 shows the distribution of educational level and occupation. Sixteen athletes (55.2 %) graduated from senior high school followed by thirty one per cent (nine athletes) who had graduated from
technological institute or university. Forty-four point eight per cent of the athletes were working while 55.2 % were retired.

### Athletic identity

In order to play in a main Official competition of IWBF each player must be in procession of an Official Player Classification ID card issued by the Player Classification Commission of IWBF. The valid player classifications in the IWBF are 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0 and 4.5 (IWBF, 2008). According to the classification system of IWBF, 31 % (9 athletes) were classified with 1.0 point. There were nine athletes with a spinal cord injury above T6 level. Eight of them were classified with 1.0 point and one with T3 level of injury classified with 1.5 points. It was reported, that nearly half of the athletes (48.3 %; n=14), performed about three training sessions per week (3.07 ± 1.07 training session) in which, they spent at about 5.48 hours of training per week (std. ± 2.03).

#### Table 6

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>%</th>
<th>Mean</th>
<th>Std.D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classification</td>
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</tr>
<tr>
<td>1.0</td>
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<td>31</td>
<td></td>
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</tr>
<tr>
<td>1.5</td>
<td>7</td>
<td>24.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.0</td>
<td>7</td>
<td>24.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.5</td>
<td>5</td>
<td>17.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.0</td>
<td>1</td>
<td>3.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Days of training per week</td>
<td>3.07</td>
<td>1.07</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 days</td>
<td>9</td>
<td>31</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 days</td>
<td>14</td>
<td>48.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 + more</td>
<td>6</td>
<td>20.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hours of training per week</td>
<td>5.48</td>
<td>2.03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 5 hours</td>
<td>13</td>
<td>44.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>More than 5 hours</td>
<td>16</td>
<td>55.2</td>
<td></td>
<td></td>
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</table>

#### Table 7

<table>
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<tr>
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<th>Classification grade</th>
<th>Total</th>
</tr>
</thead>
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<tr>
<td></td>
<td>1.5</td>
<td>1</td>
</tr>
<tr>
<td>T3</td>
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<td>1</td>
</tr>
<tr>
<td></td>
<td>1.5</td>
<td>1</td>
</tr>
<tr>
<td>T4</td>
<td>1.0</td>
<td>1</td>
</tr>
<tr>
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<td>1.5</td>
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<td>T5</td>
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<tr>
<td>T6</td>
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<td>T7</td>
<td>1.0</td>
<td>4</td>
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<tr>
<td></td>
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</tr>
<tr>
<td>T8</td>
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<td>1</td>
</tr>
<tr>
<td></td>
<td>2.5</td>
<td>1</td>
</tr>
<tr>
<td>T9</td>
<td>2.5</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>3.0</td>
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<tr>
<td>T10</td>
<td>3.0</td>
<td>2</td>
</tr>
<tr>
<td>T11</td>
<td>3.0</td>
<td>1</td>
</tr>
<tr>
<td>T12</td>
<td>3.0</td>
<td>8</td>
</tr>
<tr>
<td>L1</td>
<td>3.0</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>29</td>
</tr>
</tbody>
</table>

### Discussion

This survey involved a sample of 29 spinal cord injured athletes representing the 31.5 % of the Greek wheelchair basketball athletes. In Greece, there are only 11 wheelchair basketball teams (Figure 2 next page).

The official rule of wheelchair basketball allows women to participate in Greece as well as in other countries. Women can participate in men’s wheelchair basketball championships since there are not many women athletes able to form separate wheelchair championship. In addition able-bodied athletes were allowed to participate (Brasile, 1992).

In this survey the peak incidence of spinal cord injury is within the age group of 20 – 29 years comprising 48.6 %. This finding is quite similar to most published spinal cord injury literature, which
suggests that traumatic spinal cord injury predominantly involves young people (Pickett, Campos-Benitez, Keller & Duggal, 2006; O’Connor & Murray, 2006; Karacan, Koyuncu, Pekel, Sumbuloglu, Kirnap, Dursun et al, 2000).

Figure 2.
Regional distribution of the number of SCI wheelchair basketball athletes and teams in prefectures of Greece

Regarding the causes of spinal cord injury, traffic accidents comprised the highest percentage (75.9 %). In several epidemiologic studies traffic accidents were reported to be the most common cause of spinal cord injury (44.4 to 52.2 %) (O’Connor & Murray, 2006; Karacan, Koyuncu, Pekel, Sumbuloglu, Kirnap, Dursun et al, 2000; Chen & Lien, 1985; Garcia-Reneses, Herruzo-Cabrera & Martinez-Moreno, 1991). As is commonly accepted the region of the twelfth thoracic was the segment most exposed to trauma (Karacan, Koyuncu, Pekel, Sumbuloglu, Kirnap, Dursun et al, 2000; Hoque, Grangeon & Reed, 1999). In this survey, T12 was the most frequent affected segment (27.6 %).

One very interesting point that emerged during the analysis of this study was that during Christmas and Eastern holidays low incidences of spinal cord injury occurred as compared to the summer holidays. However, weekends were a more common period that accidents occurred. Factors that influence this might include travelling home after a late night out and possibly using alcohol, drugs, or both. O’Connor and Murray (2006) reported that Saturday and Sunday were the days on which nearly 40 % of injuries occurred.

The results of this survey showed that although the athletes were young people (mean age 36.34), many were single and lived alone without parents, wife and children, or both. From the other hand, over the half (55.2 %) were retired. Accordingly their disability and sports seemed to be their only way out.

This survey reveals that spinal cord injured athletes does not classify more than 3.0 points. Athletes with spinal cord injury below T6 level were classified with 1.0 point and only one athlete with T3
injury level was classified 1.5 points. Athletes with thoracic injury between T7 to T12 were classified from 1.5 to 2.5 points except of one athlete with T12 injury who classified with 1.0 point. One athlete with L1 injury was classified with 3.0 points and the other two with 2.0 points.

The findings of this study also show that training hours and days were at about five hours and three days respectively. These findings are related with the theory that in order to enhance cardiopulmonary fitness in wheelchair sports, exercise sessions should occur two-five times per week (Davis & Ferrara, 1995). These results were in contrast with the theory that a successful training regime in elite athletes with disabilities a training frequency of 5-6 days per week is successful (DePauw & Garvon, 1995). Although, wheelchair basketball athletes in Greece seem to be training a little bit more from wheelchair basketball athletes in Turkey (Tatar, 2008).

Conclusions
This survey is the first step in order to determine the exact number of spinal cord injured athletes who participate in wheelchair basketball in Greece. An overall of 87 individuals in the Central and West Macedonia region sustained a traumatic spinal cord injury with an incidence of 33.6 per million population (Divanoglou & Levi, 2009). On the other hand, the exact numbers of athletes who are taking part in wheelchair basketball at Thessaloniki are only six individuals and 29 in total in Greece. Furthermore, from the results of this survey derive the need of promotion of all the sports, especially the sport of wheelchair basketball, in Greece, in order to create more teams and competitive championships. Future research should be focused to assign all the population of spinal cord injured athletes in other Paralympics summer sports such as swimming, athletics and others in Greece.

The results of this study will serve as a basis for further studies in order to create a base of demographic data of athletes in which will be supported the promotion of athletic spirit. This study will encourage and sensitize all the people that work in sports in Greece to include the disabled athlete. This effort becomes to attract more new and young individuals in wheelchair basketball in Greece, in order Greek athletes will become more competitive in the European championships. Finally, there is a hope that more teams will be created in the near future; in order Greek championship will become more competitive.

Acknowledgements
The authors express their special gratitude to all the athletes for their voluntary participation in this survey.

References
Elementary Physical Education Teachers’ Attitudes Towards the Inclusion of Children with Special Needs: A Qualitative Investigation

Sue Combs
Steven Elliott
and
Kerry Whipple
University of North Carolina at Wilmington

Laws and legislation have resulted in children with special needs being placed in general physical education (GPE) classes with general physical educators. The purpose of this study was twofold; (a) to identify two practicing teachers with positive attitudes towards inclusion of students with mild to moderate disabilities and two teachers with negative attitudes towards inclusion of students with disabilities using Rizzo’s (1993) Physical Education Attitudes Toward Individuals with Disabilities survey (PEATID), and (b) to investigate, through in-depth interviews, how their attitudes were formed and how it affected their teaching. Teachers with positive attitudes; (a) identified multiple focus areas and objectives in their teaching, (b) developed written lesson plans that incorporated several different teaching styles, (c) had received training in modifying and adapting physical education for students with disabilities, and (d) desired their students to be successful in their classes. The findings have implications for the field of physical education teacher education (PETE). PETE programs should develop programs of study that include adapted physical education classes. Additionally pre-service teachers should be taught how to plan, modify, and deliver developmentally appropriate activities for children with and without special needs.

Teacher Attitudes Towards Inclusion in Physical Education
Laws and legislation have resulted in children with special needs being placed in general physical education (GPE) classes (Obrusnikova, 2008). Students who have mild or moderate disabilities such as mild intellectual disability, learning disabilities, and emotional and behavioral disorders are generally placed into GPE classes without an accompanying teacher’s aid. The inclusion of students with disabilities into GPE classes has provided a tremendous challenge to physical educators who have planned to meet the physical education needs of children with disabilities without neglecting the physical education needs of the typical children.

Attitude research in education and physical education has grown increasingly popular over the past twenty years (Block & Obrusnikova, 2007; Kozub & Lienert, 2003). This trend has been driven by the belief that the attitude of the teacher can have a direct influence on the successful inclusion of children with disabilities (Rizzo & Vispoel, 1992). The majority of studies that have examined the attitudes of physical educators toward inclusion have referred to the Theory of Reasoned Action or the Theory of Planned Behavior (Ajzen, 1991; Ajzen & Fishbein, 1980) According to these theories, a teacher’s beliefs or attitudes towards something are expected to provide insight about actual behaviors (Ajzen & Fishbein, 1980). The Theory of Planned Behavior measures individuals’ intentions to perform a behavior and has been utilized in several studies investigating issues surrounding the inclusion of children with special needs into physical education settings (Conatser, Block, & Gansneder, 2002; Theodorakis, Bagiantis, & Goudas, 1995).

In the educational arena, some researchers have assumed that attitudes and behaviors were closely related and that attitudes could be useful in predicting behavior (Block & Obrusnikova, 2007). This assumption encouraged researchers to investigate the attitudes held by physical education teachers towards inclusion with the underlying belief that the attitude of the GPE teacher was critical to the
success of inclusion (Block & Rizzo, 1995; Elliott, 2008; Obrusnikova, 2008). It has also been reported (Block & Obrusnikova, 2007) that teachers who feel ill prepared for including students with disabilities, lead to feelings of incompetence that in turn leads to negative attitudes toward students with disabilities. While there has been a significant increase in the last ten years studying the attitude of pre-service GPE teachers, it is clear that more research is needed to assess potential attitudes in current, practicing general physical educators.

The purpose of this study was twofold: (a) to identify two practicing teachers with positive attitudes towards inclusion of students with mild to moderate disabilities and two teachers with negative attitudes towards inclusion of students with disabilities using Rizzo’s (1993) Physical Education Attitudes Toward Individuals with Disabilities survey (PEATID), and (b) to investigate, through in-depth interviews, how their attitudes were formed and how it affected their teaching.

**Method**

**Instrumentation**

The attitude of physical education teachers toward inclusion in GPE settings has been documented in several studies (e.g. Hodge & Jansma, 2000; Elliott, 2008) in which the Physical Educators Attitude Toward Teaching Individuals with Disabilities – III (PEATID-III) was utilized. The PEATID-III questionnaire was originally developed by Rizzo and has been revised twice (Rizzo, 1986; 1993). The PEATID-III consists of a series of statements which requires teachers to express their beliefs about teaching individuals with disabilities in their GPE classes. Evidence of validity and reliability related specifically to the PEATID-III has been reported by Folsom-Meek and Rizzo (2002). Construct validity of the PEATID-III was obtained through principal components analysis. Reliability was estimated through the coefficient alpha and was reported at .88 for the total scale (Cronbach, 1951). Therefore, the PEATID III has been found to be a valid and reliable measure of physical education teachers’ attitudes towards teaching individuals with disabilities.

The PEATID-III questionnaire was mailed to the school address of all elementary physical educators in the school districts who had given the investigator permission to conduct research in their schools. The names of the teachers and their school addresses were obtained either directly from a district physical education supervisor or by visiting individual school websites. Enclosed with the questionnaire was a set of instructions and a stamped return-addressed envelope. Added to the first page of the questionnaire were six items that asked the teacher: (a) whether he or she taught 2nd or 3rd grade classes; (b) whether a child with mild / moderate mental disabilities was included in one of their 2nd or 3rd grade classes; (c) whether the included child came to physical education with or without a teacher aid; (d) whether the teacher had between 2-25 years of teaching experience; (e) whether the teacher would participate in a 60-90 minute interview; and (f) whether the teacher had a physical education teacher aid. These six questions were inserted at the start of the PEATID III questionnaire so that respondents did not have to continue with the questionnaire if they answered no to any of the aforementioned six questions, therefore making them ineligible for the study. The questionnaire was formatted so that it was easy, for the teachers to read and answer, and convenient for the graduate student helper to code and score.

The main portion of the original PEATID-III consisted of 12 statements such as, *Teaching students labeled as mild / moderate mental disabilities in regular physical education classes with nondisabled students will disrupt the harmony of the class, and Having to teach students labeled mild / moderate mental disabilities in regular physical education classes with nondisabled students places an unfair burden on teachers.* Under each of the 12 statements a 5-point Likert scale (i.e., 1=strongly disagree, 2=disagree, 3=undecided, 4=agree, 5=strongly agree) was provided for the respondents to answer each question. Individual questions and total questionnaire scores were derived from the items and represented the responder’s attitude toward including students with mild / moderate mental disabilities in his or her class. A total questionnaire score was based on the sum of item scores divided by the number of items so that they were interpreted about the original 5-point Likert scale. To derive proper scale mean scores for negatively phrased statements, the scores were reversed (i.e., 5=strongly disagree, 4=disagree, 3=undecided, 2=agree, 1=strongly agree).

**Participants and Sites**

Four physical education teachers were selected as the participants for this study. They were selected by a purposeful sampling technique. Purposeful sampling seeks information rich cases which can be studied in depth (Patton, 1990). Specifically, an extreme-case purposeful-sampling strategy was used to
select the four teachers. One hundred and fifty questionnaires were sent out and twenty six were returned for a response rate of seventeen percent. Using the scores from the PEATID-III questionnaire, the researcher was able to place all the twenty-six teachers who returned a questionnaire along a continuum ranging from the most positive attitudes towards inclusion to the most negative attitude towards inclusion. The participants were selected by identifying two teachers at each end of the continuum.

All four of the teachers interviewed were experienced physical educators and had at least six years teaching (range 6-18 years). The two teachers interviewed that had a positive attitude towards inclusion were Jan (12 years teaching) and Jennifer (16 years teaching). The two teachers interviewed who had a negative attitude toward inclusion were Sean (6 years teaching) and Tammy (18 years teaching). All four of the teachers had a great deal of experience teaching GPE classes that included students with mild and moderate mental disabilities.

Data Collection

The purpose of the data collection phase was to collect in-depth descriptive information from the four teachers on issues surrounding inclusion. Information was collected through interviewing each teacher separately for 60-90 minutes each. The interview guide approach established by Patton (1990) was used and involved compiling a list of topics or issues to be explored during the interview. This approach used topics to be discussed in the interview but did not specify the exact order in which the questions were asked. This allowed for questions to be added or eliminated as the interview progressed. Certain guidelines were followed when compiling the interview questions. Specifically, the questions were open-ended, non-threatening and followed by probes, not leading, and arranged in a logical order (Patton, 1990).

Following the interview, member checking occurred by asking each teacher to read his or her transcribed interview. Teachers were invited to clarify, elaborate, or suggest changes to their original responses consistent with Lincoln and Guba (1985). A colleague not involved in the present study who was experienced in qualitative research served as a peer debriefer in this study. A debriefing session took place after each interview. Discussions between the researchers and the peer debriefer focused on methodological issues, the analytical process, the nature of the questions asked of the teachers, and the interpretations of the data.

Analysis

Qualitative data analysis procedures were used to explore participants’ views, opinions, and teaching practices regarding the inclusion of children with disabilities into their general classes. The constant comparative method of analysis (Glaser & Strauss, 1967) was applied to the individual transcripts as a method of coding and categorizing the data and to summarize the findings in meaningful ways. This process involved multiple and careful examinations of the data to identify key linkages, themes, and patterns which were used to analyze and interpret the qualitative data (Lincoln & Guba, 1985).

The analysis of the interview data began with an individual case analysis of one of the teachers, followed by a within-group case analysis (Patton, 1990). This involved inducing categories from the answers of one participant and comparing them to the answers from the participant with the same attitude. Themes and patterns drawn from the two individual cases were compared and contrasted for similarities and differences. The synthesis of the within-group cross-case analyses represented a descriptive and interpretive framework of the two physical educators’ feelings towards issues surrounding inclusion. This was done for teachers with positive attitudes toward inclusion and teachers with negative attitudes toward inclusion. The next step involved comparing the themes and patterns found in the positive teachers’ answers to those found in the negative teachers’ answers.

Limitations.

A limitation of a qualitative study concerns the generalizability of its findings. The following are limitations of the study.

1. Since the study was limited to elementary physical education teachers, it cannot be assumed that the findings apply to secondary physical education teachers.

2. Since the study was limited to elementary physical educators’ attitudes towards inclusion, it cannot be assumed that the findings apply to other content areas such as math education or music education.
3. The participants (teachers and students) in this study were volunteers. The results might be biased by this selection factor (consistent with Cook & Campbell, 1979).

4. Other extraneous variables (e.g., amount of physical education equipment, number of minutes of physical education per week) may have affected the results of the study.

5. The attitudinal scores of the teachers in the study provided a limited continuum scale.

6. The small sample size, common with qualitative research designs, does not allow a representative sample for all teachers. This study was intended to represent only those participating in the interviews.

Results

The Teachers’ Stories

Jan (Positive Attitudinal Group). Jan had been an elementary physical education teacher for 12 years and taught in a school of 435 students located in the suburbs of a large city. The gymnasium was located at the back of the school and was slightly bigger than a regulation size basketball court. The walls were decorated with physical fitness and motor skill related information along with a class behavioral score sheet.

Jan had a very clear and positive philosophy towards teaching physical education and believed that physical education was the most important subject that students had in school. Jan wanted all of her children to learn movement patterns, motor skills, and fitness concepts while having fun in her classes. Jan’s philosophy on teaching children with special needs in her general classes was very similar to her general teaching philosophy. In fact, she did not want to make a distinction saying that:

My philosophy is the same for all children. Whether a child has special needs makes no difference; I mean I just have to be creative, use my creative abilities and adapt situations for the students that need a bit of extra help… but I still expect all of them to participate fully and to be successful at their own level.

Jan made a couple of comments that indicated that she really welcomed children with special needs into her class. She was full of praise for how well her included students generally behaved and how skillful some of them were. She noted:

Many of my students that are labeled with special needs are very skillful movers, energetic, and enjoy physical education…a lot of them are the best movers in their classes and that is great, because physical education gives them a chance for them to excel at something, to be the best at something when they might be struggling in other areas.

Jan expected all of her students to be on-task most of the time in her classes. She noted:

When I look around I expect all of the children to be practicing the skills that we are working on. They all know that if they are not doing this, then they will be reprimanded and may lose points for their class…and it is important to me because I know that they have to try things to learn them.

Jan had always been in favor of having children with special needs included in physical education classes. In fact she believed that children with special needs should be included in all classes and not just art, music, and physical education. She stated that, I think it is very detrimental to the learning of special needs children and all children to have them added to only itinerant classes. She recognized that her philosophy had evolved over time and that a big factor in the development of her current beliefs was her attendance in a physical education graduate program. A couple of the classes that she took in graduate school were adapted physical education classes that taught her the necessary skills to effectively include children with a variety of disabilities into her classes. According to Jan, I always felt that children with special needs should be in my classes, but after those adapted and special education classes I felt stronger about that because I had seen how it could be done. Jan attributed a lot of her perceived success at including children with special needs into her class to the education she received in graduate school. When asked to describe what these classes involved, she talked about how they studied specific disabilities and discussed how children with these disabilities could be included into general classes. Jan also talked about how these classes made her realize that students with special needs should be in her classes and that her school may have been illegally excluding children.

Jan indicated that her lesson planning process was the same for all classes irrespective of whether or not they had children with special needs included in them. She used lesson plans that she wrote years ago that she updated and added to the day before she taught. When she was planning new units and
lessons, she wrote out full lesson plans that included activities that could be adjusted for all the children in the class. Jan described how she saw children by skill level rather than by the presence or absence of a specific disability, and that she attempted to design activities that could be adjusted for every skill level within the class. She also tried to think through any potential problems that students with special needs might experience in her classes and address them up front in her lesson planning. When asked to provide an example of this, Jan stated:

*I have one boy who is mildly mentally delayed and his attention span is very small so I really try to present directions as quickly and efficiently as possible. Plus, I pair him with other students who I know will understand what we are doing and can help him through it.*

Jan was very clear about her philosophy on the importance of student success in physical education. She was very quick to differentiate between students being successful and students being perfect. She wanted all children to be successful at their own ability levels. On this topic she said, *I expect them to do their best within their abilities, strive to be challenged, and to always feel successful, as well as to enjoy moving.*

Jan said she used many different teaching styles in her teaching and that she liked to teach in a way that *forced the children to think and to solve problems.* She added that she probably used more peer teaching with classes that were inclusive. When asked why she did this, she noted that, *I think that children can sometimes be the best teachers and that having a student without special needs partner up with a student with special needs can be a win-win situation.*

Jennifer (Positive Attitudinal Group). Jennifer had been an elementary physical educator for the past 16 years. She was a positive role model for her students as she was a self-proclaimed fitness fanatic. In her spare time she taught spinning and step-aerobics at a local private gym. Jennifer taught physical education because she *loved children and wanted them to share her enjoyment of movement and exercise.*

Jennifer talked in great detail about her teaching philosophy and what she wanted her students to gain from her physical education classes. Her philosophy focused on the teaching of motor skills and helping children improve their fitness levels and self-esteem. Jennifer described some of the children with special needs that she taught in her classes and wanted to make it clear that she felt that they belonged in her class and that she was very effective at including them. She strived to have all of her children actively participating all of the time. Jennifer recognized that it was important for children to be as active as possible throughout her lessons and stated that she had the same expectations in terms of on-task time for all the children in her classes.

Jennifer stated that her favorite class in her college degree program was one that involved each undergraduate student being matched with a child with disabilities for the entire semester. She proceeded to describe this practicum experience:

*My partner was a little boy named Zach. He would arrive every Monday afternoon on the school bus and just be full of energy. Even the more severe kids knew that this was their special day. We would spend two hours with our partner, an hour in the gym and then an hour in the pool. I was really intimidated on the first day when I saw the kids’ faces through the school bus window but this nervousness and fear disappeared after a few weeks.*

Jennifer probably had the most in-depth and thorough lesson plans of the four teachers that were interviewed. On her lesson plan template was a space for accommodations for children with disabilities. She listed several modifications for every activity so that children of varying skill levels could be successful.

Jennifer had many thoughts on the practice of inclusion in general. First, she could not believe that many teachers were actively resisting it because it was the law. She proceeded to tell a story of a colleague at another school who bragged how she didn’t let the child with special needs screw up her lessons because she had this child play with toys in the corner of the gym during P.E. time. This seemed to anger Jennifer, who said that she believed every child had the right to quality physical education. Second, Jennifer believed that it was important to have a plan that everyone was involved in making. She said that she attended Individualized Education Plan (IEP) meetings and talked about how the individual student performed in physical education and what goals she thought were appropriate for that child. Third, Jennifer described cases where she thought inclusion was not appropriate. She felt
that inclusion was not the best option if the child was a physical danger to himself or to the rest of the class, or if the necessary supports were too expensive.

Jennifer believed that physical education teachers should make sure that all students were successful in their classes. She was asked how she did this, she replied:

*It is pretty simple, really. Any activity can be tweaked so that it is appropriate for the child doing it. That can be something as simple as having a child move closer to a target or holding a child’s hand as they are walking across a balance beam. Children have to leave the gym feeling good about activity or they won’t do it on their own time.*

Jennifer was the most specific of the four teachers in describing the teaching strategies that she used when teaching inclusive classes. Three specific teaching strategies that she believed she used were proximity, individualizing instruction, and the delivery of lots of positive reinforcement. She felt that she probably gave more positive reinforcement to students with special needs, compared to other students, because she really wanted them to enjoy physical education and to make them feel comfortable in her classes. She also believed that the children with special needs stayed on-task better if she was physically near them in the gymnasium, stating that:

*When I ask the class to get into general space I try to make sure that I am very close to children who may have problems paying attention. I especially try to do this with the children who have ADHD (attention deficit hyperactivity disorder) who sometimes need me near them to help them concentrate and stay focused.*

Sean (Negative Attitudinal Group). Sean had been teaching physical education for six years and had been in his current school for the past two years. Sean’s school was located in a very large school district in the suburbs of a major city. Sean’s philosophy on teaching physical education was more related to the teaching of sports skills than the other three teachers. He wanted the children in his classes to learn the basic skills of the major sports that they might play out of school. He pointed out that he taught skills such as basketball dribbling, passing, and shooting. Sean wanted his children to come to physical education dressed appropriately and ready to work hard.

Sean resented the fact that dealing with the children with special needs took up so much of his time during class and he felt that this was not fair to the other students in the class. Specifically, he stated:

*I’ve really tried with a couple of the kids that I get but they just cannot follow directions. They run around when I am talking and do not follow directions. Sometimes they even run out of the gym and I have to stop my lesson to deal with that problem. When the weather is nice I like to teach outside but I cannot take these kids outside because I am scared they will run off.*

Sean approached the principal with these issues when they first arose. Sean asked the principal if an assistant from the special education classroom could accompany a couple of the children with whom he was having problems. The principal did not provide the support Sean was hoping for, and indicated that physical education time was a chance for the special education teacher and her assistants to have their break. Sean added that his philosophy was based on the belief that children with special needs should only come into GPE classes if they had an aid or teaching assistant come with them.

Sean had minimal practical training or experience teaching children with special needs in the college undergraduate courses that he had taken. He had not taken any classes that focused on the education of students with special needs. Sean expressed regret at not completing a class that dealt with inclusion issues and teaching practices and that his student-teaching cooperating instructor did not help him with this challenge.

Sean did not talk for very long about how he planned his lessons. He showed me an index card that he carried while he was teaching that outlined the lesson. When asked the question of how having a child with special needs included into his class affected his lesson planning, Sean responded:

*I think of the particular child and the problems that they have in here and then I try to plan ways that I can deal with these problems such as giving them other things to do or having them work with a partner that I know they work well with.*

Sean had mixed feelings toward the practice of inclusion in general. He stated:

*I can see how it can make a child with disabilities feel better about themselves and feel part of the general class, and I think this is really important, but I’m just not sure if that is more important than the other children getting what they need in my classes. I guess I believe that inclusion looks great on paper but when it means that it disrupts my class then I begin to question the whole practice.*
Sean wanted his students to be successful when performing *sports* skills. He said that seeing them perform the sports skill correctly let him know that he had done a good job modeling and teaching the skill to them. He measured student success by using a checklist of things to look for in each skill. This assessment technique was required by the school district. Sean described what his goals were for the children who were included into the class. He stated:

Many of them simply cannot understand the parts involved in a lot of skills so they can’t do them that well...maybe they are getting some kind of social benefits from being with the other kids...I’m pretty much just happy if they are not misbehaving as actually following directions is a goal for a lot of them. They just can’t stay on-task like the other kids.

**Tammy (Negative Attitudinal Group).** Tammy had been a physical education teacher for over 18 years. About half of those years were spent in a high school setting and the other half in her current elementary school. She was the only teacher that mentioned attending state and regional physical education conventions. She believed that all of the presentations that she attended at these conventions had helped her formulate her teaching philosophy.

Tammy talked in-depth about how her general philosophy centered on helping children become more physically active individuals. She believed that her philosophy was relevant and important when teaching inclusionary classes as all children needed to learn the skills necessary to be active and to lead a healthy lifestyle. She compared the current educational practice of inclusion to that of the exclusionary classes that she taught when she first started teaching. She described that in her first few years of teaching, children from the special education classroom were not included into her general classes, and instead, she would meet with the special education class as a whole once a week. She believed that this practice served all children better and was easier to plan for. She summarized her current philosophy by stating:

*I just do the best I can. I try to make sure that the child with special needs does not disrupt the rest of the class. If I can manage this and keep everybody safe then I think I have done a good job and if the child with special needs learns something too then it is even better. I just think that a lot of the time these children are thrown into our classes without thinking whether or not it is best for that student and all the other students.*

Tammy pointed out that her job had changed a lot over the past 18 years. She reflected on how *back then* teachers were given more freedom to just teach. Today, she said she *spent so much time assessing children and doing paperwork* that she felt her teaching had suffered. Tammy recognized that her attitude or philosophy towards teaching children with special needs had evolved over time. She stated, *I wasn’t taught how to teach children with special needs when they are mainstreamed into my general classes...I was taught how to teach small groups of these children at one time...it is a completely different challenge.* Tammy continued by adding:

*I enjoyed teaching these students together because I didn’t feel like I was neglecting the 20 – 25 other children in the class...now I think it just places an unfair burden on teachers to expect them to do all this assessment, meet all these state standards and to spend a lot of time with children with disabilities who are thrown into the class without any help being provided.*

Tammy openly admitted that she did not write lesson plans anymore. She provided the school principal with an outline of what she would be teaching for every nine-week period. She said that she had been teaching long enough to know what she was going to teach and that she did not have to write it down. She added that this *would just be more paperwork*. She did not plan any special accommodations for the children with special needs. Tammy explained that the only major difference in preparation for inclusionary classes (versus non-inclusionary classes) was that she was more considerate of safety issues when there was a child with special needs in the class.

Tammy felt that if the students who were included had trouble performing the activities then they probably should not be with her anyway. When asked to talk more about that, she responded:

*I don’t feel that I should turn my lesson upside down just for one child. I teach 8-10 classes a day and I just do not have time to change every lesson with equipment and stuff...the activities are designed for children at all skill levels so I expect that they should be able to do okay anyway.*

After clarification that we were talking about mild / moderate mental disabilities, and not more severe mental disabilities or physical disabilities, Tammy stated:
If the children included are at the same skill level as others in the class, and they can understand directions then I assess them the same way I do everyone else. The problem is though that even children with milder disabilities who come without an assistant cannot understand what they are supposed to be doing.

Tammy described the case of one of her students, a boy in fifth grade. This boy had been diagnosed as having both an emotional and mental disability and having a history of not cooperating with other students. He attended physical education without a teacher’s aid, because the special education teacher felt it would be a good environment for him to work on his cooperation and social skills. Tammy pointed out that this boy had problems working with other children in almost every class. He would not share equipment or keep his hands to himself. The principal recognized Tammy’s concerns, but did not add an assistant or pull the child from physical education classes because he (the principal) felt it was important for this child to learn to work with others. Tammy felt that this decision was unfair to her and to the rest of the children in the class.

Tammy recognized her lack of training in dealing with students with special needs and expressed a desire to become better at this part of her job. She had even approached the district physical education supervisor and asked her to organize more in-services that presented specific strategies that would help her and other teachers effectively include children with disabilities. She stated that, many teachers like myself did not receive formal training and need help catching up with finding out which teaching styles and strategies we can use in our teaching.

Interpretation of Qualitative Data
After extensive studying of the four participant’s stories, each case was synthesized and inserted into a table format. This preliminary analysis was done so that topics of conversation could be scanned from each person’s interviews. Following the preliminary analysis, four assertions were generated after comparing the responses of the two participants with a positive attitude to the responses of the two participants with a less positive / negative attitude.

Assertion 1: Teachers with positive attitudes towards inclusion had multiple focus areas or objectives.

The two teachers with a positive attitude toward inclusion discussed multiple focus areas or objectives in respect to what they taught or thought should be the goals of physical education. In contrast, the two teachers with a negative attitude toward inclusion only presented a singular area of focus. Jan, with the positive attitude, wanted her classes to help all children develop in three main areas (self-esteem / self-confidence, movement ability, and motor skill performance). Similarly, Jennifer addressed affective domain issues by stating that she wanted all children to feel like they belonged in her class. Jennifer’s lessons also focused on the teaching of motor skills and fitness concepts which she believed could be integrated into each lesson.

The two teachers with a negative attitude had a singular focus when discussing their teaching philosophy. Sean wanted his children to learn the skills necessary to be able to participate in sports outside of school settings. It is noteworthy that every example he gave during the interview was a basketball example. The following quote highlights this:

*I spend a lot of time teaching them the fundamental skills of all the major sports that they might want to play outside of school. We do the lay-up, all the types of passes, dribbling, shooting and with the older kids, well some of them anyway, I do coaching stuff like zone or man-to-man and plays.*

Sean’s continual reference to teaching basketball and his desire to have his students work hard during his lessons were especially interesting considering that he was also a basketball coach at a local high school. During the interview, it seemed quite obvious that Sean’s physical education classes were an extension of his basketball practice sessions. One actual observation note was: *Does he teach basketball all the time...is he teaching or coaching in here?* Later on in the interview the coaching situation arose again when he stated that he did not have enough time to write detailed lesson plans, perform all the necessary assessment, coach his team, and make accommodation for the children with special needs in every class. This statement leads one to believe that Sean might be prioritizing his basketball team over the education of the students with special needs in his classes.

Tammy, the other teacher interviewed who had a negative attitude toward inclusion, also discussed one major focus area in her teaching. Tammy discussed in great detail how she thought it was her job to
teach children important fitness concepts. She wanted all of her students to learn the skills necessary to lead a physically active lifestyle.

**Assertion 2. Teachers with positive attitudes developed written lesson plans that incorporated many different teaching strategies.**

Both positive attitude teachers had written lesson plans that considered the needs of all the children in the class. Jan and Jennifer described how their lesson plans helped them to individualize instruction and to provide accommodations that they thought the child with special needs might require. Jan and Jennifer used small groups within their classes to help keep students with special needs on task and to help all children develop cooperation skills. Jan liked to plan lessons that had students working with a partner and believed that this arrangement was beneficial for students with and without special needs. Jennifer also planned lessons that allowed for children to work together and described how she used the reciprocal teaching style to have children teach and assess each other.

Jan and Jennifer put a great emphasis on their lesson planning. According to Jan, *failing to plan is like planning to fail.* Jennifer’s lesson plans were very well written and she was very eager to show them. It was clear that Jennifer consistently planned in depth lessons as she described how she liked to integrate subject matter from other subjects into her lesson plans. She then opened up her file cabinet to display hundreds of written lesson plans. She proceeded to pull one out of the section labeled *interdisciplinary lessons* and showed the thoroughness and thought put into every lesson.

In contrast to the positive attitudinal teachers, Sean and Tammy did not write detailed lesson plans. Sean indicated the following as his reason for not writing out full lesson plans:

*Long lesson plans like the ones we did in college are a waste of valuable time. I can get everything I need onto an index card which I can carry around with me as I am teaching; it has the layout of equipment on it, teams, and teaching cues, things like that.*

Similarly, Tammy indicated that she had:

*… been doing this for a long time now and know what I am going to teach without having it written down. The games and stuff are in my head. My principal doesn’t want to see long lesson plans anyway, just a nine-week outline.*

Sean did not plan special accommodations for the children with special needs who came to his class without a teacher aid. He believed that if they did not need an aid then they should be able to do what the rest of the other children were doing. Tammy stated that it would be too much work to write special accommodations for every game that they played for every child with special needs.

**Assertion 3. Teachers with positive attitudes had completed coursework and training on teaching students with disabilities**

All four of the participants commented on the quantity and quality of educational training that they had received in their college degree programs. There was a definite contrast in the education that the teachers with different attitudes had received. The two teachers with a positive attitude toward inclusion had taken classes that specifically dealt with how to include children with special needs into their GPE classes. Jan and Jennifer described the impact that these classes had on the formation of their attitude towards inclusion and on their perceived ability to successfully include students with special needs into their classes. Jan stated:

*I was pretty much in favor of inclusion before I returned to graduate school but the classes I took there helped me to learn the ways that I could teach these children. The professor encouraged us to look at what the child with special needs could do and to make them feel a part of the class and to be as demanding of them as the other children.*

On the same topic Jennifer stated:

*The special populations’ class that I took at college was the best class I took. It made me realize that I wanted to teach children who had disabilities, we learned so much in there...what the disabilities were and what we could do with these children in our classes...the best bit was working with our term buddy who came to campus for a couple of hours every week. I was intimidated by him at first but the repeated contact*
helped me to get over that…I think all teachers in college need those kinds of early experiences with children who are disabled.

The two teachers with a negative attitude toward inclusion had not taken any adapted physical education classes in their college teacher education degree programs. Tammy had previously taught classes that were exclusionary and expressed her preference for that arrangement. Interestingly, both of these teachers (i.e., Sean and Tammy) recognized that they did not feel well prepared to teach children with special needs in their classes. Tammy even pointed out that she had asked the district physical education supervisor if they (i.e., the school district) could present more in-services that dealt with inclusionary issues.

Assertion 4. All four teachers wanted their children to be successful although there were notable differences in how success was defined.

There were no differences between the teachers with the differing attitudes in terms of wanting their children to be successful in their classes. However, the two teachers with positive attitudes extended this issue by discussing what success meant to them. Jan and Jennifer, respectively, stated:

*I want the children to be successful at their own skill level...I don’t look in a book and see how a skill should be performed and then expect every child to be able to do it exactly that way........If two children are at the same general skill level then I have similar expectations for both of them...the only time I might not is if a child has problems understanding and following the directions that I give.*

Sean and Tammy (negative attitudes) also believed that it was important that children were successful in their classes. However, whereas Jan and Jennifer constantly referred to how a student’s success can build self-esteem and confidence, both Sean and Tammy described student success as being important because it was an indication that the skills had been well taught. The impression was that Jan and Jennifer wanted students to be successful for the students’ benefit (i.e., learn skills and improve self-esteem and confidence) in contrast to Sean and Tammy who wanted their students to be successful for their (i.e., Tammy and Sean) benefit as it made them feel like effective teachers.

There was a notable difference between the teachers with differing attitudes regarding their priorities for the children with special needs in their classes. Jan and Jennifer both made comments that suggested that they expected the included child to be on-task during the lesson. Specifically, Jan pointed out:

*The child with special needs is just like any other kid in the class...when I look around I don’t think, oh there is Billy and he has a mental dysfunction, I just see another student...I expect all of my children to be on-task all of the time and they know that and want to do that as it wins the whole class points at the end of the lesson...it might take a little bit of prodding but the kids with special needs stay on-task as much as the others, sometimes even more.*

Tammy, a teacher with a negative attitude toward inclusion, provided a different response to the same question. Rather than discussing on-task time, Tammy pointed out that her main priority for the student with special needs was that she or he did not act in a way that would endanger him or herself or the other students in the class. Tammy’s actual comment was:

*Most of the time I’m just happy if they come in and don’t hurt themselves or the other children in the class. That is my main priority. To keep them safe and to protect the other kids...and also to make sure that they don’t leave the gym or spend too long in the bathrooms.*

Discussion

The two teachers with a positive attitude engaged in behaviors that researchers in physical education have associated with increased levels of student learning and effective teaching. For example, the two teachers with the positive attitudes toward inclusion identified multiple focus areas and objectives in their teaching and described how they used a variety of teaching styles in their teaching. The two teachers with a negative attitude seemed to center instructional time in the areas of traditional games and sports skills, content areas often viewed as more difficult to adapt to individual differences.

The analysis of the qualitative data revealed that the two teachers with the positive attitudes towards inclusion had taken adapted physical education courses in their formal education. The two teachers with the negative attitudes had not taken any adapted physical education or special populations classes. This qualitative finding supports the findings of Tripp and Rizzo (2006) which indicates the presence
of a positive relationship between teacher attitude towards inclusion and the amount of educational preparation. Other researchers have extended this line of research and have demonstrated that adapted physical education courses and teacher in-services improved the attitudes of teachers towards inclusion (Jansma & Schulz, 1984; Patrick, 1987).

The participants in the study defined student success in differing ways. The two teachers with a positive attitude referred to student motor performance when they discussed student success issues. In contrast, the two teachers with a negative attitude toward inclusion appeared to consider the inclusion of the child with special needs a success if the included child was busy, happy, and good. This conclusion was similar to the findings of Placek (1983), who found that inexperienced teachers were more concerned with whether students were participating (busy), enjoying themselves (happy), and doing as the teacher directed (good), than whether students were performing skills correctly. Effective teachers in an inclusive environment must be flexible and prepared to individualize instruction. Inclusion means all students belong in the community of learners. This community should invite all students to participate in meaningful learning that offers opportunities for personal success. An inclusive environment will make certain that both curriculum modifications (what is taught) and instructional modifications (how the material is taught) are planned for.

These findings may have practical implications for administrators involved in hiring physical educators and for college educators in physical education – teacher education (PETE) program areas. Administrators may use these findings to seek out potential physical educators who have a positive attitude towards inclusion. Administrators should be prepared to hire individuals who understand the shifting emphasis away from traditional games and sports skills. In reality, a perspective from the teacher candidate who continues to believe in the traditional curricula may be responsible for resistance to including students with disabilities in their classes. Administrators may also provide more teacher in-services that focus on how to include children with special needs into GPE classes. Teacher in-services have been found to improve participating teacher’s attitudes towards inclusion (Jansma & Schulz, 1984; Patrick, 1987). Additionally, the findings of the present study may encourage PETE professionals to incorporate classes that deal with inclusionary issues into pre-service teachers’ courses of study and to address individualizing teaching strategies, lesson plan writing, and different teaching styles in all pedagogy courses.

Explicit strategies for improving attitudes toward students with disabilities should increase the probability of successful assimilation of students into regular physical education. Students in physical education preparation should have ample opportunity to practice what they have learned in real life situations. One way to address this need for authentic learning is to assign pre-service teachers to multiple sites during early field experiences. This would allow future educators to interact with diverse groups of students.

The roles and responsibilities of physical education teachers are dramatically changing. All children are guaranteed free and appropriate education, including physical education. Laws continue to emphasize that there must be an increased emphasis on participation of children with special needs in the general curriculum. Inclusion is a complex issue that is interpreted differently by different people. Regardless, children should have an opportunity to engage in meaningful activities in physical education.

The following questions are suggested for the future study on teachers’ attitudes towards inclusion, their attitude formation, and the impact of their attitudes on their teaching.

1. Does the attitude of the teacher toward inclusion affect the learning and retention of motor skills for children with and without disabilities?
2. Would the attitude of the teacher toward inclusion affect the performance of students with disabilities and without disabilities on specific measurable variables (e.g., fitness tests, cooperation skills, state-wide standardized test scores)?
3. If more interviews were conducted, would the patterns and themes be consistent with those from the present study?
4. Does the attitude of the teacher towards inclusion affect how students within their classes perceive physical education?
5. What would the effect of an in-service that presented teachers with strategies to effectively include students with special needs into their classes be on: (a) the attitude of teachers towards
inclusion, and (b) the pre- and post-intervention (in-service) practice and success levels of children in their classes?

6. What is the relationship between teacher attitude toward inclusion and the type and amount of feedback given to students with and without disabilities in regular physical education classes?

References


INCLUSIVE EDUCATION IN GUYANA: A CALL FOR CHANGE

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This study examines inclusive education within Guyana for children with special needs (zero to eight years), from the perspectives of policy makers, teachers, and parents (n = 22). The study is framed within a social-constructivist perspective, and uses grounded theory for the collection and analysis of data. Four themes emerged from the data as potential barriers to implementing inclusive education in Guyana: attitudes and perceptions toward those with special needs, change agents, resources, and experiences with children with special needs. This study describes the interrelating relationships between the core phenomenon (i.e., attitudes toward those with special needs), and the other conditions (i.e., change agents, resources, and experiences with children with special needs) necessary for successful inclusion. The interrelationship between these factors stimulates strategies or actions. These lead to consequences, which prevent sustainable and successful inclusive education within Guyana. There is a discussion of recommendations and conclusions that may assist in supporting inclusive education within Guyana.

Inclusion respects and values the diversity of each child, acknowledging that he or she is a contributor to society, regardless of abilities (Crippen, 2005; Rallis & Anderson, 1994). The United Nations Convention on the Rights of Persons with Disabilities acknowledges that all children with special needs have equal human rights and freedom as any other child (United Nations, 2006). The United Nations Convention on the Rights of the Child further declares that all children (with or without special needs) have basic rights to an education, and to experience full involvement within society (Frankel, 2004; United Nations, 1989). In keeping with the pledge for Education for All, the Salamanca Statement highlights the right of those with special needs to obtain an education within any regular education system (United Nations Educational Scientific and Cultural Organization [UNESCO], 1994). This statement also asserts that regular classrooms should accommodate to meet the needs of all children as a means of reducing prejudiced attitudes, and to promote a more accepting society (UNESCO, 1994).

Inclusion is the practice of establishing heterogeneous classrooms in neighbourhood schools, where every child strives to accomplish individual goals while fully participating in social and academic activities. This often requires modifying the curricula and the environment in order to ensure the success and attainability of these goals (Lipsky & Gartner, 1996; Oremland, Flynn, & Kieff, 2002). Inclusive education is a system that supports and accommodates for the diverse needs and abilities of all students within a typical education setting (Bergsma, 2000; Crippen, 2005; Eleweke & Rodda, 2002; Skrtic, Sailor, & Gee, 1996). Inclusive education requires a systemic educational reform and restructuring of the school system (Bergsma, 2000); this is particularly true in developing countries (i.e., countries which maintain low-income and middle-income economies, where a majority live on less income and lack essential public services compared to extremely industrialized countries [The World Bank Group, 2006]).

Policy makers within developing countries may not have the necessary funds and information required to implement legislation and guidelines related to inclusive education and special needs. They may also face resistance or challenges from teachers and parents. Conversely, teachers may perceive a lack of training and resource supports. Parents of children with special needs may perceive a lack of encouragement for parental involvement within the schools. These parents may also feel an overall
sense of shame and stigma when their child with special needs attends the regular schools. Also to consider when examining a country’s inclusive practices, are the sustained socio-cultural and political beliefs and attitudes. Through the experiences and views of various policy makers, teachers, and parents, this study addressed such issues related to inclusive education with Guyana.

Developing Countries

Inclusive education for children with special needs is an evolving issue within many developing countries. Approximately 600 million people with disabilities exist worldwide, all of whom encounter physical and social boundaries within cultural life (UNESCO, 2006; World Health Organization [WHO], 2007). Of this total, it is estimated that 80% of people with disabilities live in developing countries (UNESCO, 2006; WHO, 2007). One hundred and fifty million of these are children with disabilities, of which less than 2% are receiving rehabilitation (Eleweke & Rodda, 2002).

Developing countries encounter countless challenges when attempting to implement inclusive education. For example, the facilities to accommodate for children with special needs within these countries are often non-existent or inadequate (Eleweke & Rodda, 2002). Many developing countries lack basic educational materials and equipment to provide a sufficient education for children with special needs (Eleweke & Rodda, 2002; Peresuh & Barcham, 1998).

There is also the need for trained special education teachers and professionals (Stough, 2003). Although colleges or universities within these countries may provide special education training, there is a growing concern regarding the adequacies of the programs; these programs tend to concentrate on the pathology of disabilities, rather than instructing on modifications to suit the needs of the child (Eleweke & Rodda, 2002; Stough, 2003). In addition, there is a lack of programs for professionals that assist in supporting the overall quality of inclusive education (e.g., psychologists, speech and language pathologist, therapists, etc.) (Eleweke & Rodda, 2002).

Developing countries struggle to maintain a suitable funding structure to support special needs programs or reforming of the education system. Chaikind, Danielson, and Brauen estimated that providing educational services for children with special needs could cost 2.3 times more than providing an education for children without special needs (as cited in Eleweke & Rodda, 2002). As a result, special needs education is not a priority among the government’s budget within many developing countries. Furthermore, there is often a lack of compulsory laws, policies, and legislation within developing countries to ensure the provision of services for children with special needs (Eleweke & Rodda, 2002; Hall & Figueroa, 1998; Peresuh & Barcham, 1998).

Guyana is a developing Caribbean country which is striving to establish inclusive education policies, laws, and practices for children with special needs. According to the 2002 census, approximately 2.2% of its population is made up of those with special needs (Mitchell, 2005). Guyana has not yet developed an official definition of the term disability, and is still in the midst of implementing programs for identifying special needs in early childhood (International Disability Rights Monitor [IDRM], 2004). While Guyana does maintain a National Policy on the Rights of People with Disabilities, it does not specifically address children’s rights, accessibility of buildings, or transportation for children with special needs (IDRM, 2004; United Nations, 2004). The 2005 Guyana Report on Human Rights Practices does not clearly acknowledge the rights of children with special needs or the lack of services available to these children (U.S. Department of State, 2006). Guyana’s teacher education programs attempt to provide adequate special education training, however, many teachers graduate without sufficient skills and knowledge to teach within an inclusive environment. There is a demand for teacher training, special needs specialists, and a fundamental reform of the education system in order to allow for the principles and practices of inclusive education in Guyana (Bergsma, 2000; National Development Strategy, 1996; Non Governmental Organization [NGO], 2003; O’Toole & Maison-Halls, 1994; O’Toole & Stout, 1998).

Guyana currently maintains a final draft of its Persons with Disabilities Bill. Developed in 2007, this bill advocates for the inclusion of children with special needs within the regular education system and supports teacher training in areas of disability and inclusive practices (Guyana Association of Women Lawyers, 2007). Guyana has also implemented Community Based Rehabilitation (CBR) projects as a grass roots approach to include children with special needs into neighborhood schools (Miles, 2001; NGO, 2003). The CBR projects seek to promote the awareness of disabilities, as well as involve the participation of rural communities within Guyana in developing and implementing rehabilitative
programs (O’Toole, 1993; O’Toole & Maison-Halls, 1994; O’Toole & Stout, 1998). Through training from rehabilitation therapists, members within the community (e.g., teacher, parents, health care workers, volunteers, etc.) are empowered to develop programs and supports for children with special needs (O’Toole, 1993; O’Toole & Maison-Halls, 1994; O’Toole & Stout, 1998).

**Attitudes and Beliefs**

Positive attitudes and beliefs are the foundation for successful inclusion. Maintaining optimistic beliefs and values pertaining to persons with disabilities influences the extent to which a society fluidly exercises inclusive practices. However, inclusive ideologies are often determined by the cultural and political context of a country.

**Attitudes toward those with Special Needs within Guyana Society.** Societal negative attitudes are reported as the main barrier preventing Guyanese children with special needs from equal educational access (Ministry of Education and Cultural Development Guyana, 1995). Groenewegen (2004) concluded that Guyanese communities continue to stigmatize those with special needs, and perceive them as a societal burden. Guyanese with special needs are rarely presented with opportunities for self development and employment (Groenewegen, 2004). The National Commission on Disability (NCD) surveyed the perspectives and experiences of 1485 people with special needs across Guyana. Roughly half of the participants (44%) experienced negative attitudes from Guyanese society due to their disability (Mitchell, 2005). Specifically, participants reported experiences of name calling (60%), staring (49%), resentment (17%), exclusion (12%), and other (3%) (Mitchell, 2005). Participants indicated that these experiences contributed to their low self-esteem and hindered them from being involved with society. Consequently, the incessant discrimination discouraged those with special needs from participating within the community. Approximately 49% of participants felt ashamed and disrespected due to the negative perceptions of others, and 14% of participants reported complete social isolation, without the desire to leave their homes or to invite home visitors (Mitchell, 2005).

**Teachers.** Groenewegen (2004) explained that within Guyana, few teachers are willing to welcome a child with special needs into their regular classroom. However, in the few cases where a child is admitted into the regular classrooms, teachers struggle to dedicate the extra attention necessary for the child. Mitchell (2005) reported that teachers’ negative attitudes inhibit the participation of children with special needs in the regular schools of Guyana.

**Parents of children with special needs.** Groenewegen (2004) described most Guyanese parents as frequently keeping their children with special needs at home, hidden from society. Parents rarely permit their child to go out into public, and many neighbours are unaware that a child with special needs resides next door (Groenewegen, 2004). The NCD report indicated that 222 respondents with special needs never attended school, and 46% of these individuals stated that they never attempted to participate in education (Mitchell, 2005, p.27). Over half of these 222 respondents (52%) expressed this was due to parental attitudes; Parents did not encourage me (Mitchell, 2005, p. 27). During focus groups, parents of children with special needs described experiences of blame from other family members and friends, asking them what they had done wrong in life to get a child with a disability (Mitchell, 2005, p. 60).

The purpose of this qualitative study was to explore inclusive education for children with special needs (zero to eight years) within Guyana from the perspectives of policy makers, teachers, and parents of children with special needs, who must make the change toward inclusion. The goal was to document and acknowledge the many emotions, experiences, attitudes, and challenges related to inclusive education within Guyana. Through this exploration it was possible to develop a theory pertaining to inclusive education within Guyana.

In order to access these perspectives, we asked the following questions: What does inclusive education mean to each group of participants, and how do they perceive children with special needs? What are the participants’ experiences with children with special needs? What are the challenges in providing inclusive education within Guyana? What necessary supports do the participants believe are required in order to ensure for inclusive practices within the schools of Guyana? Finally, what progress has Guyana made in terms of implementing inclusive education policies and practices? Discovering the extent of these diverse perspectives provided explanations to support inclusive education policies and practices within Guyana.
Method

Design

Grounded theory is a qualitative design used to systematically generate theories rooted within the data (Glaser & Strauss, 1967). Within this study, the term theory denotes a set of well developed categories (e.g., themes, concepts) that are systematically interrelated through statements of relationship to form a theoretical framework that explains some relevant social, psychological, educational, nursing, or other phenomenon (Strauss & Corbin, 1998, p. 22). Discovering a theory involves the continuous comparison of emerging categories within the data, as well as theoretical sampling of data collection procedures, concepts, and diverse perspectives to emphasize properties of the categories (Corbin & Strauss, 1990; Creswell, 2003; Creswell, 2005; Glaser & Strauss, 1967; Wuest, 1995). In addition, a grounded theory research design asserts theory as process (Glaser & Strauss, 1967, p. 32). The theory is methodically and sequentially expanding and changing over time; it is never considered to be completely precise and perfect. Therefore, the theory is perceived to be grounded within a reality of social action and interactions (Corbin & Strauss, 1990; Creswell, 2005; Glaser & Strauss, 1967; Wuest, 1995). It is neither the minor working hypotheses’ nor is it the grand theory (Glaser & Strauss, 1967, p. 33). Rather, it is a middle-range theory founded in the perspectives of various individuals and data sources explaining a substantive or empirical topic (Creswell, 2005; Glaser & Strauss, 1967).

For the purpose of this study, a grounded theory design was utilized to inform a theory concerning inclusive education within Guyana. This theory is grounded in the perspectives of policy makers, teachers, and parents of children with special needs.

Data Collection

The data collection for this study was conducted during a four week period within Guyana. Guyana is composed of 10 administrative regions. Three regions were selected for this study: Region 2 (i.e., Pomeroon-Supenaam Region), Region 4 (i.e., Demerara-Mahaica Region), and Region 6 (i.e., East Berbice-Corentyne Region). The communities of Region 2 selected for this study include Adventure, Suddie, Taymouth Manor, and Cotton Field. The selected city for Region 4 includes Guyana’s capital city, Georgetown. Within Region 6, New Amsterdam was the only city selected.

There were 22 participants involved with this study. All obtained data and information was gathered through the use of individual interviews, focus group interviews, observational field notes, and documents. A semi-structured interview guide approach with open-ended questions and pre-established topics, issues, and probes were used (Cohen, Manion, & Morrison, 2003). Questions concentrated on the participants’ emotions, experiences, attitudes, and concerns regarding inclusive education within Guyana. Distinct interview protocols were designed for each group of participants. Also, to support focus group interviews, a focus group guide/script was created (Vaughn, Schumm, & Sinagub, 1996).

Participants

Sampling. Participants for this research study were non-randomly selected. The sample population and regions were obtained from both convenience sampling and purposeful sampling. Convenience sampling was utilized, because of feasibility and access to the participants and regions (Del Balso & Lewis, 2001). The participants, regions, and communities were conveniently selected based on collaboration with supporting organizations of this research study (i.e., United Nations Children’s Fund [UNICEF] Guyana and the Guyana Ministry of Education). Purposeful sampling was also utilized, as all participants and regions within this study maintained certain characteristics to meet the purpose of this study (Creswell, 2005; Del Balso & Lewis, 2001). Specifically, maximal variation sampling was used as a form of purposeful sampling since multiple perspectives from diverse groups were gathered in order to highlight issues of inclusive education within Guyana (Creswell, 2005). The sample of participants differed based on their titles (i.e., policy maker, teacher, or parent of a child with special needs), regions, and communities within the regions. Another purposeful sampling strategy used was theoretical sampling, because the participants were intentionally selected to generate a theory (Creswell, 2005). Participants were selected based on theoretical relevance for developing categories and properties related to inclusive education in Guyana (Glaser & Strauss, 1967, p. 49; Strauss & Corbin, 1998).

Recruitment of participants. UNICEF Guyana and the Guyana Ministry of Education assisted in recruiting participants. Due to possible coercion from either organization, it would have been ideal for neutral persons within the communities to aid in the recruitment process. However, this was not
feasible. To reduce the amount of potential coercion, a recruitment flyer was sent UNICEF Guyana, which they distributed within the aforementioned communities. The flyer briefly explained the purpose of the study, and requested community members to participate in valuable discussions regarding inclusive education in Guyana. The flyer also emphasized confidentiality and the use of pseudonyms, as well as provided UNICEF Guyana’s contact information.

Participants’ characteristics. Participants within this research study included policy makers, teachers, and parents of children with special needs. A majority of participants conversed in Guyanese Creole English, while others spoke in Standard English. In addition, most participants were Guyanese citizens of African descent. Five policy makers from Region 4 participated within this study. This included representatives from the Guyana Ministry of Education and from the NCD. Nursery school and primary school teachers within Region 2 and Region 6 also participated within this study. Of the 13 teacher participants, 9 had either completed or were in the process of completing, the requirements for a teaching certificate at the Cyril Potter College of Education (CPCE). As indicated throughout interviews, these teachers range in teaching experience between two months to 36 years, with an average of approximately 12 years. Four parents of children with special needs from Region 4 and Region 6 also participated within this research. Each parent had no more than one child with special needs. Therefore, a total of 22 participants were included within this study.

Procedure
Prior to conducting each interview, participants signed consent forms. Consent forms were tailored to suit each group of participants (i.e., policy makers, teachers, and parents). The principal investigator also verbally reassured confidentiality among participants and within each consent form. Only titles (e.g., policy makers) and pseudonyms were used throughout this research paper. In addition, during focus group interviews, all participants signed a Promise of Confidentiality form to help ensure that shared information remained confidential.

Each participant was either individually interviewed or participated in a focus group interview. The principal investigator conducted interviews in a private office, boardroom, or classroom. Interviews were between 30 to 90 minutes in length. She recorded all interviews through the use of audio taping and observational field notes. These notes were documented as accurately as possible, recording participant information (e.g., type of interview, name, start and end time, etc.), as well as any emerging themes, nonverbal cues, behaviours, emotional climate, and reactions. To ensure for greater accuracy and to limit the amount of interpretive errors, the observational notes were read to participants at the end of each interview in order to allow for any corrections. This member checking was also used in the focus group interviews to verify the general feelings of members regarding inclusive education in Guyana (Brantlinger, Jimenez, Klingner, Pugach, & Richardson, 2005; Creswell, 2005).

Data Analysis
All audiotapes, notes, and documents were gathered and transcribed. Member checking by reading observational notes to participants at the end of each interview verified responses and key themes, as well as ensured for greater accuracy and clarity. Validity of responses was also provided through triangulation: cross referencing the obtained data with different sources of information (Brantlinger et al., 2005; Creswell, 2005). Comparing transcripts, observational field notes, and government documents carried this out.

To organize and interpret the gathered data and information three phases of coding were applied: (1) open coding, (2) axial coding, and (3) selective coding (Creswell, 2005; Strauss & Corbin, 1998). Categories, constructs, and relationships were established through the use of these coding procedures and memos. This assisted in generating a theory to explain inclusive education within Guyana.

Open coding. During open coding, the principal investigator gathered and divided all data into sections to form categories and subcategories relevant to the purpose of this study (Creswell, 2005). The data was segmented, analyzed, compared, and contrasted (Corbin & Strauss, 1990; Strauss & Corbin, 1998). She was guided by the data, continuously creating categories and subcategories with properties and dimensions until they became saturated: the data no longer provided any new information to develop categories (Creswell, 2005; Glaser & Strauss, 1967; Strauss & Corbin, 1998). Categories were established through continuously asking questions of the data (e.g., what is happening here? what are these statements emphasizing? are there patterns within the data?). Once transcripts were coded and various categories emerged, subcategories and properties were identified. For example, during the
interviews all participants discussed issues of the predominant attitudes maintained by Guyanese society toward those with special needs. This was coded as attitudes maintained by Guyanese society, and became one subcategory in the emerging category that described attitudes and perceptions toward those with special needs. Within this subcategory, various properties were accounted for, such as stigmatization, perceptions maintained by medical professionals, dependency of those with special needs, disregard/hide those with special needs, etc. For instance, Baily, a special needs teacher stated, In this country, persons with disabilities is like they don’t exist. They don’t talk about them much; people hardly know that there are persons living with disabilities.....People in society... their whole outlook of person with disability is negative. Properties emphasized in this statement are the negative societal attitudes toward those with special needs, and the tendency to disregard/hide those with special needs.

Four significant categories were identified through the process of open coding: 1) attitudes and perceptions toward those with special needs, 2) change agents, 3) resources, and 4) experiences with children with special needs. These categories were identified throughout all groups of participants. Within these categories, various properties and dimensions were also investigated.

The first category, attitudes and perceptions toward those with special needs, reflects individuals’ beliefs, feelings, and thought processes pertaining to those with special needs, in particular children with special needs. Change agents refers to the notion of having individuals who are knowledgeable and accustomed to the principles of inclusion and inclusive education. Change agents also serve as leaders and advocates for children with special needs. The third category, resources, represents the supports necessary for the successful implementation of inclusive education. This includes teacher training/professional development, parent training/parent support groups, human resources, equipment and materials, and finances. Experiences with children with special needs is the final category. It emphasizes the nature of the participants’ past or current experiences with children with special needs. The quality of these experiences may be positive or negative.

Axial coding. After establishing major categories and properties, the second phase of analysis was conducted; axial coding. During this phase, one category was selected and identified as the central core phenomenon of the process explored (Creswell, 2005). This core category was selected based on the following criteria: it can be related to all categories, it frequently occurs within the data, the relationship established among the other categories is logical, the label given to the phenomenon should be abstract, the theory is enhanced when the concept is improved, and the explanation is still supported if conditions change (Strauss & Corbin, 1998, p. 147). The other categories and properties were then related to the core phenomenon, creating interrelationships between all established categories (Creswell, 2005; Strauss & Corbin, 1998). This involved identifying emerging conditions, strategies and interactions, as well as consequences of using these strategies (Corbin & Strauss, 1990; Creswell, 2005; Strauss & Corbin, 1998).

A coding diagram was developed to visually display and describe these relationships (see Figure 1 next page) (Corbin & Strauss, 1990; Creswell, 2005; Strauss & Corbin, 1998). For example, attitudes and perceptions toward those with special needs was considered to be the central category, as it fits the aforementioned criteria. The other categories (i.e., change agents, resources, and experiences with children with special needs) were identified as conditions that are associated to attitudes and perceptions toward those with special needs. Particular strategies and consequences were also influenced by the core category and the conditions.

Selective coding. In the final phase of the analysis, a broad theory was generated and refined from examining the interrelationship among the categories (Creswell, 2005; Strauss & Corbin, 1998). After creating a storyline, a theory was discovered providing an abstract explanation for the process being studied in the research (Creswell, 2005, p. 398).

Theoretical Assumptions
This study was framed within a constructivist perspective: acknowledging and validating participants’ subjective views, experiences, and meanings pertaining to inclusive education within Guyana (Creswell, 2003). These views and meanings are socially, historically, and culturally constructed (Creswell, 2003). Lincoln and Guba asserted that the researcher is the main research instrument used within the data collection process (as cited in Creswell, 2003). As the primary research instrument, it is acknowledged that we filtered the data through personal life, cultural, and ethnic experiences and
Core Category/Phenomenon
- Attitudes and Perceptions toward those with Special Needs

Strategies
- Non-prioritization of special education within the Ministry of Education.
- Teachers within regular schools refer parents of children with special needs to the special needs schools.
- Parents of children without special needs discourage their children from socializing with children with special needs.
- Parents of children with special needs hide their child from society and refrain from communicating with parents of children without special needs.

Consequences
- Prejudicial societal attitudes continue to propagate in Guyana.
- Children with special needs are concealed from the communities and schools.
- Stagnant inclusive education reform.

Figure 1.
Axial Coding: Theoretical Model of Potential Barriers to Inclusive Education in Guyana.
Findings
The core category, as well as emerging conditions, strategies, and consequences assists in developing a broad theory to explain the process of inclusive education within Guyana. This theory highlights specific factors that may be perceived as potential barriers to implementing inclusive education within Guyana. Four significant themes were identified: 1) attitudes and perceptions toward those with special needs, 2) change agents, 3) resources, and 4) experiences with children with special needs.

Attitudes and Perceptions toward those with Special Needs
Participants reported that the prevalent negative attitude maintained among Guyanese society, teachers within regular schools, and parents of children without special needs was one of the greatest challenges in implementing inclusive education within Guyana. Issues of stigma, ridicule, a lack of patience and time, a sense of burden, as well as prejudicial attitudes, were all expressed as being critical barriers toward supporting inclusion for Guyanese children with special needs.

Attitude of Guyanese Society
Participants highlighted the predominant negative attitudes maintained within the Guyanese culture toward those with special needs. Penny, a policymaker, expressed,

Our culture, our attitude, you know the stigmatism…all of these things are a part of what hampers the progress of children with disabilities. Specifically in this country, once we recognize the person has a disability we say, ‘well they can’t do anything educationally’ you know and we put them in the background…the first move for any sort of inclusion for persons with disabilities is orienting peoples’ minds and attitudes towards the capabilities of persons with disabilities.

Participants also disclosed the tendency for Guyanese society to ignore and discriminate against those with special needs. Jessie, a teacher from Region 2 witnessed children with special needs being ridiculed by other children and adults,

There’s [sic] some people who would call them, persons with disabilities, names. And they would, you know, fatigue them, pelt them and things like that, so they must have an attitude….they must change their attitude….They shouldn’t pelt them, they shouldn’t call them by false name….

Participants also reported the apathetic and discouraging attitudes of the Guyanese medical community. Penny sincerely described,

My son was born with this physical disability. And as I sit here, I don’t have a medical diagnosis for my child being born…I don’t have it. Obviously, they [doctors] always point at you, as you caused the child to be born with the disability, so they ask you all sorts of questions. So you get the blame, but they never come up with something that to tell you that well this child has whatever…don’t lambaste them as one doctor did to me ‘why did you make this child? He’s going to be nothing else than a liability to you, and a burden to society.’ I got that from a doctor. My child was 6 weeks old and I had to take him to that doctor. I came out of his office in tears saying this it for me.

Attitude of Teachers within Regular Schools
Participants also recurrently discussed the discouraging attitudes maintained by teachers in regular schools; often these teachers demonstrated a lack of patience in coping and attending to children with special needs. Gale, a parent of a child with special needs expressed, Honestly speaking in the public school, the normal school, the children that have disabilities, they [teachers in the regular schools] don’t see them. They don’t provide for them….they wouldn’t find time to talk to that child.

Special needs teacher Baily, explained the importance of being patient.

Here [special needs school], it’s definitely challenging, because patience is a must…and it’s not [the] usual patience that you have to have to get to teach the regular children, you have to stretch it a bit more, it requires a lot of patience and understanding….

However, teachers within the regular schools acknowledged a lack of time for attending to children with special needs, rather than a lack of patience. Hazel, a nursery school teacher expressed this challenge of balancing time, It’s just you take a little time, a little more time for that child with special need….not forsaking the others [children without special needs]...

Policy maker Kale, believed teachers maintained this attitude because it becomes a burden,
We now want teachers to be mothers, we want them to be policewomen, we want them to be nurses, we want them to be psychologists, we want them to do administrative work, and so on and so forth. So this poor teacher has to be all things to all people…. And now we’re saying to her ‘alright, take a child with special challenges into your class’….you know, ‘add to what you’re already doing’…..some of them will feel ‘oh god, another burden.’

Some parents also indicated that teachers within the regular schools recommended that they send their child to the special needs school. As Sandy reported, …the teacher that does teach him [in the regular school], she tell [sic] me to bring him to the special needs school]….because she was tired with him....

Attitude of Parents of Children without Special Needs
Participants also accounted for the negative attitudes sustained by parents of children without special needs. They described occurrences of teasing and ridicule toward children with special needs from these parents. Jessie, a teacher, considered situations of when she had to refrain such parents from name calling children with special needs, …you have to tell them [parents of children without special needs]….don’t call him ‘dumb boy,’ or don’t call him ‘deaf boy,’ he has a name. Don’t call this one ‘limpy’ you know, he has a name. Nadine, a parent, explained her avoidance of parents of children without special needs due to their negative perceptions, …I keep away from them [parents of children without special needs]…When he [her son] come out of school [regular school], they say ‘why you take him out?’ I say, I take him to a private school, I can’t tell [them a special needs school] because some of the parents them make fun of him, like something bad. So that’s what I have to tell them.

Participants reported that parents of children without special needs tend to blame the mother for the child’s disability. They also mentioned that these parents perceived something terrible happening to their child if they associated with a child with special needs; perhaps their child may catch the disability. Penny, a policy maker and parent stated, When it comes to the adults…the bigger people, they are the ones who carry thing ‘don’t play with that child, something gonna happen to you”

Change Agents
Each group of participants described a lack of knowledgeable and experienced advocates for inclusive education within Guyana. The absence of agents who may assist and support change within the education system makes it difficult for inclusive education to occur. Jen, a policy maker explained this obstacle, …we don’t have a coordinator to oversee to pull these people [teachers, professionals, people within the Guyana Ministry of Education] together to meetings. Like if it’s time for training so that person now knows the person, and can nominate that person to be trained local or overseas and so on....

Similarly, Penny passionately described the need for inclusive practices organized by those familiar with inclusion. She stated, We need a system that comes from the minds of those who are able to detect these persons with disability and get ready for them as they come to school…accessibility….How do they get into the school? Do they have to climb steps when they can’t climb steps? How do they work in the regular classroom even though they are children with disabilities? That kind of system is what is needed to get a spiralling effect moving up to the policy makers and coming back down, trickling down to those who are down here. We need that kind of system so it can work. But we don’t have that here.

Teachers also emphasized the lack of change agents for inclusive education in Guyana. Hazel, a primary school teacher expressed, …we need people to sensitize the public about children with disabilities so that they would know that [about special needs] and bring them out to society so that they would interact with other people and don’t be ashamed of these children, don’t be ashamed of them.

Guyana Ministry of Education
Many participants perceived educational officers within the Ministry of Education as serving as agents of change. Teachers such as Andrea stated,…we need support from educational officers. Parents also agreed that the support from the Ministry of Education was required for inclusive education. Nadine confirmed that, The first thing is we need support from the educational officer. Without he or her
support we can’t get anywhere. Whitney, a policy maker within the NCD, clearly indicated the need for change agents among the higher levels of government in order to stimulate a change toward inclusive education within Guyana. She expressed,

*If you can’t get those at the top, how are you going to get those at the bottom level? Because if they’re gonna look and say ‘oh he’s at the top, he doesn’t care, why should we care.’ So once those at the top level start to show interest, then you see, gradually it will come down and eventually everyone will show interest. But as long as you don’t get that interest from the top level, you could talk until your face goes blue and no change will happen....*

Furthermore, many participants indicated that the Ministry of Education has not placed special education as a priority.

**Resources**

All participants expressed the inadequate amount of resources required to successfully implement inclusive education in Guyana. Such resources included teacher training/professional development, human resources, funds, equipments and materials, and parent support group/training.

**Teacher Training/Professional Development**

Participants acknowledged the lack of teacher training and professional development within areas of special education and disability. Baily, a teacher at a special needs school expressed *

*...when you put them [children with special needs] in the regular schools, the teachers to teach them have to have knowledge of special education. Parents also believed that more training is required for teachers working with children with special needs. Gale noted, I think if they go to a training school they’d be more qualified and would be able to interact with the children. Policy makers such as Whitney firmly stated,*

*We need training of teachers, better training, so they will be better equipped on how to handle a child with special needs....you cannot put a child with a disability in a regular school with a teacher that has no idea how to be able to take care of that child when they have them from 8:30-3:30 in the afternoon....*

Teacher training and professional development were still recognized as insufficient despite the fact that the CPCE introduced (approximately in the year 2004) a mandatory special education course for all pre-service teachers. Policy maker Kale expressed,

*...any teacher trainee going to the teacher training college would do a module in special education. This is not a very specialized module...this training [specialized] we can’t offer here. If we have people like that, they generally go off to move in Jamaica or some other place, but none of [the] institutions have the capacity to offer this training.*

It is important to note that acquiring a teaching certificate or degree is not a requirement to teach within schools in Guyana. Approximately 31% of the teacher participants did not receive any post-secondary education upon completion of high school. These teachers acquired all special needs knowledge and experiences on the job.

**Lack of career path.** Policy makers from the Guyana Ministry of Education highlighted the absence of a career path for teachers who wanted to acquire greater specialized training in special needs. Kale stated,

*...we don’t really have a career path in the ministry for persons with special education training. So that if they wanted to progress professionally...they have to leave the special education field to get a promotion.*

Similarly, Jen explained, *

*...one of the problems is that people do not see a career path. People want to know if I get into this field what is the upward social mobility enclosed. And that is blurred at the moment.*

**Transform attitudes.** Furthermore, participants perceived teacher training as an approach to transform teachers’ attitudes toward working with children with special needs. Pat, a teacher in Region 2, was a student in the special needs mandatory course at the CPCE. She sincerely revealed,

*I have one child in my class...what should I say about him? He has difficulty learning. You know, sometimes you just feel like leaving this child all by himself because it just takes so much out of you...But when I started to do this course then I realize something was definitely preventing him from learning. And I work with that child and now he respond to oral
language and I talk to him and he would respond and able to write his name and other things. But you see when you don’t know anything about it, oh gosh! . . . Because I personally before I started this course, like I don’t know I have just a negative attitude towards [children with special needs], but you know when you get into it and you learn so much things about these children, you become so glad you know.

**Human Resources/Professional Support**

Participants also indicated a lack of professional or human resources to support children with special needs within the regular classrooms. Parents of children who attend a special needs school did not believe inclusive education was possible, due to the lack of in-class support for teachers. Rose stated,  
*I think the treatment and the learning he’s getting here [special needs school], he would never get it in the primary school [public school]. Because in the primary school there does be like 50-60 children in a class and that teacher would not get the time to sit and learn that one child alone in the class...there is no other help in that class for the teacher.*

Baily and Caron, teachers from special needs schools, echoed Rose’s statement. Baily emphasized,  
*And then the classes in the regular school is no less than 30-40 children in the regular schools, and only one teacher per class. Caron continued, And placing the child into the school will be a disadvantage because he wouldn’t have the specialized training or the attention that he deserves. Teachers in the regular schools such as Gabiee stated, No, I never really have any professional support coming in so far...Mainly we would send for the parents sometimes...But nobody never really came into the school to give us advice on how to deal with him and so on.*

**Speech therapists in Guyana.** Participants acknowledged the support of speech therapists within Guyana. Parents and teachers from all three regions indicated that speech therapists occasionally visited schools to provide advice or assistance for children with language impairments. However, participants indicated that this support was not consistent across schools or regions within Guyana. Baily, a teacher from Region 6, stated, *Speech therapy and the other, they used to come to the school but they don’t come when they’re suppose to. They don’t come on a regular basis. In fact they haven’t come for a long, long while.*

**Volunteers.** Speech therapists, as well as other professional supports (e.g., psychologists, occupational therapists, etc.) are made possible within Guyana because of a global volunteer support network. Policy maker Penny stated, *When it comes to speech therapists, occupational therapists, psychologists, whatever, whatever, they always come as volunteers...volunteers...from other countries.*

**Funding and Policies**

Participants also identified a lack of funds dedicated toward special education, and a lack of national policies for those with special needs within Guyana. Jen, a policy maker within the Ministry of Education stated, *Well, no monies are allocated to the department of education for SEN [special education needs] or inclusive education; it’s for the primary schools, the secondary schools, and the nursery schools...It’s money, right...we need financing [for inclusive education].* Kale, another policy maker within the Ministry of Education, described the current challenge for funding special education. She candidly expressed,  
*I fully realize that in order for us to do this [implement inclusive education], be realistic, we need to put a lot more resources into it...the various demands in our resources are many, and it’s not that people don’t want to put money into special education it’s just that the same money is wanted to buy textbooks, to buy computers, to do this and to do that.*

However, Penny, a policy maker from the NCD, believed that education for children with special needs is not a priority among educational officers, as this is demonstrated through the allotment of funds toward special education. Penny stated,  
*...it [inclusive education] takes money. Obviously, everything takes money and you need to have money to do whatever it is. You may look it as something that’s pretty expensive, but everything you need to do, it has a budget. So, if they would think, if our policy makers would think disability, they would have a budget for this, and then things will happen. How do we get them to think disability!*?

**Equipment and materials.** Teachers related the inadequate amount of funds for special education to the
lack of equipment and materials for supporting children with special needs within regular classrooms. Andrea stated, Funding...funding and facilities or so, they're gonna need a lot of extra things to make life more comfortable for them [children with special needs]...to make learning more comfortable for them [children with special needs]. Brie, a teacher from Region 2 stated, No we don’t have [equipment and materials], no we don’t have...we think you need funding. You have to get funding for these materials.

Parent Support Groups and Parent Training
Parent support groups and parent training were also resources that participants perceived as necessary for successful inclusive education. Participants highlighted that such support and training provide parents with not only the tools to cope with their situation, but also the understanding that they are not alone. Penny candidly revealed, And when I started in the first instance as a parent I was one to say that my child is not school material, [he] cannot go to school then, because that’s how I saw it in my head. But because of being a part of a support group, I came to recognize that ‘why you as a parent didn’t even try to check out the school systems or the educational systems to see if your child could be a part of school’...I’m grateful for that support group....The support group has caused me to make my child get out into society and he’s now in school.

Experiences with Children with Special Needs
Participants’ experiences with children with special needs were identified as positive or negative, as well as intimate or impersonal in nature. The nature of these experiences influenced the level of advocacy and leadership for children with special needs and inclusion, and also influenced their actions and interactions.

Policy makers from the NCD possessed intimate experiences with children with special needs, because they either have a special need themselves, or have a child with a special need. Through their experiences, these participants developed a sense of advocacy for those with special needs. Hilary, born with a special need, stated, As a professional [in the NCD], being able to see a lot and learn and interact with other people who face similar challenges...I’ve been able...to try and change some of these perceptions.

Some teachers discussed negative experiences with children with special needs. These teachers mostly described experiences of children’s disruptive and violent behaviours, as well as their inattentiveness. Haley explained, And then I had some other challenging students with the mentally retarded, right. I had a boy. When he get into his symptoms he would kind of like cuff up the children...he used to pull down the things, the aids on the walls...he used to kick up the door and so on.

With frustration, Gabiee expressed, ...I does try all strategies to get him settled. Like I would try to give him all sorts of things...I would give him story books, I would give him little colourings to do...and still sometimes it don’t work....

Other teachers depicted very positive experiences while working with children with special needs. Teachers who expressed positive experiences also mentioned intrinsic emotions such as I love working with them and I gain a lot of satisfaction when I know that the children have learned. Teachers who reflected on positive experiences frequently stated phrases illustrating advocacy for children with special needs. Phrases such as, They’re human beings just like everybody else. And they deserve the same amount of rights and the same amount of opportunities and so on as the other children...they shouldn’t be left out because they have a disability... or ...they should not be discriminated. They should be treated as a normal person...because they have feelings too.

All parents within this study expressed positive experiences and occurrences with their child. They shared stories that highlighted their child’s independence, intelligence, and creativity. These parents also frequently commented on their child’s right to an education and the right to be treated just as any other child.

Discussion
This study explored inclusive education for children with special needs (zero to eight years) within Guyana from the perspectives of policy makers, teachers, and parents of children with special needs.
Throughout this investigation, four themes have been identified as impacting inclusive education within Guyana: 1) attitudes and perception toward those with special needs, 2) change agents, 3) resources, and 4) experiences with children with special needs. The findings assist in developing an explanation to support inclusive education within Guyana.

The attitudes and perceptions toward those with special needs were highlighted as the core obstacle preventing successful inclusive education within Guyana. These findings are congruent with studies by Groenewegen (2004) and Mitchell (2005), which indicated continuous stigmatization and discrimination toward those with special needs in Guyana. Groenewegen (2004) and Mitchell (2005) also reported frequent teacher resistance within Guyana toward including a child with special needs within the regular classroom. These prejudices often affect the self-esteem of Guyanese with special needs, and discourage them from freely participating within society (Mitchell, 2005). Participants in this study emphasized that Guyanese society perceived those with special needs as a burden and liability to their families and to society. This belief is perhaps embedded within an underlying assumption that those with disabilities cannot contribute to the economic development of the family or the country (i.e., financially or participate in chores and duties that typically parents would pay for).

Prejudicial attitudes are often learned through the family and culture (Jodl, Michael, Malanchuk, Eccles, & Sameroff, 2001; O'Bryan, Fishbein, & Ritchey, 2004; Oskamp, 1991), and become sustained through generational effects (Oskamp, 1991). In addition, there is often group pressure to conform to the predominant cultural views and beliefs, which determine the attitudes established among its societal members (Oskamp, 1991). This is especially true within a developing country like Guyana, where minimal knowledge and education exist pertaining to special needs. Consequently, Guyanese citizens conform to the predominant cultural belief toward those with special needs, even if it is negative. These attitudes may also be a form of cultural truisms: societal beliefs that are assumed to be valid and are rarely questioned (Zimbardo & Leippe, 1991). Thus, Guyanese society assume these beliefs are valid, because: 1) they are culturally embedded, 2) there is a lack of awareness and accurate knowledge pertaining to special needs, and 3) these attitudes continue to be passed down from generation to generation.

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The negative attitudes toward those with special needs were associated with the absence of change agents within Guyana to support, lead, and advocate for inclusive education. The condition of not having adequate resources to support inclusive education was also related to the negative attitudes toward those with special needs within Guyana. Currently, there are not enough resources available to meet the educational requirements for children with special needs in Guyana (Mitchell, 2005). According to the Situational Analysis of Children with Disabilities in the Caribbean, Guyana maintains challenges in accessing human resources, obtaining sufficient funds, space, and materials, as well as implementing adequate amounts of special education courses and training for teachers (UNICEF, 2000). This challenge is faced by many developing countries that lack simple educational materials, equipment, and facilities required to achieve meaningful inclusion (Eleweke & Rodda, 2002). There is also an inappropriate funding structure within the Guyana Ministry of Education that does not allow it to financially provide for special educational services. This may be due to existing political and economic turmoil experienced by many developing countries (Eleweke & Rodda, 2002).

Participants’ experiences with children with special needs were also a condition related to the negative attitudes toward those with special needs. Teachers and policy makers who reflected on positive or intimate experiences maintained a specific moral purpose toward educating, advocating, and caring for children; they were more likely to accept a child with special needs within their classroom. However, even if Guyanese teachers do maintain a more positive and accepting attitude toward children with special needs, inclusion may still be perceived as difficult due to the absence of adequate resources and training (Avramidis & Norwich, 2002; Scruggs & Mastropieri, 1996).
The findings within this study suggest an association between the core phenomenon (i.e., attitudes and perceptions toward those with special needs) and the other existing three conditions (i.e., change agents, resources, and experiences with children with special needs). If positive attitudes and beliefs become the predominant societal stance toward those with disabilities, this will impact the support for children with special needs, as well as foster inclusive education change agents, greater allocation of resources for special education, and policy development for those with special needs. However, these three conditions can also ameliorate the effects of attitudes and perceptions toward those with special needs. The interrelationship between the core category and the other conditions impacts certain strategies employed, and consequences resulting from these strategies.

**Strategies**

From participants’ accounts, the strategy taken by those in the Ministry of Education is to not prioritize special education. Despite the current situation and issues surrounding special education and inclusion, there are no change agents within the Ministry of Education stimulating inclusive education reform within Guyana. As a result, the Ministry of Education struggles to provide sufficient resources, develop policies, and create units for special education. A common strategy among teachers within regular schools is to frequently refer parents of children with special needs to the special needs schools. As experienced by both teachers and parents within this study, the strategy among parents of children without special needs, is to discourage their own child from socializing and interacting with children with special needs. Considering the despairing attitude surrounding those with special needs in Guyana, it is not surprising that parents of children with special needs develop a sense of shame, fear, and denial. As a result, the strategy used among this group of parents is to hide or remove their child from society and to withdraw from communicating with other parents who do not have children with special needs.

**Consequences**

The findings indicate three consequences from using these strategies. One consequence is that prejudicial societal attitudes toward those with special needs continue to propagate throughout Guyana. Unfortunately, there is not adequate knowledge, awareness, resources, support, and advocacy for children with special needs. This also leads to teachers and parents not accessing support and training within areas of special education.

Another consequence is that children with special needs are concealed from both the community and the schools. Many parents of children with special needs conceal their children from society due to the surrounding negative attitudes from Guyanese society, the medical community, and other parents and teachers. These children are hidden and removed from society (Groenewegen, 2004). The stigmatization toward children with special needs fuels feelings of embarrassment and anxiety among parents. These feelings hinder parents from freely exposing their child within society. Thus children with special needs are kept from equally participating within the Guyanese community (Mitchell, 2005), and exercising their right to an education.

The final consequence is that educational reform toward a more inclusive system remains quiescent within Guyana. The phenomenon of persisting negative attitudes and perceptions toward those with special needs and varying conditions instigates strategies and actions. Consequently, a combination of these strategies may contribute to the stagnant educational reform toward inclusion.

Transforming beliefs toward those with special needs is pertinent to reforming the educational system within Guyana. Guyanese society must challenge its predominant culturally embedded prejudicial attitude toward those with special needs in order to instigate long-lasting educational reform. Teachers must reflect upon their personal moral purpose to reaffirm and support their attitudes toward inclusion (Fullan, 2003; Layton, 2005). Successful inclusion is driven by the moral purposes of educators in generating a commitment to include all children within regular classrooms, despite abilities. Within this study, few teacher participants of regular schools maintained positive experiences, and feelings of enjoyment and satisfaction in teaching children with special needs. These positive attitudes and beliefs are vital components in establishing inclusive education (Smith & Leonard, 2005).

Knowledgeable agents of change who are familiar with inclusion is essential to implementing inclusive education (Frankel & McKay, 1997). Change agents may serve as a source of support, as well as assist in complex emotions, relationships, and conflicts that may arise (Frankel & McKay, 1997, p. 69). As
motivators and initiators of inclusion, change agents can disseminate principles of inclusion throughout the educational systems of Guyana.

Participants referenced the importance of the top level in demonstrating interest, support, and prioritization for inclusion of children with special needs within the education system of Guyana. Guyanese educational officials must assume positive power (Hargreaves, 2004) as an inclusive leader and serve as an example to Guyanese society, teachers, and parents. Educational officials within the Ministry of Education must be collaborative leaders focused on educating all children (Fullan, 2001). Although change may be initiated from a top down level, it must include the participation of diverse members involved within the change process (Frankel, 2006; Frankel & McKay, 1997; Hunt, Soto, Maier, Liboiron, & Bae, 2004) in order for the educational reform to be successful and meaningful. Implementing an inclusive education reform incorporates members such as officials from the Ministry of Education and the Ministry of Health, principals, directors, teachers, and parents. These members may exchange ideas, knowledge, experiences, and goals in order to achieve inclusive education within Guyana (Hunt et al., 2004).

Inclusive education reform may also be stimulated from a bottom up level. Parents of children with special needs can serve as powerful and passionate advocates for inclusion. A change toward inclusion that is generated by parents can transform stifled feelings of shame, humiliation, and disgrace experienced by many families of children with special needs. Parental support groups become a community where parents reveal concerns, feel acceptance free from judgment, and rely on the experiences of other members (Kramer, 1993). These groups provide emotional support, education, socialization, advocacy, and guidance through personal experiences (Pooley & Goetz, 1992). Parents within this study confirmed such benefits from the few parent support groups that currently exist in Guyana.

Educating Guyanese parents about special needs will foster a sense of awareness and empowerment in coping with their child. Vacca (2001) asserted that parent training boosts the self-confidence of parents, allowing them to understand what they are doing well and what they may need to change. Parent training is an opportunity to encourage parents during times of frustration (Vacca, 2001). It may also allow Guyanese parents to positively perceive their child and reduce feelings of shame; thus, they may no longer hide their child from the communities and schools.

Providing Guyanese teachers within regular schools with sufficient training, human resources, and equipment/materials necessary to include children with special needs may enhance their confidence. Teachers may feel more secure in their knowledge and abilities to manage children with special needs, as well as feel supported by other professionals and the government. Congruent with studies by Rose (2001) and Vaughn and Schumm (1995), Guyanese teachers do not feel adequately competent and qualified to include children with special needs within the regular classrooms. Similar to research conducted by Vaughn and Schumm (1995), teachers within Guyana accounted for the desire to receive more knowledge and training in order to better teach, accommodate the environment, and modify the curricula to include children with special needs. The additional resources will enhance the teaching and personal efficacy among Guyanese teachers, allowing them to be more receptive toward inclusion (Soodak, Podell, & Lehman, 1998).

Most developing countries do not cater for programs that educate and train professional supports at higher education institutions (e.g., university or college) (Eleweke & Rodda, 2002). However, including professional resources often ensures for successful inclusion (Vaughn & Schumm, 1995). Examples of human resources include, but are not limited to, teacher assistants, resource teachers, psychologists, speech and language pathologists, counselors, social workers, occupational therapists, behavioural therapists, etc. These professional supports will assist in identification, referral, diagnosis, treatment, and provision of appropriate educational and related services (Eleweke & Rodda, 2002, p. 117). Such professional supports will collaboratively provide Guyanese teachers with knowledge and assistance in order to achieve inclusion (Crawford & Porter, 2004).

Various organizations throughout Guyana have made attempts to generate awareness and promote rights for those with special needs (e.g., NCD, CBR, UNICEF Guyana, Ruimveldt parent support group, etc.). The Guyana Ministry of Health, in providing rehabilitation training and education, has also made attempts for those with special needs. The Guyana Ministry of Education also endeavored to
include the educational rights for children with special needs within the strategic plans (Government of Guyana, 2003).

In order to support educational reform toward inclusion in Guyana, societal attitudes must improve, change agents and resources must be accessed, and those working with children with special needs should maintain positive and intimate experiences. It is also necessary to consider the socio-political factors (i.e., social, economic, cultural, legal, and political), which operate as societal barriers oppressing those with special needs within Guyana (Turmusani, 2003). Guyanese society has the obligation to prioritize and provide for children with special needs, who equally maintain rights to participate within all aspects of their communities and regular schools.

Limitations and Future Research

There are a few limitations to consider when generalizing the findings of this research; in particular within the areas of sampling and data collection. However, the present study does highlight the need for further exploration of inclusive practices within Guyana.

Sampling. The sample of selected participants and regions were not randomly selected due to limitations such as time, duration of stay, and unfamiliarity with the country. Through collaboration with other organizations, participants and regions were conveniently, purposefully, and theoretically selected. Another limit is sample size, as it consisted of 22 participants. The sample size and regions greatly varied among each group of participants. In addition, only female perspectives are represented within this study.

Data collection. The focus group interviews posed challenges in managing and mediating discussions. At times it became difficult to differentiate between voices when transcribing audiotapes. However, maintaining observational field notes, as well as ensuring that participants clearly stated names before speaking in the interviews, controlled for this limitation. Also, regardless of attempts to report on complete verbatim responses from participants within both the individual interviews and focus group interviews, there may have been issues surrounding interviewer effects (e.g., interviewer’s expectations or personal attributes [i.e., ethnicity, gender] may influence participants’ responses; participants may provide responses to please or agree with interviewer’s expectations) (Judd, Smith, & Kidder, 1991).

Future research. It is beneficial to examine the government of Guyana’s stance toward the United Nations Convention on the Rights of Persons with Disabilities. Currently, Guyana is listed as a signatory country, but has not yet established it as a law within the country. Comparative studies may also be conducted between Guyana and other developing countries that are attempting to implement inclusive education. Examining successful implementation of inclusive education within other developing countries will assist Guyana in such educational reform. Furthermore, it is essential to continue investigating approaches and developing an understanding of the existing societal barriers toward those with special needs amidst the socio-cultural and political climate within Guyana.

Conclusions

Through accessing the perspectives of various Guyanese policy makers, teachers, and parents of children with special needs, four themes emerged as potential barriers to implementing inclusive education within Guyana: 1) attitudes and perceptions toward those with special needs, 2) change agents, 3) resources, and 4) experiences with children with special needs. In addition, a theory was developed grounded in the perspectives of participants in order to explain the interrelationship among these factors, as well as possible strategies and consequences. The identified core phenomenon and other existing conditions demonstrate a relationship between one another; the attitudes influence the state of the conditions and the conditions help to improve the attitudes. The present study draws attention to current factors that may be targeted to assist in the implementation and support of inclusive education within Guyana.

As the findings within this study suggest, the prevalent socio-cultural attitudes toward those with special needs requires transformation. Guyanese children with special needs must be perceived as active and contributing members of their schools and communities. Regardless of abilities, all Guyanese children must be viewed as having equal access to all aspects of society (e.g., educational, social, medical, etc.). As Fullan (2001) has stated, changes in beliefs and understanding...are the foundation of achieving lasting reform (p. 45). Transformation among the societal beliefs and attitudes will support transformation among the educational system (e.g., policy development, accessibility and
allocation of funds, securing of inclusion advocates, ensuring adequate special needs teacher training, proliferation of inclusion philosophies and shared commitments throughout schools, etc.). As citizens of Guyana continue to revise their beliefs and assumptions toward disability, successful and sustainable inclusive education will occur.

References


THE PORTRAYALS OF INDIVIDUALS WITH PHYSICAL AND SENSORY IMPAIRMENTS IN PICTURE BOOKS

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Professionals agree that book characters can be excellent role models for young children. Therefore, analyzing children’s literature portraying impairments provides valuable information for educators, parents, siblings, extended family members and librarians. In this study, forty-six picture books are analyzed in order to determine the relationships between the characters with and without physical and sensory impairments. The role of each character and the type of their relationship are analyzed in every occasion in which characters with and without physical and sensory impairments are involved in each story. The data analysis indicates eleven different relationship categories showing positive, neutral or negative portrayals. The results of the study imply that story characters change over time through their interactions in characters with impairments. The present study concludes that children’s literature contains significant promise with respect to helping children develop friendships by learning about and accepting individual differences. Interpretations of the findings were discussed and implications for practice were presented.

Professionals agree that the messages in children’s literature can make a significant contribution in the early development of attitudes of children (Blaska & Lynch, 1998; Huck, 2001; Lamme, Krogh, & Yachmetz, 1992; Stoodt-Hill & Amsepaugh-Corson, 2001). Children’s literature is a valuable tool to teach children pro-social behaviors, and to change their attitudes towards a variety of lifetime situations (Carlisle, 1998; Krogh & Lamme, 1985; Rominger & Kariuki, 1997; Sawyer & Comer, 1991). Lamme (1996, p. 416) states, book characters can be excellent role models for children, especially if students are encouraged to think deeply about the reasons for the characters’ behaviors and decisions. Similarly, Stoodt-Hill and Amsepaugh-Corson (2001) propose that characters in children’s books portraying impairments can serve as models for both children with and without impairments. While children with impairments may directly identify with the challenged characters, other children can also empathize, understand and appreciate people with impairments with the help of non-disabled characters. Also, several authors advocate the use of children’s literature to teach young people about impairments (Andrews, 1998; Blaska, 1996; Blaska & Lynch, 1998; Cuddigan & Hanson, 1988; Gross & Ortiz, 1994; Hopkins, 1980; Prater, 2000). Many researchers have addressed the importance of this topic, critiqued the literature, provided guidelines to evaluate children’s literature portraying characters with impairments, and offered recommended book lists about this subject (Blaska, 1996; Heim, 1994; Myles, Ormsbee, & Downing, 1992; Prater, 2000; Prater, 1998; Smith-D’Arezzo, 2003; Derman-Sparks & the ABC Task Force, 1989; Westberg, Mecca, & Davis, 1991).

Given the fact that the number of children’s books characterizing people with physical and sensory impairments dominates children’s literature (Ayala, 1999; Dyches & Prater, 2000), it becomes important to systematically investigate children’s books including characters with physical and sensory impairments. In addition, about 2.3% of the US population 5 to 15 years of age is either physically or sensory impaired (US Census Bureau). Due to this considerably high representation of children with
physical and sensory impairments, it is imperative to study how these children are portrayed in children’s literature. Yet, a recent review of the literature by Dyches and her colleagues (2006) indicates that there are not enough studies exploring picture books portraying physical and sensory impairments.

Analyzing the relationships between people with and without impairments is a worthwhile phenomenon in these days of promoting inclusion in US classrooms. In particular, in inclusive classrooms, teachers provide more opportunities for all children with and without impairments to interact with each other. In this sense, children’s literature can be a window into the diversity of cultural and social representations of people with impairments; and therefore, the quality of the books becomes more important than ever. For example, if the books mostly portray characters with impairments as being victimized by or dependent upon individuals without impairments, the reader will most likely get the impression that individuals with impairments are not contributing or natural members of the society (Dyches & Prater, 2000; Saunders, 2000). Also, the book characters with impairments should not always be characterized as doing heroic acts or overcoming all odds (Dyches, Prater, & Cramer, 2001). Therefore, it is essential to portray the characters with impairments realistically to increase the quality of the books (Carroll & Rosenblum, 2000).

Studies by Prater and Dyches dominate the research on the characterization of impairments in children’s and adolescent literature (Dyches et al., 2001; Dyches & Prater, 2005; Dyches, Prater, & Cramer, 2001; Prater, 1999; 2003). Although their research has unique contributions to the literature, they have only focused on the characterization of mental and developmental impairments, learning impairments and autism in children’s and adolescent literature. They have not analyzed the portrayal of people with physical and sensory impairments in children’s literature.

A major component of the research conducted by Dyches and Prater is the analysis of relationships among characters with and without impairments (Dyches, Prater, & Cramer, 2001; Dyches, & Prater, 2005; Prater, 1999). Their analysis was mainly the identification of how book authors depict people with impairments in their relationships with people without impairments. The types of relationships found in those studies were: (a) primary relationship (between characters with impairment and a friend or a family member), (b) victim, perpetrator, and/or protector, (c) dependent and caregiver, (d) friendship, (e) fear of association (the character with impairment does not want to be associated with others), (f) pupil and instructor, and (g) feelings of guilt. They reported that primary relationship and victim, perpetrator, and/or protector are the two major relationship categories noted in the stories (Dyches, Prater, & Cramer, 2001; Dyches & Prater, 2005; Prater, 1999). In another article, Prater (2003) investigated characterization of learning impairment in children’s and adolescent literature. Her analysis yielded three relationship categories: (1) teasing, bullying, and name calling, (2) teaming with others with disability, and (3) siblings. Prater acknowledged that most characters with learning impairments suffer from the lack of self-esteem, and they are often represented as misbehaving, especially in school.

Earlier studies (Ayala 1999; Dyches, Prater, & Cramer, 2001; Prater 1998; 1999) investigating the roles of people with impairments in children’s literature have analyzed the role of people with impairments and their relationships with people without impairments at the macro level. That is, they did not analyze all interactions in the stories; rather they presented an overall picture of the story. They evaluated an overall representation of people with impairments in children’s books. On the other hand, a single story portraying impairments contains a variety of types of interaction. A story may portray a person with physical impairment having different roles throughout the story, rather than having one role connected to the main theme of the story. For example, as reported by Dyches et al., (2001), in Emily in Love, Emily, a young girl with mental impairment, was both a victim and a perpetrator in the story. Also, in the same book, there were dependent and caregiver and friendship relations among characters with and without impairments (Dyches et al., 2001). Hence, we believe that the portrayal of people with impairments in children’s literature is a complex issue. This is very similar to how people with impairments are viewed within the society (Dyches et al., 2001). It cannot be reduced to a single isolated theme depicting the relationship.

Additionally, researchers did not report the exact number of occurrences of each type of relationship in the stories (Prater, 2003). They just noted whether a relationship category was common or not. For example, Dyches and her colleagues (2001) found that the victim, perpetrator, and/or protector category was portrayed in most of the books. Yet, the percentages of the relationship types found were
not reported. It is essential to know the frequencies of the categories to understand how people with impairments are characterized in children’s books. In this study, we report the frequencies of the relationship categories and the number of books containing each the categories. Moreover, the qualitative analysis technique employed in this study provides rich details about how people with and without physical impairments interact with each other in picture books. Thus, in this study, our purpose is to explore the relationships between characters with and without physical and sensory impairments in picture books.

**Method**

In this study, three researchers investigated how picture books portray people with impairments. While two of the researchers selected and analyzed the picture books, all three of them contributed to the writing process. At the beginning of the study, the researchers attempted to locate the fiction picture books portraying characters with physical or sensory impairments. The list of potential books was drawn from the Subject Guide to Children’s Books in Print 2003 (R.R. Bowker Publishing, 2003), which is used to track down children’s books classified under about 10,000 subjects. The researchers selected the fiction picture books that fell under the following subjects: handicapped (this subject covers books portraying characters with physical disabilities), physically handicapped, sensory, and blind. This selection yielded 73 picture books. These four subjects were already listed in the Subject Guide to Children’s Books in Print 2003. Then, the researchers searched for these books through the catalogs of four public libraries and a large university library in Midwestern United States. The purpose was to be able to reach the books accessible to the public. In addition, two Internet bookstores (www.amazon.com, and www.barnesandnoble.com) were searched. Finally, the researchers located 46 books, most of the original 73 picture books (Table 1). The sample contains the books that are currently available to readers, increasing the likelihood of analyzing the books that are frequently used by young readers, and their parents and teachers.

**Table 1. The picture books analyzed in this study**

<table>
<thead>
<tr>
<th>Books</th>
<th>Type of the impairment</th>
</tr>
</thead>
</table>
Table 1 cont’d

<table>
<thead>
<tr>
<th>Title</th>
<th>Author(s)</th>
<th>Publisher/Publication Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical</strong></td>
<td></td>
<td></td>
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</tbody>
</table>

**Data Analysis**

In each story, researchers looked for any occasion portraying or implying a relationship between people with and without physical and sensory impairments. These occasions are the main unit of analysis. The occasions that explicitly portray relationships between story characters either display conversations between people or describe the physical interaction between them. The occasions that imply a relationship between the characters do not contain the actual conversation or interaction. However, the social context still suggests a relationship between story characters with or without impairments. For example, a description of a child getting a letter from a friend suggests such a relation. The content of the letter or the child’s described feelings in the story provided us with enough material to infer about the type of the relationship between them. While analyzing the roles of the characters with and without impairments, the researchers employed techniques of content analysis (Neuendorf, 2002).

For each unit of analysis, they identified and reported:

The occasion (in operational terms)
The role of the person with a physical or sensory impairment

The role of the person with no impairment

The first item in the analysis sheet, the occasion, is a description of what is given in the book. For the purposes of this study, the researchers defined each occasion in operational terms. Next, the researchers identified the roles of the story characters with and without impairment for each occasion. After coding all of the roles for characters with and without impairments, the researchers identified and grouped similar roles and defined the relationship categories. Thus, the relationship categories are named according to the roles of story characters. These categories became the basis of further analysis. It is important to note that the coding categories were not discrete; in other words, some units were coded more than once in different categories. Finally, identified categories were grouped into three subcategories: negative, positive, and neutral. In defining these three subcategories, the researchers made references to the roles of story character with impairment.

The two researchers who analyzed the books are educators trained in curriculum and instruction. They have had previous experiences in conducting content analysis and conversation analysis. While one of them used content analysis as the main data analysis method in previous works, the other researcher is specialized in early childhood special education. During the initial phases of data analysis, the researchers received feedback from two university professors specialized in early childhood education and special education.

In the present study, to ensure the stability of the measurement, a coder-agreement procedure was conducted. This procedure is widely known as the inter-coder reliability process (Neuendorf, 2002) which determines the extent to which independent raters code a characteristic of a message and reach the same conclusion. Neuendorf reports that an acceptable level of agreement between the coders should be at least 80% or greater. To check the inter-coder reliability, two of the researchers independently analyzed and coded 20% of the books. Next, they compared their coding results to explore the percent of agreement. The results showed that the percent of agreement between the coders was 80%, an acceptable level of inter-coder agreement (Neuendorf, 2002).

Results

Table 2. The categories portraying the relationships between the story characters.

<table>
<thead>
<tr>
<th>The relationship categories (Type of relationship)</th>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>The successful one and proud others</td>
<td>Positive</td>
<td>The character with impairment has achieved a goal and the others are proud of or admire him/her.</td>
</tr>
<tr>
<td>An equal body</td>
<td>Positive</td>
<td>The characters with and without impairment are friends and having fun together.</td>
</tr>
<tr>
<td>The helper, adviser and the appreciated friends</td>
<td>Positive</td>
<td>The character with impairment helps others and the help has been appreciated.</td>
</tr>
<tr>
<td>The supportive and worried parent of a child with impairment</td>
<td>Positive</td>
<td>The parents of children with impairments are worried, supportive and friendly.</td>
</tr>
<tr>
<td>Parent and child sharing the time</td>
<td>Positive</td>
<td>The child with impairment and his/her parent are friends or having fun together in some cases the parent may be the impaired one</td>
</tr>
<tr>
<td>The different one and the curious observers</td>
<td>Neutral</td>
<td>The character with impairment is represented as a different person and others are curious observers</td>
</tr>
<tr>
<td>Child and the therapist</td>
<td>Neutral</td>
<td>The character with impairment is receiving therapy and engaging in a relationship with the therapist</td>
</tr>
<tr>
<td>Other portrayals</td>
<td>Neutral</td>
<td>The characters with and without impairment are a having a conversation that does not indicate a positive or negative portrayal</td>
</tr>
<tr>
<td>The lonely or unhappy child and the ignoring, or teasing one</td>
<td>Negative</td>
<td>The character with impairment is lonely and unhappy, the character without impairment is ignoring or teasing</td>
</tr>
<tr>
<td>The disadvantaged one and the protector, helper</td>
<td>Negative</td>
<td>The character with impairment is disadvantaged and disappointed, the character without impairment is protector, helper</td>
</tr>
<tr>
<td>The rejected person and the distrustful, very cautious one</td>
<td>Negative</td>
<td>The character with impairment is rejected, the character without impairment is distrustful because of impairment</td>
</tr>
</tbody>
</table>
In this study, forty-six picture books were selected and qualitatively analyzed as described in the above paragraphs. The analysis of the books revealed eleven different categories portraying the relationships between story characters with and without physical and sensory impairments (See Table 2 above).

The analysis of the books indicates three types of relationship categories regarding the portrayal of the story character with impairment: positive, negative and neutral. A positive portrayal refers to a relationship between story characters with and without impairment where the one with the impairment is having equal, pleasant or happy interactions with family members, peers and others. A negative portrayal refers to relationships where the character with impairment is having unhappy, frustrating, or depressing interactions with characters without impairments. The neutral portrayals reflect neither positive nor negative relationships. While five out of the eleven relationship categories are positive portrayals, three of them are negative portrayals. There are also three neutral portrayals. Table 2 represents the list of categories. The following sections present brief descriptions of all eleven-relationship categories that emerged in this study by referring to sample cases in the picture books.

Positive relationship categories
The successful one and proud others
Most stories include occasions portraying characters with physical and sensory impairments who reach an achievement at some point in the story. People with impairments gain more self-confidence, prove them, and feel as an active participant of the community. While coding this category, we noted whether a person with impairment achieved a goal, and the characters without impairment recognize his/her contribution.

It should be noted that some achievements are realistic and genuine, while the professionals can consider some others as unrealistic and stereotypical. For instance, in Going with the Flow, the author draws a realistic picture of a young boy, who has hearing impairment as the author describes how he overcame the difficulties he had when he started his new school and how he became a part of the school's basketball team. Similarly, Kevin, in Fair and Square, learns how to play with the cars after practicing for a while and beats everybody but his dad. In contrast, some authors portray characters that have special talents or abilities that can be considered as stereotypical or unrealistic. For example at the end of the story of A Cobtown Christmas, Mr. Klingle, the lost, visually impaired man, plays the Cobtown hymn with his bells, and everyone becomes impressed by the beauty of the bells and his wonderful performance. In Hickory Chair, Lois, another character that is visually impaired, has blind sight that enables him to find hidden objects easily.

An equal body
The occasions coded under this category are very similar to the ones coded as friendship by Prater and her colleagues (Dyches et al., 2001; 2005; Prater, 1999). Considering the fact that friendship may not be necessarily an equal relationship every time, the authors use the name an equal body to emphasize the equal nature of the relationship between characters with and without impairments coded here. In these occasions, the characters with physical and sensory impairments have positive experiences with the non-disabled characters. They play, do many activities together and have friendly conversations on a variety of topics.

An equal body is the most common type of relationship between people with and without impairments. Many of the books portray characters gaining greater appreciation, affection or empathy for the characters with physical and sensory impairments. There are many stories representing characters with and without impairments interacting in a reciprocal manner, and characters with impairments having relationship with their able-bodied peers.

Thirty-five of the stories we examined have persons with and without physical impairments playing, having fun, or participating in an activity together. In Amelia Lends a Hand, Amelia and her friend, Enzo, (who has hearing impairment) plays with rockets together. Amelia learns much from him and she thinks he is really expressive. In another story, The Hickory Chair, Louis plays hide and seek with his grandmother and his cousins. He doesn't have sight, but he always finds the best places to hide, and they have great fun together.

In another story, Sarah's Sleepover, while Sarah and her cousins having a sleepover, the power goes out and the cousins enter Sarah's world for a while. Sarah reassures her frightened cousins and guides them
to find their ways in the dark. The six little ladies find out how much fun they could have even when it is dark.

_The Spelling Window_ displays examples of other occasions categorized here. Seth who has hearing impairment and his neighbor, Kathy signs to each other from their windows. They also spend time during their field trip to the State Capitol, try different hats on in a shop and enjoy being together.

_The helper, adviser and the appreciated friends_

Seventeen of the stories have occasions in which the children with physical or sensory impairments help their non-disabled friends and the help has been appreciated. For example, Loretta in _Zoom_, takes her brother to the hospital in her wheelchair when the car did not start. In a historical story, Mendel, the protagonist of _the Miracle of Myrrh_, offers people in need the very special gifts Mary gave him. In those occasions, we sometimes see the theme helping others overlap the friendship as in _Sarah’s Sleepover_. While Sarah helps her cousins in dark, they all enjoy a great friendship.

In another story, _Secret Signs_, Luke saves the lives of many slaves during the American Civil War. He has hearing impairment and cannot talk much, but he passes the secret message through his beautiful paintings, and becomes a hero.

_The supportive and worried parent of a child with impairment_

The occasions categorized here include very supportive parents. Parents in these occasions are trustworthy, friendly, and confident in their children with physical or sensory impairments. They have friendly conversations with the children, and they sometimes encourage them to be braver and take further steps in their success stories.

In _Oliver’s High Five_, Oliver talks to his father about his decision to see the world above the sea. His father seems confident in him. He supports his son, but he also warns him that it is different up there. In another story, _Going with the Flow_, we meet a father who is very understanding and supportive when his son, Mark, a child with hearing impairment, has difficulties in the first days of his new school. He helps Mark adjust to his new environment.

However, many of the stories do not illustrate the details of the relationship between parents and children with physical impairments. They are usually at the background of the story. Sometimes readers see only a mother waving her son with a smiling face while he gets on the school bus (Moses _Goes to School_), or parents taking their child to a doctor when the child needs (A _Button in Her Ear_). Those scenes do not provide detailed information about the relationship between parents and their children with physical impairments. Yet, we still can say that they are supportive, loving, and caring parents.

_The parent and child sharing the time_

The occasions classified under this category show parents and their children enjoying time together or sharing something not related to impairment. With the exception of _Sammy Wakes His Dad_, which is about a non-impaired boy and his father who is in a wheelchair, all other stories containing occasions categorized in this study tell the story of children with physical or sensory impairments and their parents. In _Dad and Me in the Morning_, Jacob and his father enjoy sunset in the early morning. The readers witness their close relationship and the special ways they interact with each other. Jacob is an outgoing and confident boy who is very close to his father. He doesn’t let his hearing impairment stop him from enjoying things that others get to enjoy. In another story, _Zoom_, Loretta loves speeding with her wheelchair and gets a $100 ticket for speeding. When she tells her mother about it, she is mortified. Although this story is about Loretta’s wheelchair, it never tells us the disadvantages of using a wheelchair. It is a funny story about a little girl who loves speeding. Using a wheelchair is a part of her life and Loretta even takes advantage of it as she takes her brother to the hospital with her speedy wheelchair.

_Neutral relationship categories_

_The different one and the curious observers_

Sometimes the authors provide their audiences with information about a particular impairment in the stories. The most common occasion is the one in which the characters with impairments answer curious questions about their impairments. Nine of the stories examined in this study include occasions that are coded under this category. For example, in _A button in her Ear_, Angela talks to her classmates about
her new hearing aid. The teacher compares it to glasses. Similarly, Nick, in *Nick joins in*, answers questions from classmates about himself including his wheelchair and why he has to use it. Yet, not all the characters welcome these questions. In Double Scoop, Carrie cherry leaves without saying a word, when people around her ask questions such as *Why are you in that wheelchair?* (Hogan, 1994, p.12). In fact, curiosity sometimes brings about discomfort in people with impairments; but we should note that, with this exception, the story characters in our study that have impairments seem to be comfortable with these questions.

*The child and the therapist*

Seven out of forty-six stories contain scenes in which characters with physical or sensory impairments are taking therapy and learn a variety of skills with assist from the therapist or teacher. For example in *We can do it*, the physical therapist helps Jewel, who has cerebral palsy, learn to use a walker. In another story, *Cookie*, Susan (the therapist) teaches Molly how to say cookie and some other words in sign language. The interaction between the character with impairment and the therapist is usually supportive and friendly. In some cases, it includes plain instructions and responses.

*Other portrayals*

The scenes categorized under this title include the characters with physical impairments having other portrayals with salespersons, doctors or officers. These scenes do not have emotional content and both sides usually feel comfortable with each other. For example in *A button in her ear*, Angela’s conversation with her doctor during examination is a good example of it. In another story, *Zoom*, Loretta cannot decide which wheelchair to pick; then, the lady in the store tells her that she can try one out for a day.

*Negative relationship categories*

*The lonely or unhappy child and the ignoring, or teasing one*

Sixteen of the forty-six stories analyzed in this study display occasions in which the character with physical impairment feels uncomfortable in social environments because he/she is alone. For example, in *The storm*, Jonathan feels nervous when his classmates assume that he hates storms because he is in a wheelchair. In four of the stories, the character with impairment is teased or made fun of his impairment. For example in *Arnie and the New Kid*, the main character, Arnie, teases Philip because he eats too slowly due to his impairment. In another occasion in the same story, the author says the able bodied kids want to play with the character with physical impairment but they still ignore him because they don’t know how to approach him. In *Chester... the Imperfect All-Star*, Chester’s teammates call him *Sticky* because of his short leg.

Some of the stories display the character with physical impairment feeling lonely, sad or angry, observing other kids playing and doing some activities. In *Silent Lotus*, the main character, her peers ostracize Lotus, because she has hearing impairment. When Lotus tries to be a friend with other children, they either ignore or run away from her. These occasions are mostly displayed at the beginning of the stories. As the story develops the characters with and without impairments usually become closer and build friendships or the character with physical impairment reaches an achievement.

*The disadvantaged one and the protector, helper*

Fifteen of the stories include occasions in which the person with impairment is in need, upset or disappointed due to a variety of reasons and the non-disabled characters support the ones with impairments. In *A Cobtown Christmas*, Mr. Klingle, a lost, visually impaired man, is incapable of doing many things by himself, and he cannot speak English. The protagonist, Lucky, and her family and friends in Cobtown help him find his dog and return to his home.

In another occasion, the Boss angel always protects Rosey, in *Rosey, the Imperfect Angel*, when the other angels make fun of her because of her missshapen mouth. Also, she is given the domain of the garden of January, which is a huge honor, without any reason.

Similarly, in *Dear Santa please come to 19th floor*, when Carlos, who has had a spinal-cord injury and is in a wheelchair, is disappointed that he meets Jose, a neighbor, in Santa’s outfit while expecting real Santa Clause. His overall mood is depressed and unhappy due to disadvantaged condition and Jose and Willy try to cheer him up.
While most characters with impairments happily accept the help from others, only one character is displayed as purely unhappy because he is in need of others’ help. The protagonist of *Going with the Flow*, Mark, has a hearing impairment. He does not want to have an interpreter in the classroom because he feels embarrassed when somebody signs him everything that happens in the class.

**The rejected person and the distrustful, very cautious one**

This category exemplifies some of the situations in which people with physical or sensory impairments are rejected due to their impairments. Seven of the stories display occasions in which the non-disabled characters are distrustful of the capabilities of the characters with physical impairments. In *Chester... the Imperfect All-Star*, Chester’s teammates do not want to have him in the team because they think he is not as good player as a non-disabled person is.

Another story, *Amelia Lends a Hand*, portrays a difficult situation that a person with impairment is likely to face. Enzo, cannot communicate with his brothers’ friends due to his hearing impairment, the friends lose their patience, get frustrated, and Enzo leaves with a broken heart. These instances are usually displayed at the beginning of the stories. As the stories develop, characters with physical impairments solve their problems, find friends, achieve their goals, and prove themselves.

**The frequencies of the relationship categories**

The data analysis indicates that there are eleven different relationship categories between characters with and without physical and sensory impairments. The number of categories varies among the picture books analyzed in this study. The Figure 1 presents the frequency and the percentage of these eleven relationship categories. A quick overview of Figure 1 indicates that *an equal body*, a positive characterization of the people with impairments, is the largest category with a frequency of 123 representing 29.9% of all the relationships coded.

![Figure 1.](image)

**Distribution of the frequency of the categories portraying the relationships.**

Other major categories positively characterizing the story characters with impairments are *the helper, adviser and the appreciated friends* (9.5%) and *the successful one and proud others* (9.3%). The researchers also discovered that about 10% of all relationships were between characters with impairments and their parents. Those relationships are either coded as *the supportive and worried...*
parent of a child with impairment (6.4%) or parent and child sharing time (6.4%). In brief, the overall percentage of the categories positively characterizing people with impairments is about 63.1%. On the other hand, the analysis of the data shows that the characters with physical and sensory impairments are also negatively portrayed in the picture books. The analysis indicates that the disadvantaged one and the protector, helper (9.5%) and the lonely or unhappy child and the ignoring, or teasing one (8.3%) are two of the largest negative relationship categories. The rejected person and the distrustful, very cautious one was coded relatively less than the other negative relationship categories (6.4%). Overall the three negative relationship categories constitute about 24% of all codes.

Figure 1 indicates that the percentages of the negative portrayals (24%) are less than half of the percentages of the positive portrayals (63%). Characters with impairments are mostly positively portrayed in their relations with characters without impairment. These positive characterizations are consistent with the recent research reports about positive portrayals of people with impairments in children’s literature (Dyches & Prater, 2000; Dyches, Prater, & Cramer, 2001; Turnbull, Turnbull, Shank, & Leal, 1999). There were high expectations of the characters with impairments in the books. It should also be noted that about half of the positive portrayals are coded as an equal body. In other words, both are equal in their mutual interaction. Additionally, the data analysis of the picture books shows that in plenty of cases, intellectual, the authors acknowledge creative and independent characteristics of people with impairments.

Three of the relationship categories, the child and the therapist, the different one and the curious observers, and other portrayals, indicate relatively neutral characterizations of the people with physical and sensory impairments in their relationships without people without impairments. Seventeen cases (4.1%) are coded as the child and the therapist, 10 relationships (2.4%) are the different one and the curious observers, and 25 occasions (6.1%) are other portrayals. In other words, about 13% of all occasions involving characters with and without impairments did not represent a negative or positive portrayal. We believe that these neutral portrayals can still be regarded as a positive feature of the recent picture books since there are still cases of stereotypes in the society.

The comparison of the number of the relationship categories across books provides us with valuable information (See Figure 2).
In particular, an equal body is the most common category across all 46 picture books. It was coded in 35 books, about 76% of all books. The successful one and proud others and proud others, another positive characterization of people with impairments, is the second most common category, which is coded in more than 50% of the books (27 books). As seen in Figure 2, none of the negative characterizations are coded in as many books. The lonely or unhappy child and the ignoring, or teasing one (16 books) and the disadvantaged one and the protector, helper (19 books) are found to be the most common categories among all three negative characterizations. The neutral characterizations, the child and the therapist, the different one and the curious observers, and other portrayals, are coded in less than ten books.

In general, the picture books analyzed in this study mainly present positive characterizations of people with impairments. Based on these findings, it can be claimed that the readers and users of children’s books portraying people with impairments will more likely see positive portrayals of those people. Yet, the data analysis also shows that people with impairments are negatively characterized in a number of books. Additionally, some negative and positive categories were coded in the same book. These books seem to reflect society’s perception about people with impairments. There are individuals with positive perceptions, and there are also others who have developed negative opinions. But, with the introduction of inclusion of people with impairments into schools, there is a trend including both positive and negative opinions. Similarly, the neutral portrayals are also evidences of the transition as they are in the middle of positive and negative portrayals. It is also important to note that a number of positive characterizations is considerably higher than the negative characterizations, which again reflects the transition trend in the society.

Discussion

Literature suggests that many of the books published in 1990s, 1980s and earlier contain stereotypical and inappropriate presentation of people with impairments (Heim, 1994; Myles, Ormsbee, & Downing, 1992; Prater, 1998; 2000). A recent study by Dyches, Prater and Cramer (2001) found out that there are more stories printed in 1997 and 1998, depicting more positive portrayals of people with intellectual impairments and autism compared to the characters in books in an earlier study by Prater (1999) who worked with a sample of books printed in earlier years. However, the authors still reported that 10 out of 12 books they used in the study portrayed characters with intellectual impairments and autism as victims and other characters acting as either perpetrators or protectors. The present study shows that, unlike the characters in Dyches et al (2001), the characters with physical and sensory impairments have been portrayed as being more independent and more social.

In this study, the analysis of the books yields eleven different types of relationship categories. A review of the literature indicates that other researchers have found very similar categories as well. For instance, we found that a large percentage of all relationships, about 30%, are coded as an equal body, a category portraying instances where characters with and without physical and sensory impairments are friends and enjoying each other’s company equally. This relationship category is found in 35 out of 46 books analyzed (over 75%). Similarly, scholars reported in a number of studies that friendship is one of the most common relationship categories appeared in books portraying characters with impairments (Dyches, Prater, & Cramer, 2001; Dyches, Prater, & Jenson, 2005; Prater, 1999; 2003). An examination of their definitions of friendship and our definition of an equal body indicates that both themes refer to very same relationships between individuals with and without impairments. Only, we emphasize the equality of the relationship between both parties by naming the relationship as an equal body. While Prater and others have analyzed books including characters with mental retardation, autism, and developmental impairments and learning impairments, we analyzed children books portraying characters with physical and sensory impairments. Hence, friendship or equality seems to be one of the major messages of the authors using all kinds of impairments in their books. These positive portrayals may be the reflections of what happens in real life. Society might have developed positive values toward people with impairments. With the increasing inclusion of children with impairments in regular classrooms, society is now beginning to acknowledge disability rights. It is likely that recent educational programs might have led to a broader understanding of stereotypes used in children’s literature and promoted sensitivity to the non-discriminative efforts.

The books that we analyzed in this study seem to reflect the society’s perception about people with impairments. There are individuals with positive perceptions, and there are also others who have developed negative opinions. But, with the introduction of inclusion of people with impairments into
schools, there is a transition trend including both positive and negative opinions. Similarly, the neutral portrayals are also evidences of the transition as they are in the middle of positive and negative portrayals. The number of positive characterizations is considerably higher than the negative characterizations, which again reflects the transition trend in the society.

Our analysis of the picture books shows that the characters with impairments are in deep relationships with their parents, siblings and some friends in many of the books. These cases are positive relationships where the characters without impairments cared, supported and are proud of the characters with impairments. Likewise, Dyche, Prater, and Cramer (2001) have found similar relationships between story characters with and without impairments and called them primary relationships. In their more recent analysis of children’s books, Dyche and Prater (2005) found primary relationship category as one of the main themes. In this respect, our findings are consistent with those of earlier studies in a way that close relationships exist between characters with and without impairments. Unlike Dyche and Prater (2005), we categorize such relationships in distinct themes, including an equal body, the successful one and proud parents, the helper, adviser and the appreciated friends, the supportive parent of a child with impairment, and parent and child sharing time. Rather than using an umbrella term, primary relationship, we used more than one coding category to enrich our understanding of the portrayals of individuals with impairments in picture books.

This study indicates that picture books portraying physical and sensory impairments contain negative as well as positive relationships between characters with and without the impairments. The three negative relationship categories are: (a) the lonely or unhappy child and the ignoring, or teasing one, (b) the disadvantaged one and the protector, helper and (c) the rejected person and the distrustful, very cautious one. As shown in figure 2, the first two are found in relatively more books than the third one. Briefly, these two relationship types portray individuals with impairments as unhappy, lonely or disadvantaged. While in the first category the character with impairment is being ignored or teased by another character without impairment, in the second category the disadvantaged one and the protector, helper, a character without impairment protects, cares or helps a character with impairment. These two kinds of instances are seems to be combined in the victim, perpetrator, and/or protector category that was introduced by Prater (1999) and found in more recent studies (Dyches et al., 2001; Dyches & Prater, 2005). In particular, they are portrayed as victims of their siblings, peers or others. They are teased, bullied or treated badly in picture books. In some instances, they are protected by another character without impairments. Thus, in children’s books, characters with impairments are having complex interactions with others. While they are treated inappropriately in some instances, they are protected in other cases. We think that this complex nature of the relationships is a reflection of what happens in real life.

This study did find that negative portrayals reflect some stereotypes that are still alive in society. The readers may feel sorry for them when reading the scenes about characters with impairments being alone, rejected or needy. The way that the people with impairments are presented in the children’s literature gives important information about our conceptions on impairment. According to Roth (1983), if negative meanings are associated with people with impairments, then behaviors, objects, and language associated with people with impairments will be negative. Thus, the present study suggests that it is critical for educators having an awareness of how children’s literature organize and reproduce disability as a category.

On the other hand, some stories portray positive and realistic relationships between characters with and without impairments. Such stories help children develop awareness and empathy by providing a genuine connection to the lives of people with impairments. For example in Dad and Me in the Morning, Jacob and his father communicate in different ways and share special moments together. Sarah’s Sleepover is another good example of positive relationship between characters with and without impairments. Sarah and her cousins enjoy their sleepover and have great fun together.

Interpreting the results from the analysis of the stories portraying characters with and without impairments is a challenging work due to its complexity. Most stories analyzed in this study contain both positive and negative portrayals of characters with physical and sensory impairments. For example, in Sosu’s Call, Sosu, a physically disabled child, is rejected by his community members due to his impairment; yet, this negative relationship between the child and others changes positively after Sosu calls the people in the farms to let them know that a terrible storm is approaching. This shift from negative to positive portrayals of the relationships between people with and without impairments was
found to be a common characteristic coded in several of the picture books. Specifically, the researchers' analysis indicate that in 18 of the 46 stories the authors initially depicted negative relationships; yet, as the story develops, the nature of the relationship changes to from negative to positive. It was also found that in 16 of these 18 stories the negative relationships occurred due to the impairment of the character. Hence, the stories give the message that when people with and without impairments meet, they may interact negatively due to the impairment. They may not be able to know or understand each other’s perspectives, needs and behaviors at first. For example, in Amelia Lends a Hand, Amelia tries to talk to Enzo, her new neighbor with hearing impairment; yet, Enzo does not answer her. Amelia thinks that he is rude and snobbish for not responding to her since she does not know that he cannot hear. Later on, as Amelia knows more about him, they develop a very special friendship. Our findings indicate that the characters without impairments show a change through their interactions with characters with impairments.

The author’s message to the readers with and without impairments is that it is possible to improve the negative relationships when individuals know more about each other. The change from negative to positive encourages the young readers with and without impairments to interact with each other although they may have some problems at the beginning. On the other hand, in some of the books, there are several overly negative relationships that should be critically reflected upon together by the teacher and children. For example, in Oliver's High Five, many employers reject Oliver, an octopus with physical impairment, just because he has fewer arms than a regular octopus has. He is rejected even though he is working hard and doing well. When the employers discover that he has only five arms, they dismiss him. He cannot find a job till he shows an extraordinary success by saving a pet shop. The owner of the shop is impressed by his ability of doing different jobs with his arms at the same time, so Oliver finally finds a job. Although the story has a happy ending, the message of the book implies that it is very hard to be accepted in the society without having physically perfection or extraordinary abilities.

As noted earlier, some of the success stories may be considered unrealistic or stereotypical. It is the role of the teacher and parent to facilitate discussions to critically reflect upon the message of the book. For example, the teacher may ask the children what they think about the employers' behaviors and how the children would feel if they were treated like Oliver. Also, techniques of creative drama can motivate children to empathize with Oliver. Saunders (2000) notes that early childhood teachers have an essential role in helping young children develop a critical view about impairments in children’s books. This is not a complete sentence. She explains that once children start to read by themselves, they may not have a chance to develop a critical view of the literature they read. As a result, children’s books including characters with impairments should be discussed with young children to state that people with impairments are valuable and contributing citizens (Saunders, 2000).

Implications for Practice
There are several key issues that educators should consider while using children’s literature portraying people with impairments in entertaining and educating young children. First, the quality of the books should be evaluated. According to Dyches and Prater (2005), characters with impairments presented in children’s literature should be integrated fully in society, to enjoy positive and reciprocal relationships with non-disabled characters, and to have opportunities to make and act on choices. Therefore, one issue for consideration in books would be to portray people with impairments as having individual and complex personalities with a full range of activities and emotions such as joy, anger, enthusiasm, and love is crucial. It is also important that authors should be careful about portraying characters with an impairment where the impairment is not essential to the story but is one of many character traits (Dyches et al., 2001). In fact, book authors need to focus on the person or the story, not create the story around the impairment. Also, when portraying people with impairments in the books, focusing on a person with disability’s extraordinary achievements or making the person into a super human who almost have magical abilities raises false expectations that people with impairments have to overcompensate to be accepted into the community (Biklen & Bogdan, 1997; Schwartz, 1997). Derman-Sparks and the ABC Task Force (1989), in Anti-Bias Curriculum Tools for Empowering Young Children, suggest that teachers look at the illustrations, the story line, note the copyright date, and watch for out-dated words. Additionally, while working with young children teachers should consider that young children could not easily distinguish between fact and fantasy, therefore the books chosen must present realistic information about different characters with impairments.
Second, teachers should carry an awareness of how children’s literature organizes and reproduces impairment. Children may realize that there are similarities and differences in all children, only if teachers use a combination of various activities addresses the varied disability issues. Initially, before or after reading a book portraying a character with the impairment, the teacher may have students sit in a group and list ways in which they are alike and ways they are different from one another such as having blue or brown eyes, being good at math or art. Once children understand that everyone has strengths and weaknesses, it becomes okay to be different. Similar to this activity, a teacher may also lead a class discussion on the nature and cause of impairment, and how certain impairments affect a person’s life.

Third, in an attempt to help children be familiar with disability issues, teachers may use a book of non-fiction written by a person with impairment (or a close one) for its bibliotherapeutic value. Through exposing children to the works of literature, children may expand their limited experiences by exploring that the good life can be lived, even in the face of imperfection and adversity. According to Grindler, Stratum, and McKemma, (1997), listening and reading used in conjunction with discussion may change attitudes more than listening or reading alone. Some of the topics that might be addressed in a class discussion are the specific words that the author uses to describe the character with the impairment, whether the author uses dated ideas and out dated language in the book. How the author describes or implies the character’s impairment and what stereotypes are associated with the impairment can be additional topics to a class discussion. Finally, the teacher can ask children the reason that the author chooses to make the character disabled (Shapiro, 2000).

Class discussions about barrier free environments can also be used to help students understand the nature of disabling conditions. Such discussions can be held to enable students to share ideas and help them to realize that creating barrier free environments requires being sensitive to individual differences. Additionally, teachers can use videos to explain various impairment areas. Inviting guest speakers with impairments who bring their real-life experiences into classroom would also help students gain insights about impairments. Teachers can ask students comprehensive questions that students answer after reading a book portraying characters with impairments. Students can define vocabulary terms in their own words and write reactions to the books that they read. Through book reading, class discussions, projects, videos, and guest lecturers, children may explore impairments from a variety of perspectives and can develop positive attitudes towards people with impairments along with an enhanced awareness about disability issues.

Overall, teachers, librarians, and parents who want to have literature portraying impairments should carefully select their collections and be aware of the stereotypes that might be implied between lines. With the recognition of the ways in which children’s literature contributes to and perpetuates the negative perceptions about impairment and removing these biases from children’s education, professionals who work with/for children will create environments in which all people are included.

References


WHAT DO I KNOW?
PARENTAL POSITIONING IN SPECIAL EDUCATION

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The literature that is meant to guide parental participation in special education often refers to parents as vital team members who are critical in designing the best programs for their children (The Family and Advocates Partnership for Education, 2004; The State Education Department, May 2002). However, a disconnect can occur between the information meant to guide parents and their experiences (Benson, Karlof, & Siperstein, 2008; Harry & Klinger, 2006; Rogers, 2003). This qualitative case study (Dyson & Genishi, 2005; Glesne, 1999; Merriam, 2001) uses positioning theory (Harré & van Langenhove, 1999b), to explore how Sherry, a parent of a preschool child with special needs, is positioned and positions herself, in interactions with doctors, teachers, and therapists when issues of disability and special education arise. In keeping with literature meant to guide her in school meetings, Sherry took an active position as a team member (reflexive positioning), and this position was accepted and celebrated by the providers and teachers who worked directly with her son. In the neurologist’s office, this parent needed to negotiate her position with the doctor, bumping up against the medical model of disability (interactive positioning). Finally, at school district meetings, Sherry explains how the school officials make certain positions unavailable to her by evoking her role as her son’s parent (interactive positioning). The researcher suggests ways to support parents’ interactions with professionals involved in special education and implications for teacher education programs.

There are moments in life when it becomes clear to us that big change is on the horizon. It may be a wedding, a birth, or in Sherry and Nate’s [all names are pseudonyms] case, the day their son’s neurologist suggested that Ray might eventually be labeled as autistic. Sherry had known early on that Ray’s speech and language development was not following the same path as her other two children. At 18 months, officials from the health department confirmed that Ray would benefit from early intervention services and in particular, speech and language therapy. This occurrence thrust Sherry and Nate into new relationships that they had not experienced with their other two children. Sherry and Nate would now become advocates, team members, researchers, evaluators and committee members in the many meetings that they would participate in concerning Ray.

Sherry and Nate’s search for the cause of Ray’s speech and language difficulties brought them to Dr. Gaskins, a pediatric neurologist. On admittance to the neurologist’s office, Sherry and Nate entered the medical model of disability; one of the many conceptual models of disability, this one rooted in a positivistic approach (Kalyanpur & Harry, 1999). A conceptual framework provides a structure from which one can view a disability (Kauffman, 2007) and a positivistic approach, such as the medical model, argues that there are regular patterns of learning that examiners can explain in mathematical/logical formulas (McPhail, 1995). A medical model of disability is one where disability is reified and found inside an individual (Bogden & Knoll, 1995). The diagnosis of an innate disorder is contrasted with a social constructivist approach to disability in which disabilities are viewed as cultural conventions that depend on who is defining it and what tools are made important in measuring it (McDermott, Goldman, & Varenne, 2006; Mehan, 1996; Varenne & McDermott, 1998). In terms of positioning, Sherry and Nate were asked to objectify Ray and think of him in terms of a medical diagnosis. Sherry described this experience as harrowing and she referred to Dr. Gaskin’s report to relay that horror. She stated, …and the way he put it in his report was, ‘At high risk of’ he didn’t say he
had it, but he left the door open, and he said, ‘at high risk of autism spectrum disorder and/or PDD-NOS [pervasive developmental delay-not otherwise specified] and/or the dyspraxia’ (interview, 2/12/07). Sherry described how this changed her life and her relationship with her son. With her other children, Sherry explained, she could enjoy each developmental milestone, always knowing the next step would come. With Ray, she found herself trying to be his therapist, teaching him the skills he needed to take the next developmental step. Sherry described making a conscious decision to be Ray’s mother first.

With this doctor’s report, Sherry and Nate became members of the special education community. Membership in that community works from the premise that a child’s special education program is best designed when the parents collaborate with all of the professionals involved in the care and education of the child with special needs. Parental involvement is critical at every stage, including developing an IFSP (Individual Family Service Plan) and then an IEP (Individual Education Plan) that details the services and goals for their child’s education. The stipulation made by the United States federal government that families be involved in the development of an IFSP and an IEP is testament to the crucial role families plays in contributing to the education of their child. The Education for all Handicapped Children Act (1975) and its’ reauthorizations mandate active parent participation but do not detail how this collaboration should proceed and so it is not uncommon for parental involvement to consist of parents signing consent forms for evaluations and providing demographic information for IEPs (Kalyanpur, Harry, & Skrtic, 2000).

The transformative experience of being told you have a child with special needs thrusts parents into a re-examination of their roles as parents, advocates and teachers (Harry, 2008). Sherry is a stellar example of how a parent uses many of the resources available to successfully manage the interactions of doctors, therapists, and teachers. It is useful to view Sherry’s interactions with doctors, teachers, therapists and school officials through the framework of positioning to understand how the social relationships Sherry engages in are powerful and can be tested and contested (Berry, 2006).

How Sherry manages to negotiate parenting a child with special needs leads to questions about what we can do to support parents in the many different venues where disability, school, doctors, and therapists intertwine. Further, it can provide some insight into the types of discussions we need to foster with pre-service and experienced teachers, to reflect on the orchestration of meetings that involve the many stakeholders in special education. The central question that guides this article is: How do parents position themselves and/or become positioned in their interactions with teachers, therapists, doctors and school district officials around their child’s special education program?

Research Participants, Setting, and Data Collection
The researcher teaches at a small liberal arts college on the East Coast of the United States. Associated with this college is a preschool. The director of the preschool, Emily, has been taking marked measures to include preschool students with special needs at the school. Various therapists and service providers visit daily to work with children. Emily has been providing staff development opportunities to the classroom teachers so that they can be valuable participants in these children’s special education programs. Emily was particularly impressed with the progress one student with special needs, Ray, was making, she felt in large part due to the collaborative nature of the preschool program. This research project was designed to explore the relationship between Ray’s progress and this preschool setting.

This research utilized a two-prong approach to understand how inclusionary and collaborative preschool programs foster the growth of students with special needs. First, data was collected and analyzed to note how Ray’s preschool classmates apprenticed him into play at the preschool level and how inclusion classrooms promote these interactions. Secondly, data was also gathered and analyzed to explore how the interactions between teachers, therapists, service providers and family members impacted the collaborative nature of this preschool classroom. This article addressed the second goal of the research project.

This research project began in September 2006 and ended in May 2009. For the academic year of 2006-7, the data set that informs the focus of this article, the researcher attended, audio taped and transcribed the formal and informal meetings that took place at the preschool. Further, interviews were conducted with Sherry separately. The researcher also conducted observations in Ray’s classroom twice a week for at least an hour each session. During those times, the researcher observed Ray
interact in structured classroom routines, such as circle time, and in more free choice activities. The researcher kept detailed field notes from these observations. The researcher also observed Ray when his special education teacher, therapists and other service providers came into the classroom to work with him.

This case study is grounded in qualitative research theories. Therefore, as suggested by Merriam (2001), data was analyzed simultaneously with its collection. In review of the audio recorded interviews and school meetings, codes were developed that detailed how Sherry managed the interactions that were required for coordinating a special education program for Ray.

Sherry and Nate live a middle-class lifestyle in a suburban area where Nate works for a large company with impressive health benefits. Sherry is a stay at home mom to their three children. Nate travels often and is overseas but for a week a month. Their oldest child is in seventh grade, their middle child is in fifth grade and Ray is their youngest. At the start of this research project, Ray was four. Sherry and Nate were anticipating changes in Ray’s special education program at the end of Ray’s fourth year due to the fact he would be turning five, a phrase often used to described the point in time where preschool children become school age and most attend public school to receive their special education services. Also in this state, when a child turns five they go from being identified as a preschooler with a disability to being labeled with a specific disability, which in Ray’s case became a speech/language impairment.

This article explores Sherry’s experiences in negotiating the medical, educational and therapeutic conversations that arise when a child becomes a part of the system of special education. Applying the framework of positioning theory (Harré & van Langenhove, 1999b) is a useful way to understand Sherry’s experiences. By looking at the positions Sherry takes up and resists, alongside of legislation and the texts used to explain the role(s) of parental involvement, we can see how the lived experiences of those in special education bump up against the cultural model (Gee, 1999), or idealized norm, of what special education proposes to be.

Positioning Theory
One way to understand the dramatic changes that can occur when a parent is told that his/her child is disabled is by looking at how that parent comes to understand and interpret disability and his/her role in this new arena. As parents become engrossed in the world of special education with issues such as evaluations of their child, therapy, the generation of legal documents like IEPs and alternative classroom placements, they must examine and reexamine the role that they play in this decision-making. Positioning theory is a construct that allows us to describe how disability becomes understood and acted upon through language use (Harré & van Langenhove, 1999b).

Briefly, positioning theory is embedded in the notion that the social world is created through conversations (Harré & van Langenhove, 1999b). As stated by van Langenhove & Harré, Within conversations, social acts and societal icons are generated and reproduced (1999, p. 15). Positioning works as a metaphor to understand how people are located in conversations and how participants of those conversations are jointly producing storylines (Harré & van Langenhove, 1999a). Harré (2003) elaborates, A position in an episode is a momentary assumption or ascription of a certain cluster of rights, duties, and obligations with respect to what sorts of things a certain person, in that position, can say and do (p. 697). Hence, in using the framework of positioning, we can gain insight into positions parents assert for themselves and others that are thrust upon them, as they interact with practitioners who work in the field of special education.

Whenever someone positions themselves, they also position someone else (Harré & van Langenhove, 1999b). Davies and Harré (1999) use the term interactive to describe the situation in which one person inevitably positions another through what he/she says. Contrastingly, reflexive positioning occurs when one positions oneself. Of course, this reflexive position can be challenged at which time the positioning of the parties involved can become interactive. These two distinctions are useful in illuminating Sherry’s experiences and help to portray how she is actively negotiating her position as a parent to Ray and a team member involved in creating his special education program.

Accepting Sherry’s Reflexive Position
It is clear in the literature meant to help parents through the procedures and regulations concerning special education, that parents are positioned in the role of advocate and expert about their children.
For example, the packet entitled, *A Parent’s Guide: Finding Help for Young Children with Disabilities (Birth –5)* (National Dissemination Center for Children with Disabilities, 2005) tells parents, "the family is a child’s greatest resource… The best way to support children and meet their needs is to support and build upon the individual strengths of their family. So, the IFSP is a whole family plan with the parents as major contributors in its development (p. 5)." The language used to address parents is active and stresses that the parents are major contributors in developing the most appropriate education plan. Further in the packet it states, *If your child is found eligible for services, then you and school personnel will sit down and write what is known as an Individualized Education Program, or IEP (p. 10).* Parents are told they will contribute to the development of their child’s program, not that they may contribute.

Being involved in a research project also places Sherry in a reflexive position. Sherry knows that the researcher is interested in her perspective and the time set aside to talk is a space where she can focus on relating her experiences. For example, during an interview on 2/12/07, Sherry started off the conversation in the following way:

So, one of the things I wanted to tell you about is myself and all the teachers and all the therapists noticed a change in Ray after the Christmas break and I spoke on the phone with you prior but it seems as though there is more spontaneous play, there is more wanting to interact with peers as well as with adults and there seems to be some, I don’t know if you call it a turning point or what.

When Sherry starts this conversation, she includes herself, first, in the group of people who continually assess and reflect of Ray’s progress. Sherry positions herself as an important member of the team. This again was apparent at a report card conference at the school with Ray’s teachers on 4/12/07. After everyone settled into their chairs, Sherry started the meeting with Ray’s teachers by expressing that she has seen *such gains* and that she believed Ray was taking *large leaps in interacting with other students.* Sherry does not sit back and wait for the teachers to present their findings but rather starts the meeting off with her own assessments. Not only does she position herself as having important information to share, she positions Ray as making progress. The teachers support Sherry’s assessment of Ray’s progress by nodding vigorously. Further in this meeting, one of Ray’s teacher’s comments on how Ray seems to be managing situations using *scripts* and that deviating from the *script* can be hard for him. For example, if Ray asks a student to share something, he believes that because he is following the *script* of how to get a toy from a classmate, that classmate must share. When the classmate does not, Ray does not know how to manage the situation and may resort to pulling the toy out of his/her hands.

This comment about Ray’s classroom interactions allows Sherry to position herself in different ways. She can position herself as concerned and ask for suggestions, she can disagree with this assessment, or as Sherry does, she builds upon the teacher’s remarks by stating, *Yes, it gives him something to build on. Social cues, if he wants another child to do something with him and other kids say no, he doesn’t seem to hear him.* Sherry validates the teacher’s comment and builds upon it with an example. She asks, *What do you think we can do about this?* at which time a brainstorming session begins. This is the intent of the legislation concerning special education meetings and Sherry and these teachers are prime examples of it in action.

During this meeting Sherry maintains her active role in asking the teachers questions such as, *During free choice time is he able to pick an activity or are you guiding him?* Interestingly, this meeting ends when Sherry sums up the areas she believes still need to be addressed and monitored with Ray. She states that there are *still things to work on.* She summarizes that these are reading social cues from other children, understanding the give and take of interactions, and attending and focusing during whole class discussions. Sherry states, *There are still issues but it’s better than it was.*

Sherry’s active involvement in her son’s special education program was not happenstance. In fact, Sherry was very careful and took steps to make sure that the group of therapists who would be working with Ray at the preschool would work well for her son. She explains:

> See what I did to get this team together is, I had these women come to my house, individually, I paid them. I wrote them a check that day and I was very upfront. If you have openings for next year, if, you know, you can’t then we won’t even do this, but if you have some openings for next year and you’re interested in working with a child who has these types of issues, to see if you and I click, you and my child click.’ I was very upfront. ‘I just want to see, I want to hear what you think. Do you think you could help him or do you think no. This is what I’m interested in’ and I spent a
lot of time talking to Emily [director of the preschool] and a lot of time talking to different therapists. I really did my homework and I think it’s paid off because they are a dynamic team.

Again, Sherry takes an active position in securing therapists for her son. She does not wait for the county to assign therapists but rather actively recruits those she feels are committed to and would work well with her son. Interestingly, Sherry states that it is important that the therapists click with her. Through these language choices, Sherry positions herself as an important team member and relays to the therapists that she will be involved.

Sherry’s involvement with her son’s therapy and therapists was bi-directional. Although Sherry was initially ‘interviewing’ therapists, when she speaks about how the therapists work together and her role in that team, it is clear that she allows herself to be positioned in ways that critique her involvement with Ray. For example, Sherry was discussing a session when the special education teacher, Tami, came to her house to work with Ray. She stated:

_We were outside and it was something with the bike and there was something in his path and my immediate reaction was to jump up and move the thing and she’s [Tami’s] like, Mom stop, sit back, let’s see what he does. Let him problem solve…. You don’t want there to be a meltdown and Tami is like Let him have the meltdown sometimes…let him struggle a little bit….make him figure it out. So that’s just something that I’ve found interesting that I’ve never looked at that way._

This example is illustrative of how Sherry negotiates the positions of both team member and mom. As a mom, Sherry wants to alleviate any discomfort her son might face and Tami appeals to her motherhood by addressing her as _mom_. Tami is actively positioning Sherry as a mom as a way to get her to acknowledge the position she is working from and to re-position herself objectively, say as a therapist, to view the situation differently.

When Sherry speaks about her son’s preschool experience and engages in meeting within this context, she uses language to show that her position in this realm is reflexive. Sherry positions herself as an active member and the team of special education professionals that work with her son accepts this position. The nature of this preschool program allows for that positioning and celebrates it. It is clear from talking with those involved with Ray at the preschool that Sherry is a welcomed and valued participant. In the neurologists office however, Sherry’s reflexive position becomes negotiated.

_Challenging a Reflexive Position_

Sherry’s interactions in the context of her son’s preschool detail the active position she takes and how the teachers and therapists positively receive and endorse that position. When Sherry talks to the neurologist, she is required to negotiate her position in this relationship.

Sherry comes to the neurologist’s office with a history of research and knowledge in the area of sensory integration and methods for working with children described as having a disorder in this area. Her research in this topic has led her to believe that Ray may be experiencing problems with his sensory integration. Not only does Sherry attend a local support group where speakers regularly come to address different topics with regard to sensory processing disorders, but Sherry has also been reading the work of Stanley Greenspan. In fact, Dr. Greenspan’s son, also Dr. Greenspan, had visited the preschool Ray attends and met with Sherry. In the following example, there is a clash of beliefs between Dr. Gaskins’s interpretation of sensory disorders and Sherry’s understandings. Sherry describes her initial reaction to Dr. Gaskins:

_This man, this man, the first time I went to see him I was a little skeptical of him because he’s stressing in the beginning. I was just coming off the Greenspan visit so I was very into Greenspan…and so here’s Dr. Gaskins looking at Ray who’s really not talking much. (…). He didn’t really want to talk about sensory stuff because that’s not so black and white (interview, 9/28/06)._ 

Sherry continues to talk to Dr. Gaskins about Greenspan’s philosophy of working with children with sensory disorders. Sherry tells Dr. Gaskins that she saw videotapes of children he worked with and the remarkable progress they made. Dr. Gaskins’s replied, _Well, you saw the tapes he wanted you to see._ Sherry explains:
So, it was like, it really upset me. It really upset me. So the way I ended it was, ‘Fine. I see what you’re saying. I’m still going to read his book. I hear what you’re saying, and I know you’re a scientist. You’re a doctor. But I also like what Dr. Greenspan has to say and so I’m going to listen to both of you.’ It took a lot for me to say that because I was a little intimidated because, what do I know, and he’s a doctor, you know?

Sherry could have owned that intimidation but chose to position herself in another way. Her choice was a conscious decision to not dismiss the experiences she had with Dr. Greenspan because a neurologist told her otherwise. Sherry also considers the position of Dr. Gaskins in relating that his role as doctor was to only give credence to the black and white. Later on in our talk, Sherry relates that subsequent visits to Dr. Gaskins’s office revealed that his attitude was different about sensory stuff and that he probably received some stuff on his desk that is more hardcore.

Using the framework of positioning, Sherry’s initial position as one knowledgeable about sensory processing disorders, and the potential impact of the work of Dr. Greenspan, was challenged by Dr. Gaskins. Dr. Gaskins questioned the validity of Dr. Greenspan’s work and hence, Sherry’s analysis that this approach may be helpful for her son. Here, Sherry and Dr. Gaskins are jointly negotiating what sort of evidence will be accepted in terms of discussing therapies in this neurologist’s office. Although Sherry’s initial position is refuted by Dr. Gaskins because it lacks the type of evidence a person in his position requires, Sherry asserts herself and stands firm in her belief that Dr. Greenspan’s work might be valuable to her son.

Again, the above the conversation with her son’s neurologists was meaningful because Sherry chose to hold to her position rather than accept the position that Dr. Gaskins suggests; that she leave the thinking about what counts as evidence of successful therapy up to him. In contrast to this, there were situations where Sherry felt she was unable to negotiate positions because she felt there were times when no other positions were available or that if she tried to force a position, the results might be detrimental to Ray and her other children.

Positioned Up Against a Wall - Interactive Positioning

Parents provide essential information to teachers and administrators, play an important role in decisions made about their children and can be a key to supporting high expectations for their children during their school years (The State Education Department, May 2002, p. 1)

At this point, it is clear that Sherry is adept at positioning herself in ways that show she is an active member of her son’s educational team. Still, Sherry recognizes and understands that despite these successes, there are times, when regardless of her stand, she will be positioned in ways that are beyond her control.

In this first example, Sherry explains that when she goes into meetings where representatives of the school district are present, others are regarded as experts and her position is as parent. Sherry explains:

I went with Nina [the occupational therapist] to a meeting. It was at my bequest because I wanted an increase in OT [occupational therapy] services. But I saw what happens when she goes into the room. It’s the difference between night and day. She talks, they listen. I talk; I’m just his mother. You know what I mean? It’s just the reality of what it is (interview, 2/17/07).

Here, Sherry does not like it, but she accepts the position that the therapist will be the respected voice at the meeting and she will be just his mother. Through the committee’s language, Sherry gets the message that her role will be that of parent. While Sherry acquiesces to this position in the public unfolding of the meeting, yet she uses this knowledge carefully in planning whom she will bring to the meetings. Sherry describes how she is considering bringing both Emily [preschool director] and Tami [special education teacher] to her next meeting but states that she hasn’t needed them yet. She noted that while Tami had not attended a meeting with her yet, she saw that when Tami’s report was read at a previous meeting the committee members really take it to heart.

Sherry has also found herself with little options when she comes up against the special education legislation. While the information to parents encourages them to use their intimate knowledge of their children to forge the best education plan, there comes a time when this is not possible. For example,
Sherry, the therapists, and Ray’s pediatrician all agreed that Ray is making great progress in his current educational setting and with this particular group of therapists. Now that Ray is becoming school age, his special education program comes under the jurisdiction of the school district and it is expected that Ray will attend kindergarten at the public school. The school district will not pay for services at a private preschool school and even if they did, the therapists that work with Ray do not have a contract with this district. Sherry has discussed securing a lawyer but realizes that this might lead to animosity between herself and the school district and fears the results might affect her children’s experiences in school. As Sherry explains, *This is what administrators don’t want to talk about and don’t want to hear about and I know they’ve got to deal with numbers and dollars and cents but it took him months to get to this point with these women.* Sherry realizes that the administrators’ hands are tied and so she states that she cannot afford to pay for the level of services Ray is receiving from the therapists who work with him now, but that she will try to pay for an occasional visit. While Sherry knows the voices of the therapists are respected, she also knows that *Age seems to have everything to do with it. They have this strict cut off.*

Sherry’s experience with the school district leaves her little room to negotiate her position as an advocate for the best educational program for her son. Sherry accepts that the district will value the professionals who work with her son over her own assessments. She will accept being *just his mother* in this space but not without being sure that the professionals she invites to the meeting table will support her ideas of what is best for Ray.

**Discussion:** *What does Sherry know?*

Much of the literature that is meant to guide parents’ addresses their role in the evaluation process as active and important (National Dissemination Center for Children with Disabilities, 2005; The Family and Advocates Partnership for Education, 2004; The State Education Department, May 2002). The Federal Government and many states have specific sections on their web sites and publications available for parents that detail their importance in making decisions about their child’s special education program.

Sherry understands the importance of positioning even though she may not use such words to describe it. Sherry is a white middle-class woman who, in all of my meetings with her, met with other white middle-class women. Sherry has the luxury of being able to ‘interview’ therapists, pay for additional therapy and a private preschool program where four teachers are available and interested in including students with special needs in their classroom. Sherry understands the system and the importance of making contacts among both parents and organizations, such as advocacy groups meant to assist parents. As Sherry states, *It’s just good to network.*

Sherry’s active positioning is working for her son, who in large part continues to make great progress due to Sherry’s diligence. Sherry knows a lot. She has learned she has the power to position herself in ways that can, at times, go against those of a doctor. Sherry does not just read the parent literature about having a child in special education, she believes it and further, she acts it. Sherry’s story has the potential to help parents, teachers, therapists and doctors understand the importance of paying attention to the positions we take and make available for others.

**Implications**

One of the implications from this research is that with the level of support that Sherry receives and seeks out, she is empowered. There is congruency between Sherry’s social and cultural home life and that of school officials and doctors she meets with. For many other families, this is not the case (Harry & Klinger, 2006; Kalyanpur & Harry, 1999).

As Sherry does repeatedly, she seeks out other parents who share her concerns and that group shares information. There are many reasons why other parents may not be able to access this help – issues such as childcare, transportation and so forth. This research would support developing mentoring relationships among parents, either through face-to-face interaction or a technological relationship (such as through email). School districts can support this initiative by providing the resources, training, and access to parents who may not have computers in their homes. While many organizations exist to do this, a school district or local agency can tailor the information and contacts for parents who are in their community so that information would be specific to that community and not the general information one may find while conducting a broad Internet search. This approach would allow
school districts to be substantial in their support for parents and provide more than lip-service to the important roles parents play in their children’s education.

The boundary drawn around this qualitative case study is around one child, his classroom, his teachers and service providers, and his parent’s experiences. Qualitative case study research, according to Merriam (2001), is a methodological choice when, researchers are interested in insight, discovery, and interpretation rather than hypothesis testing (p. 28-29). While the sample in this study is small, Sherry provides us insight and a parent’s interpretation that has the potential to inform the field of special education.

One way in which this research may contribute to the field is in its support of using the framework of positioning as a part of programs that educate the professionals that interact in the contexts of special education. When therapists, teachers and doctors speak with parents, they should be aware that their words and conversations are enabling some positions and perhaps stunting others. Teacher education and other service provider programs might find the framework of positioning useful in looking at meeting transcripts and discussing whose voice gets heard and whose positions get acknowledged or challenged.

Secondly, preschool programs that encourage and support parents to be active in their children’s special education program are laying the groundwork for parents to take that active role in future school communications. This particular preschool program works hard to include all parents, not only those who have children with special needs. When parents feel they are being heard, and that what they have to contribute is honored, they will actively involve themselves in school contexts. Sherry very much felt like a team member in this preschool and it empowered her to advocate for her son in other contexts.

Finally, research conducted within the realm of special education should continue to include the voices of the people who are interacting in these contexts. Without these voices, it is possible to lose track of how the legislation is impacting the families it is designed to support. All parents are involved in their child’s special education program regardless of whether they are able to attend meetings. We need to honor these parents by listening to their stories and giving them as much support as possible as they negotiate the complex terrain of special education.

References
The purpose of this study was to identify the hyperactive, impulsive, social, and emotional characteristics of girls with symptoms of attention deficit hyperactivity disorder (ADHD). These characteristics could be used to increase the referral rates of these girls and provide implications for intervention. Parent and self-ratings of a school-based sample of 262 girls with and without ADHD were analyzed. Girls with ADHD were characterized as more verbally impulsive and hyperactive, faster in conversations and school-work, more easily bored, more often stirring up trouble, having difficulty waiting, and demonstrating greater moodiness, anger, and stubbornness than their peers. The girls with symptoms of ADHD also discriminated between their own appropriate versus inappropriate activity and demonstrated normal prosocial activities, the level of which was related to higher self-esteem. Implications are that ADHD characteristic behavior in girls can be identified earlier so that treatments can be studied and improved.

The purpose of this study was to address the problem of reduced identification of girls with symptoms of attention deficit hyperactivity disorder (ADHD). That is, teachers typically refer students for school-based assessment because of externalizing and disruptive behavior in the classroom. However, girls with ADHD are less likely to exhibit disruptive, externalizing, or out of seat behavior in the classroom than are boys with ADHD (Abikoff et al., 2002). Furthermore, as girls with ADHD age, they manifest hyperactivity in ways that are less likely to suggest ADHD to their teachers (Ohan & Johnston, 2005). During their preschool years, girls with ADHD exhibit overt hyperactive behavior, but by six through ten years of age, they no longer demonstrate this type of behavior in the classroom (deHaas & Young, 1984; deHaas, 1986; Battle & Lacey, 1972; Huessy & Howell, 1988). These findings could suggest developmental changes that make identification of girls less likely than for boys.

These changes over developmental levels may also be observed in the classroom over time. That is teachers’ prior experience with girls with ADHD may lead them to expect an eventual modulation of activity/inattention/impulsivity. These expectations could explain what appear to be biased ratings by teachers of girls versus boys in the following study. Greenblatt (1994) asked 57 elementary and middle school teachers and counselors to evaluate case studies of children described with the characteristics of ADHD (hyperactive, fidgety, uncooperative, inattentive, and having difficulty following through). Teachers assessed only 27% of the girl cases to have ADHD but when reviewing the identical cases labeled as boys, teachers identified ADHD in 72% of the cases. In summary, even when there is an equivalent amount of excessive behavior in girls with ADHD, teachers see this as less disruptive or as more modifiable in the classroom. This conclusion is supported by findings that girls, but not boys, with ADHD inhibited impulsive behavior when punishment was a consequence (Milich, Hartung, Martin, & Haigler, 1994). Perhaps older girls learn to inhibit obvious movement in specific contexts to avoid social disapproval and therefore also avoid identification of ADHD.

From this research we might conclude that the manifestation of ADHD in girls may be specific to setting. Contexts where teacher disapproval would be more likely are academic settings; social settings may provide a context that could more accurately represent ADHD in females. Social settings involve more complex rules and requirements, which may involve delayed and indirect consequences. These delayed consequences for girls are peer rejection. For example, girls with ADHD had more difficulty
making friends than did girls without ADHD, and the friendships they did establish were less stable over a five-week summer session (Blachman & Hinshaw, 2002). Peer rejection or neglect rates were 62% for elementary school girls with ADHD compared to only 9% for comparison girls (Gaub & Carlson, 1997), with an increase in social impairment documented over time (Battle & Lacey, 1972; Prinz & Loney, 1974; Gaub & Carlson). Mikami and Hinshaw (2006) also reported that girls who were rejected by peers in childhood were also rejected in adolescence. In addition to being disliked by peers, girls with ADHD were more often disliked by adults doubly disliked, (Mikami, Chi, & Hinshaw, 2004).

Girls with ADHD appear to be aware of this social failure and rejection, as indicated by lowered ratings on their perceived relationships with their teachers, as well as, lowered ratings of self-esteem and increased scores on depression, anxiety, and stress/distress than female comparisons (Rucklidge & Tannock, 2001). Furthermore, girls showed greater impairment in internalizing symptomology and lower self-perceptions than did boys with the disorder (Zalecki & Hinshaw, 2004). In a large clinical sample of girls with ADHD, 45% were co-morbid with disorders of mood and anxiety (Biederman et al., 1999).

Girls with ADHD are at risk for negative adolescent long-term outcomes. For example, in a follow-up study of 140 girls diagnosed with ADHD when they were six to twelve years old, only 16% showed positive adjustment in adolescence across the domains of ADHD symptoms, behavior problems, internalizing problems, social skills, peer relationships, and academic functioning (Owens, Hinshaw, Lee, & Lahey, 2009). Mikami and Hinshaw (2006) reported that girls with ADHD, who were six to twelve years old in an original assessment, had significantly higher rates of internalizing and externalizing symptoms, lower levels of academic achievement, higher rates of substance use, and higher rates of eating disorders four and a half years later. In other words, negative emotionality characterizes adolescent girls with ADHD (Greene et al., 2001).

In adulthood, a third of women with ADHD reported that they were currently depressed and 70.6% reported a history of depression, with higher rates of mental health treatments for major depression, anxiety disorder, agoraphobia, social phobia, and alcohol/drug abuse, and dependence than comparison women (Biederman et al., 1994; Rucklidge & Kaplan, 1997). Adult women with ADHD were also less educated and achieved a lower standard of living than comparison females (Huessy & Howell, 1988). In summary, the social/emotional and educational/vocational outcomes of ADHD in girls are nontrivial, which underscores the importance of early identification.

To the purpose of identifying girls earlier, we examined the possibility that parents may be better raters than teachers, and that the home may provide a better rating context than the school. Parents may have broader knowledge of their daughters’ behavior in social settings at home and in the community. Additionally, the girls themselves, especially older girls with symptoms of ADHD, may be better able to provide ratings that reflect alternative perceptions of their own behavior. It was also possible that traditional rating scales were insufficiently sensitive to differences in the ways that older girls express ADHD, especially in an assessment of their social characteristics. Therefore, supplementary items were needed. Arnold (1996) suggested adding items within the instruments that have been used for boys—items sensitive to ADHD in females. When developing these additional items, we also considered the possibility that there were specific positive types of behavior that protected girls from identification and that would have implications for intervention. The development of these supplementary items served as an initial purpose for this study, which was followed by field-testing of these items.

Method
An initial list of descriptors of the hyperactive and impulsive behaviors of girls with ADHD was generated from the current literature, the teaching, clinical, and personal experiences of experts in the area of ADHD, as well as the childhood experiences of adult women with ADHD. This list of 45 items was formatted into an assessment instrument with five choices, Almost Never; Sometimes; Often; Most of the Time; and Almost Always.

Women who had been diagnosed in adulthood with ADHD were then invited and agreed to participate in a focus group. Their ages ranged from 27 to 57 (M = 36 years), four were Caucasian, and one was Korean-American (two undergraduate university students, two graduate students, and one adult nonstudent). The purpose of the focus group was to evaluate the identified items against their childhood experiences and identify areas that may have been overlooked in past rating scales. The two and a half hour focus group was facilitated by a series of questions to guide the discussion through the domains of
the assessment. Each participant in the focus group completed a self-assessment of the 45 items. Tapes of the focus group were transcribed and coded for the 45 items and any additional strands that emerged from the discussions (Kitzinger, 2008). The transcript was used to revise the list of descriptors on the assessment form.

The final supplementary instrument, referred to throughout this study as the supplementary descriptive assessment, consisted of 44 descriptors across six categories that were entitled: Activity Style (ten items), Talking Style (five items), Attentional Style (eight items), Social Style (13 items), and Emotional Style (eight items). Items are listed in Tables 1 and 2. The Social Style category contained both positive social skills and oppositional behavior.

Table 1

Factors of the Supplementary Descriptive Assessment Item Scores: Parents’ Ratings

<table>
<thead>
<tr>
<th>Item</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>V</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.</td>
<td>Changes topics of conversation or loses a thought</td>
<td>.76</td>
<td>.04</td>
<td>.01</td>
<td>-.06</td>
</tr>
<tr>
<td>8.</td>
<td>Poor handwriting or changes handwriting style</td>
<td>.67</td>
<td>-.08</td>
<td>-.02</td>
<td>.10</td>
</tr>
<tr>
<td>13.</td>
<td>Says things before thinking them through</td>
<td>.66</td>
<td>.17</td>
<td>-.13</td>
<td>-.15</td>
</tr>
<tr>
<td>5.</td>
<td>Trips, bumps into things</td>
<td>.58</td>
<td>-.07</td>
<td>.21</td>
<td>.01</td>
</tr>
<tr>
<td>14.</td>
<td>Jumps into conversations or interrupts</td>
<td>.56</td>
<td>.31</td>
<td>-.11</td>
<td>-.31</td>
</tr>
<tr>
<td>28.</td>
<td>Likes friends that parents don't like</td>
<td>.55</td>
<td>-.05</td>
<td>-.01</td>
<td>.14</td>
</tr>
<tr>
<td>9.</td>
<td>Anisy when waiting</td>
<td>.52</td>
<td>.22</td>
<td>-.05</td>
<td>-.01</td>
</tr>
<tr>
<td>10.</td>
<td>Eats or drinks faster than others</td>
<td>.52</td>
<td>-.05</td>
<td>.25</td>
<td>-.19</td>
</tr>
<tr>
<td>22.</td>
<td>Easily bored</td>
<td>.50</td>
<td>.19</td>
<td>-.17</td>
<td>.02</td>
</tr>
<tr>
<td>19.</td>
<td>Rushes through work or other activities</td>
<td>.48</td>
<td>.11</td>
<td>.08</td>
<td>-.07</td>
</tr>
<tr>
<td>32.</td>
<td>Breaks rules when unsupervised</td>
<td>.47</td>
<td>.22</td>
<td>.02</td>
<td>.09</td>
</tr>
<tr>
<td>7.</td>
<td>Typically moving some part of the body (foot shaking, tapping, touching)</td>
<td>.42</td>
<td>.24</td>
<td>.36</td>
<td>.03</td>
</tr>
<tr>
<td>17.</td>
<td>Sometimes does the minimum work and other times goes all out</td>
<td>.41</td>
<td>-.08</td>
<td>.13</td>
<td>.08</td>
</tr>
<tr>
<td>30.</td>
<td>Stirs up trouble</td>
<td>.40</td>
<td>.31</td>
<td>-.05</td>
<td>.05</td>
</tr>
<tr>
<td>39.</td>
<td>Nervous habits (chews fingernails or inside of cheek, pinches, pokes or scratches own body, pulls own hair)</td>
<td>.39</td>
<td>.09</td>
<td>.02</td>
<td>.34</td>
</tr>
<tr>
<td>29.</td>
<td>Sweats, cusses, uses gestures</td>
<td>.39</td>
<td>.06</td>
<td>-.09</td>
<td>.07</td>
</tr>
<tr>
<td>34.</td>
<td>Stubborn, strong willed</td>
<td>.03</td>
<td>.71</td>
<td>.00</td>
<td>.05</td>
</tr>
<tr>
<td>36.</td>
<td>Talks back or fights back with parent(s)</td>
<td>.15</td>
<td>.69</td>
<td>-.11</td>
<td>.06</td>
</tr>
<tr>
<td>35.</td>
<td>Gets angry with unfair adults</td>
<td>.13</td>
<td>.64</td>
<td>-.09</td>
<td>.07</td>
</tr>
<tr>
<td>43.</td>
<td>Reacts with strong feelings</td>
<td>.01</td>
<td>.62</td>
<td>.08</td>
<td>.19</td>
</tr>
<tr>
<td>33.</td>
<td>Worries about fairness</td>
<td>-.04</td>
<td>.61</td>
<td>.08</td>
<td>.15</td>
</tr>
<tr>
<td>40.</td>
<td>Moody -- frequent ups and downs</td>
<td>.16</td>
<td>.53</td>
<td>-.11</td>
<td>.20</td>
</tr>
<tr>
<td>11.</td>
<td>Loud with friends or family</td>
<td>.31</td>
<td>.43</td>
<td>.03</td>
<td>-.33</td>
</tr>
<tr>
<td>2.</td>
<td>Busy and on the go - outdoors</td>
<td>.24</td>
<td>-.12</td>
<td>.76</td>
<td>.11</td>
</tr>
<tr>
<td>1.</td>
<td>Busy and on the go - indoors</td>
<td>.17</td>
<td>-.15</td>
<td>.68</td>
<td>.15</td>
</tr>
<tr>
<td>4.</td>
<td>Faster - walking, biking, or working</td>
<td>.21</td>
<td>-.15</td>
<td>.67</td>
<td>.10</td>
</tr>
<tr>
<td>27.</td>
<td>Shows enthusiasm</td>
<td>-.22</td>
<td>.07</td>
<td>.56</td>
<td>-.17</td>
</tr>
<tr>
<td>25.</td>
<td>Initiates or starts activities -- a leader with friends</td>
<td>-.33</td>
<td>.19</td>
<td>.46</td>
<td>-.17</td>
</tr>
<tr>
<td>31.</td>
<td>Joins activities (clubs, YWCA, Scouts, band/orchestra, sports)</td>
<td>-.39</td>
<td>.13</td>
<td>.44</td>
<td>.04</td>
</tr>
<tr>
<td>12.</td>
<td>Likes to talk -- always has a comment or question</td>
<td>.25</td>
<td>.24</td>
<td>.37</td>
<td>-.33</td>
</tr>
<tr>
<td>16.</td>
<td>Has many interests (hobbies, games, music, projects, sports, fads, or crafts)</td>
<td>-.14</td>
<td>-.02</td>
<td>.44</td>
<td>-.08</td>
</tr>
<tr>
<td>24.</td>
<td>Reads or does homework with others</td>
<td>-.06</td>
<td>.32</td>
<td>.39</td>
<td>-.05</td>
</tr>
<tr>
<td>38.</td>
<td>Nervous in new situations</td>
<td>.01</td>
<td>.23</td>
<td>.12</td>
<td>.82</td>
</tr>
<tr>
<td>37.</td>
<td>Shy around strangers and adults</td>
<td>-.13</td>
<td>.18</td>
<td>.04</td>
<td>.73</td>
</tr>
<tr>
<td>21.</td>
<td>Busy with crossword puzzles, writing letters, diaries, art, etc.</td>
<td>.02</td>
<td>-.05</td>
<td>.13</td>
<td>-.02</td>
</tr>
<tr>
<td>20.</td>
<td>Dreamer, fantasizer, or reader</td>
<td>.11</td>
<td>-.03</td>
<td>.07</td>
<td>-.01</td>
</tr>
<tr>
<td>44.</td>
<td>Always in love</td>
<td>.26</td>
<td>-.08</td>
<td>-.15</td>
<td>.12</td>
</tr>
<tr>
<td>3.</td>
<td>Tomboy or spends time with boys</td>
<td>.20</td>
<td>-.01</td>
<td>.23</td>
<td>.04</td>
</tr>
<tr>
<td>42.</td>
<td>Idealizes or worships others (teachers, movie/TV stars, musicians, or heroes)</td>
<td>.14</td>
<td>.04</td>
<td>-.13</td>
<td>.29</td>
</tr>
</tbody>
</table>

Items With Highest Loading Below .38

6. Hands kept busy (doodling, twirling hair, playing with objects) | .33  | .29  | .33  | .00   | -.02  |
18. Dresses and gets ready quickly | .04  | -.16 | .20  | -.01  | .15   |
23. Reads or does homework with the radio or TV on | .10  | .12  | .17  | -.09  | .34   |
26. Has difficulty with sudden changes in plans | .11  | .35  | -.10 | .27   | .07   |
41. Feels guilty | .20  | .27  | .10  | .26   | -.01  |
Table 2
Factors of Supplementary Descriptive Assessment Item Scores: Students’ Self-ratings

<table>
<thead>
<tr>
<th>Item</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jumps into conversations or interrupts</td>
<td>.76</td>
<td>.02</td>
<td>-.13</td>
<td>.01</td>
<td>-.12</td>
</tr>
<tr>
<td>Says things before thinking them through</td>
<td>.73</td>
<td>-.02</td>
<td>-.07</td>
<td>.11</td>
<td>.00</td>
</tr>
<tr>
<td>Load with friends or family</td>
<td>.69</td>
<td>-.01</td>
<td>-.01</td>
<td>.07</td>
<td>-.16</td>
</tr>
<tr>
<td>Hands kept busy (doodling, twirling hair, playing with objects)</td>
<td>.66</td>
<td>.05</td>
<td>.13</td>
<td>-.18</td>
<td>.16</td>
</tr>
<tr>
<td>Typically moving some part of the body (foot shaking, tapping, touching)</td>
<td>.61</td>
<td>.15</td>
<td>.10</td>
<td>-.24</td>
<td>.15</td>
</tr>
<tr>
<td>Changes topics of conversation or loses a thought</td>
<td>.53</td>
<td>.10</td>
<td>-.13</td>
<td>.10</td>
<td>.11</td>
</tr>
<tr>
<td>Aimsy when waiting</td>
<td>.53</td>
<td>.02</td>
<td>.01</td>
<td>-.04</td>
<td>.16</td>
</tr>
<tr>
<td>Likes to talk -- always has a comment or question</td>
<td>.49</td>
<td>-.10</td>
<td>.22</td>
<td>.26</td>
<td>-.22</td>
</tr>
<tr>
<td>Trips, bumps into things</td>
<td>.46</td>
<td>.21</td>
<td>.03</td>
<td>-.02</td>
<td>-.08</td>
</tr>
<tr>
<td>Easily bored</td>
<td>.37</td>
<td>.07</td>
<td>.12</td>
<td>.15</td>
<td>.15</td>
</tr>
<tr>
<td>Swears, cusses, uses gestures</td>
<td>.04</td>
<td>.71</td>
<td>-.04</td>
<td>.14</td>
<td>-.10</td>
</tr>
<tr>
<td>Breaks rules when unsupervised</td>
<td>.10</td>
<td>.63</td>
<td>-.05</td>
<td>.19</td>
<td>-.04</td>
</tr>
<tr>
<td>Stirs up trouble</td>
<td>.07</td>
<td>.62</td>
<td>-.07</td>
<td>.10</td>
<td>.0</td>
</tr>
<tr>
<td>Likes friends that parents don’t like</td>
<td>.06</td>
<td>.54</td>
<td>.03</td>
<td>-.01</td>
<td>.14</td>
</tr>
<tr>
<td>Tomboy or spends time with boys</td>
<td>.01</td>
<td>.44</td>
<td>.26</td>
<td>.10</td>
<td>-.04</td>
</tr>
<tr>
<td>Poor handwriting or changes handwriting style</td>
<td>.17</td>
<td>.40</td>
<td>.13</td>
<td>-.14</td>
<td>.01</td>
</tr>
<tr>
<td>Has many interests (hobbies, games, music, projects, sports, fads, or crafts)</td>
<td>-.03</td>
<td>-.09</td>
<td>.65</td>
<td>-.07</td>
<td>-.02</td>
</tr>
<tr>
<td>Initiates or starts activities -- a leader with friends</td>
<td>-.10</td>
<td>.15</td>
<td>.56</td>
<td>.26</td>
<td>-.07</td>
</tr>
<tr>
<td>Busy and on the go -- indoors</td>
<td>.08</td>
<td>.02</td>
<td>.54</td>
<td>.02</td>
<td>.06</td>
</tr>
<tr>
<td>Faster - walking, biking, or working</td>
<td>-.15</td>
<td>.26</td>
<td>.54</td>
<td>.07</td>
<td>-.01</td>
</tr>
<tr>
<td>Joins activities (clubs, YWCA, Scouts, band/orchestra, sports)</td>
<td>.03</td>
<td>.30</td>
<td>.48</td>
<td>.02</td>
<td>.24</td>
</tr>
<tr>
<td>Busy and on the go -- outdoors</td>
<td>.19</td>
<td>.06</td>
<td>.42</td>
<td>.03</td>
<td>-.04</td>
</tr>
<tr>
<td>Stubborn, strong willed</td>
<td>-.03</td>
<td>.11</td>
<td>.0</td>
<td>.68</td>
<td>.03</td>
</tr>
<tr>
<td>Worries about fairness</td>
<td>-.11</td>
<td>.05</td>
<td>-.03</td>
<td>.51</td>
<td>.16</td>
</tr>
<tr>
<td>Reacts with strong feelings</td>
<td>.05</td>
<td>.08</td>
<td>.22</td>
<td>.51</td>
<td>.21</td>
</tr>
<tr>
<td>Gets angry with unfair adults</td>
<td>.06</td>
<td>.34</td>
<td>-.08</td>
<td>.46</td>
<td>.01</td>
</tr>
<tr>
<td>Shows enthusiasm</td>
<td>.22</td>
<td>-.36</td>
<td>.30</td>
<td>.40</td>
<td>-.09</td>
</tr>
<tr>
<td>Nervous in new situations</td>
<td>-.01</td>
<td>-.10</td>
<td>-.01</td>
<td>.14</td>
<td>.71</td>
</tr>
<tr>
<td>Shy around strangers and adults</td>
<td>-.13</td>
<td>-.13</td>
<td>-.09</td>
<td>.09</td>
<td>.61</td>
</tr>
<tr>
<td>Feels guilty</td>
<td>-.01</td>
<td>-.06</td>
<td>.01</td>
<td>.35</td>
<td>.46</td>
</tr>
<tr>
<td>Idealizes or worships others (teachers, movie/TV stars, musicians, or heroes)</td>
<td>-.05</td>
<td>.33</td>
<td>.15</td>
<td>-.10</td>
<td>.40</td>
</tr>
<tr>
<td>Moody -- frequent ups and downs</td>
<td>.13</td>
<td>.24</td>
<td>-.02</td>
<td>.35</td>
<td>.40</td>
</tr>
<tr>
<td>Has difficulty with sudden changes in plans</td>
<td>.14</td>
<td>.11</td>
<td>.10</td>
<td>.12</td>
<td>.39</td>
</tr>
</tbody>
</table>

Items with Highest Loading Below .37

10. Eats or drinks faster than others                                  | 24  | 25  | 13  | -.05| -.23|
17. Sometimes does the minimum work and other times goes all out     | .14 | .08 | .27 | -.03| .15 |
18. Dresses and gets ready quickly                                    | -.21| .27 | .33 | -.04| -.15|
19. Rushes through work or other activities                           | .30 | .27 | .04 | .18 | -.13|
20. Dreamer, fantasizer, or reader                                    | .02 | .04 | .17 | .33 | .14 |
21. Busy with crossword puzzles, writing letters, diaries, art, etc.  | -.04| .04 | .21 | .17 | .27 |
23. Reads or does homework with the radio or TV on                    | .12 | .20 | .08 | .06 | .01 |
24. Reads or does homework with others                                 | .09 | .07 | .34 | -.01| .23 |
36. Talks back or fights back with parent(s)                          | .24 | .25 | -.36| .15 | .06 |
39. Nervous habits (chews fingernails or inside of cheek, pinches, pokes or scratches own body, pulls own hair) | .31 | .21 | .03 | -.21| .29 |
44. Always in love                                                    | .24 | .27 | .09 | .01 | .08 |

Participants and Recruitment Procedures
To encourage the participation of a diverse sample of girls and to broaden the generality of findings, participants were recruited from five school districts: two within a mile radius of a large Midwestern university, one in a largely Hispanic, urban school district, one in a predominantly white, rural, Midwestern community, and one in a racially diverse small town in a Southern community. All teachers in four of the schools were invited to participate if they taught a last hour class or study hall with fifth through eighth grade female students. The urban school and rural school had 100% teacher participation. The other two schools had teacher participation rates of about 50% and 75%. To include a larger sample of girls with a clinical diagnosis of ADHD, the school nurse mailed invitations to participate to the families of girls with a clinical diagnosis of ADHD in the school near the university.
Together, these procedures produced a total sample of 262 participants (41 from the urban school, 113 rural, Midwestern schools, 71 from the Southern school, and 37 from schools near the university). For this sample, intelligence, reading, and math standard achievement scores were taken from existing group-administered, nationally norm-referenced standardized test scores in students’ accumulative files. Additional demographic information was provided in writing by parents on girls’ age, grade, number of siblings, parents’ marital status, occupation, income, and race/ethnicity.

 Procedures
Each teacher, parent, and girl participant was asked to complete the ADD-H Comprehensive Teacher's Rating Scale (ACTeRS) (Ullmann, Sleator, & Sprague, 1991). This is a 24-item scale that assesses Attention, Hyperactivity, Social Skills, and Oppositionality and includes separate norms for girls. Its subscales have a high degree of factorial independence and adequate reliability (internal consistency $r = .92 - .97$; test-retest $r = .78 - .82$; inter judge $r = .51 - .73$). The items on the ACTeRS subscales of Attention and Hyperactivity closely reflect the concepts and wording in the DSM-IVTR (American Psychiatric Association, APA, 2000). There is recent evidence that teacher ratings that are not specific to any one day or situation are moderately to strongly related to student behaviors recorded by an independent observer over 3 to 4 days; this supports the validity of rating scales (Lauth et al., 2006). ADHD rating scales have been shown to have to specificity greater than 94% in studies differentiating children with ADHD from normal, age-matched, community controls (AAP, 2001).

Teachers completed the ACTeRS rating scale on each participating girl; parents and girls completed the Supplementary Descriptive Assessment. (Teachers were not asked to complete this scale because many of the items were not classroom based.) Girls’ self-assessments on the ACTeRS, Supplementary Descriptive Assessment, and Piers-Harris were conducted in four schools in a 30 min assembly. Each item on the ACTeRS scale was read aloud to the students. At the largely Hispanic, urban school, instructions were given in both English and Spanish and instruments were available in both languages. All students then independently completed the Supplementary Descriptive Assessment and Piers-Harris Children’s Self-Concept Scale (an 80 item yes, no self-rating scale with cluster scores in Behavior, Intellectual and School Status, Physical Appearance and Attributes, Anxiety, Popularity, and Happiness and Satisfaction, Piers & Harris, 1984). There is evidence that children with ADHD can accurately self-report their feelings and behavior (Klimkeit et al., 2006). The researcher was available throughout each session to answer questions. As students finished, each was thanked, given a certificate and a pencil, and released to class.

Parents were asked to complete the ACTeRS and Supplementary Descriptive Assessment at home. Due to restrictions placed on the study by the school administration, parent ratings were not available for the largely Hispanic, urban school district. For the one local school with only six participants, the school year was ending. Therefore, appointments were made with each family for the researcher to visit their homes. Parents were given the parent scales and were asked to complete them independently in another part of the home. The student ratings were administered to the students individually using the same procedures that had been employed in the schools.

Participant Grouping Criteria
A girl was included in the ADHD group ($n = 20$) if she had a prior diagnosis of any subtype of ADHD indicated in school records or reported by the family or by the school nurse, which was typically associated with a prescription for stimulant medication. Reliability of this group membership status was determined with an ACTeRS hyperactivity subscale score at or below the 10th percentile on the parent rating and at or below the 25th percentile on the teacher rating, or vice versa (i.e., demonstrating ADHD in more than one context). Scores were compared to the ACTeRS norms for girls. According to the ACTeRS manual, if the Attention subscale score is at or below the 10th percentile, regardless of other scores, one can have confidence in the diagnosis of ADHD (Ullmann et al., 1991, p. 9), and that a score at or below the 25th percentile on any subscale should be considered indicative of a major deficit. Because we did not assess age of onset of the symptoms of ADHD nor conduct a diagnostic interview, we labeled our participants as a school-based sample of girls with ADHD.

The Comparison group included girls with ratings equal to or greater than the 40th percentile on both the parent and teacher ratings of the ACTeRS hyperactivity subscale. According to the ACTeRS manual, a percentile score between 40 and 50 may indicate a mild problem but scores above the 50th percentile show no indication of a problem (Ullmann et al., 1991). Girls whose hyperactivity scores
were between the 25th and 40th percentiles \((n = 160)\), indicating higher levels of hyperactivity, were excluded from the Comparison group.

An additional sample of girls with learning disabilities (LD) were either reported by their families as having a prior diagnosis of LD or had evidence of a school-based identification of LD in school records. Because we were attempting to identify the characteristics of girls with ADHD separate from those who have learning problems, girls who were both LD and ADHD \((n = 7)\) were included in the LD group. The demographics of these groups are presented in Table 3.

Table 3
Demographics of the Total Sample and Group Equivalence Means, (SD), and Follow-up Comparisons

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>NC</th>
<th>ADHD</th>
<th>LD</th>
<th>F-ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>152.7 (12.94)</td>
<td>152.5 (10.7)</td>
<td>152.2 (12.8)</td>
<td>155.5 (12.4)</td>
<td>0.56</td>
</tr>
<tr>
<td>Grade</td>
<td>6.65 (0.98)</td>
<td>6.73 (0.82)</td>
<td>6.95 (0.99)</td>
<td>6.42 (0.90)</td>
<td>1.80</td>
</tr>
<tr>
<td>IQ</td>
<td>106.96 (15.21)</td>
<td>113.1 (12.66)</td>
<td>105.6 (9.97)</td>
<td>95.0 (16.27)</td>
<td>12.52****</td>
</tr>
<tr>
<td>Reading</td>
<td>60.89 (27.84)</td>
<td>71.0 (23.24)</td>
<td>56.2 (23.84)</td>
<td>34.1 (30.88)</td>
<td>15.27****</td>
</tr>
<tr>
<td>Math</td>
<td>63.19 (28.66)</td>
<td>74.3 (21.97)</td>
<td>58.1 (22.15)</td>
<td>37.4 (29.11)</td>
<td>17.48****</td>
</tr>
</tbody>
</table>

Note: *\(p < .05\), **\(p < .01\), ***\(p < .001\), ****\(p < .0001\)

Groups: NC = Normal Comparisons; ADHD = ADHD; LD = Learning Disabled. Arrowheads indicate greater than direction. Age is in months. IQ is in standard scores. Reading and math are in percentile scores.

Results

Demographic data
Differences among groups of girls (with and without symptoms of ADHD) and with LD were not found in age, grade, number of siblings, parents’ marital status, occupation, or income. See Table 3. The Comparison girls scored higher on measures of both math and reading than the girls in the ADHD group, who in turn scored higher than the girls in the LD group. Even though their achievement scores were lower, intelligence scores for the ADHD group were equivalent to that of Comparison girls and higher than those of the girls in the LD group, who had average but lower IQ scores.

There also were group differences on race/ethnicity, \(\chi^2(6, n = 99) = 27.47, p < .001\). That is, 90% of the Comparison group reported being white (but not Hispanic), 5% African American, and 5% Hispanic; 58% of the ADHD group reported being white (but not Hispanic), 37% African American, and 5% other; and 64% of the LD group reported being white (but not Hispanic), 13% African American, and 23% Hispanic. However, race did not contribute to total scale scores for parents’ ratings or for girls’ self-ratings. We did find that Hispanic parents rated their daughters as engaging in less pro-social activity than the other parent groups, \(F(3) = 2.99, p = .032\); similarly, the Hispanic girls rated themselves as engaging in less pro-social behavior than the African American girls, \(F(3) = 7.72, p = .0001\).

Factor Analysis
To determine the constructs underlying the new Supplementary Descriptive Assessment, an exploratory, principal components analysis, and Promax (oblique) rotation of all 44 items was performed separately for the parent and student ratings of all participants, using squared multiple correlations as prior communality estimates. Initial analyses produced five factors with eigenvalues of at least one and extracted factors that were conceptually interpretable according to the criteria set forth by Hatcher (1994). Based on interpretation of the rotated factor pattern, an item was included in a factor if the factor loading was .37 or greater for that factor and less than .37 for all other factors. Tables 1 and 2 document the five factors and show consistent findings across both raters.

For parent ratings, Factor I clustered items in the area of Impulsivity/hyperactivity and contained 17 items. Factor II, Unregulated Emotions, had seven items reflecting stubbornness, anger, and strong emotions. Factor III contained nine items in Pro-Social Activity and included items such as, Busy and on the go and Shows enthusiasm. The fourth factor was made up of two items that assessed Anxiety, and Factor V clustered five items related to Cognitive Stimulation.

For student self-ratings on Factor I, ten clustered items in the area of Impulsivity/hyperactivity. Factor II contained six items in the area of Inappropriate Behavior. Factor III contained six items in Pro-Social Activity, and the fourth factor clustered five items related to Unregulated Emotions. Factor V was
made up of six items that assessed Anxiety and Emotionality. Most items on factors I and III loaded similarly for parent and student self-ratings.

**Supplementary Descriptive Assessment Validity**

Discriminant function analyses were conducted to determine whether the descriptive assessment could correctly assign girls to groups (ADHD, Comparison). Using the parents' ratings, the five factors correctly assigned 79% of the girls to the ADHD group and 94% to the Comparison group. The coefficient was largest for Factor I, Impulsivity/Hyperactivity and Factor III, Pro-Social Activity—reflecting their contribution to the discrimination between the two groups. For the girls' data, self-ratings correctly assigned only 44% of the girls to the ADHD group and 36% to the Comparison group.

We also examined concurrent validity. After reverse coding the Attention and Social Skills subscales of the ACTeRS, total scale scores were computed for both scales. Total scale correlation for the parents’ descriptor ratings and the ACTeRS was .51 (p < .0001), and the students’ descriptors and ACTeRS correlated at .54 (p < .0001), suggesting that the two scales were tapping overlapping constructs.

To examine the validity of the individual constructs, subscale scores from the ACTeRS were correlated with Factor Scores from the parent and student ratings on the Supplementary Descriptive Assessment. See Table 4. The highest correlation from the parents’ ratings was obtained for parent’s Factor I (Impulsivity/hyperactivity) and the Hyperactivity subscale of the ACTeRS (r = .75). Also high was the students’ self-ratings (r = .66) of hyperactivity and impulsivity on both scales. The items on the ACTeRS scale focused on the physical domain (e.g., Out of seat, Squirms in seat), whereas the items on Factor I of the Supplementary Descriptive assessment were primarily verbal (e.g., Jumps into conversations; Says things before thinking them through; Changes topic of conversations).

**Table 4**

<table>
<thead>
<tr>
<th>Parents' Ratings</th>
<th>ACTeRS</th>
<th>ACTeRS</th>
<th>ACTeRS</th>
<th>ACTeRS</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Impulsivity/Hyperactivity</td>
<td>.46****</td>
<td>.75****</td>
<td>.44****</td>
<td>.47****</td>
</tr>
<tr>
<td>II. Unregulated Emotions</td>
<td>.30****</td>
<td>.53****</td>
<td>.26***</td>
<td>.30 ***</td>
</tr>
<tr>
<td>III. Pro-Social Activity</td>
<td>-.24***</td>
<td>.12</td>
<td>-.27***</td>
<td>-.11</td>
</tr>
<tr>
<td>IV. Anxiety</td>
<td>.01</td>
<td>.12</td>
<td>.12</td>
<td>.10</td>
</tr>
<tr>
<td>V. Cognitive Stimulation</td>
<td>.06</td>
<td>.33****</td>
<td>.10</td>
<td>.19**</td>
</tr>
</tbody>
</table>

**Students' Ratings**

<table>
<thead>
<tr>
<th>ACTeRS</th>
<th>ACTeRS</th>
<th>ACTeRS</th>
<th>ACTeRS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attention</td>
<td>ACTeRS</td>
<td>Hyperactivity</td>
<td>Social Skills</td>
</tr>
<tr>
<td>I. Impulsivity/Hyperactivity</td>
<td>.16*</td>
<td>.66</td>
<td>.12</td>
</tr>
<tr>
<td>II. Inappropriate Behavior</td>
<td>.31****</td>
<td>.46****</td>
<td>.26***</td>
</tr>
<tr>
<td>III. Pro-Social Activity</td>
<td>-.16*</td>
<td>.17*</td>
<td>-.30***</td>
</tr>
<tr>
<td>IV. Unregulated Emotion</td>
<td>.04</td>
<td>.33****</td>
<td>-.01</td>
</tr>
<tr>
<td>V. Anxiety</td>
<td>.19**</td>
<td>.29****</td>
<td>.20**</td>
</tr>
</tbody>
</table>

*Note: *p < .05, **p < .01, ***p < .001, ****p < .0001*

**Impulsivity/hyperactivity.** As documented in Table 1 for parents and Table 2 for students, the largest and most clearly defined factor from both parents’ and students’ ratings described impulsive and hyperactive behavior. The parents’ Factor I included items from Factors I and II of the students’ self-ratings. Although the parents’ Factor I combined characteristics, the girls’ analysis separated Impulsivity/hyperactivity from volitional Inappropriate Behavior (e.g., Stirs up trouble; Swears, cusses, uses gestures).

**Social behavior.** Social skill deficits were identified on the ACTeRS. Teachers identified 23% of girls and parents identified 35% of the total sample at the 25th percentile and 2% and 3%, respectively at the 10th percentile. The girls’ self-ratings showed a similar pattern, with 34% self-identifying problems with social skills at the 25th percentile and 3% at the 10th percentile. These percentages suggest that it is common for fifth through eighth grade girls to have some problems with social behavior, but it is uncommon for them to have severe problems. An analysis of group differences on the ACTeRS ratings
showed that girls with ADHD and LD were rated by all three rating sources (teachers, parents, and girls) as having significantly more problems with social skills than Comparison girls. See Table 5.

| Table 5 |
|------------------|------------------|------------------|------------------|------------------|
| **Group Differences on Teachers', Parents', and Students' Ratings on the Subscales of the ACTeRs** |
| **ACTeRS Teachers' Ratings** | **SNK** | **Mean** | **SD** |
| **F-Value** | | |
| Attention | 41.01**** | A - LD | 2.67 | 0.96 |
| | | A - AD/HD | 2.47 | 0.92 |
| | | B - NC | 1.30 | 0.43 |
| Hyperactivity | 54.11**** | A - AD/HD | 3.07 | 1.27 |
| | | B - LD | 1.90 | 1.11 |
| | | C - NC | 1.08 | 0.17 |
| Social Skills | 36.30**** | A - LD | 2.51 | 0.62 |
| | | A - AD/HD | 2.33 | 0.58 |
| | | B - NC | 1.47 | 0.47 |
| Oppositional | 23.24**** | A - AD/HD | 2.07 | 1.05 |
| | | B - LD | 1.40 | 0.63 |
| | | C - NC | 1.07 | 0.22 |

| **ACTeRS Parents' Ratings** | **SNK** | **Mean** | **SD** |
| **F-Value** | | |
| Attention | 36.95**** | A - LD | 3.09 | 1.09 |
| | | A - AD/HD | 2.97 | 1.13 |
| | | B - NC | 1.46 | 0.65 |
| Hyperactivity | 93.88**** | A - AD/HD | 3.43 | 1.01 |
| | | B - LD | 2.38 | 0.95 |
| | | C - NC | 1.22 | 0.20 |
| Social Skills | 28.03**** | A - LD | 2.80 | 0.86 |
| | | A - AD/HD | 2.50 | 0.71 |
| | | B - NC | 1.64 | 0.53 |
| Oppositional | 8.55*** | A - AD/HD | 1.84 | 0.85 |
| | | A - LD | 1.56 | 0.72 |
| | | B - NC | 1.18 | 0.48 |

| **ACTeRS Students' Ratings** | **SNK** | **Mean** | **SD** |
| **F-Value** | | |
| Attention | 36.95**** | A - LD | 3.09 | 1.09 |
| | | A - AD/HD | 2.97 | 1.13 |
| | | B - NC | 1.46 | 0.65 |
| Hyperactivity | 6.09** | A - AD/HD | 3.04 | 1.16 |
| | | AB - LD | 2.74 | 0.94 |
| | | B - NC | 2.24 | 0.90 |
| Social Skills | 9.15*** | A - LD | 2.52 | 0.69 |
| | | A - AD/HD | 2.29 | 0.47 |
| | | B - NC | 1.97 | 0.48 |
| Oppositional | 3.36* | A - ADHD | 2.08 | 1.04 |
| | | A - LD | 1.78 | 0.90 |
| | | A - NC | 1.52 | 0.80 |

*Student Newman Keuls

Note: Letters that differ indicate significant differences between groups

*p < .05, **p < .01, ***p < .001, ****p < .0001

In addition to the differences in problematic social behavior documented on the ACTeRS, the new Supplementary Descriptive Assessment added an important dimension of social behavior -- positive social involvement. This Pro-social factor was not a measure of social skill but rather social involvement. Girls with ADHD were rated equivalent to girls without disabilities on this factor (Table 6 next page) and on eight of the nine Pro-social items (Table 2). They were rated significantly higher than girls without disabilities on the remaining Pro-social item, *Likes to talk -- always has a comment or question*. In contrast, girls with LD were rated significantly lower than one or both of the other groups on five of the nine items (i.e., they were less likely to like to talk, to be busy and on the go, initiate or start activities -- be a leader with friends, show enthusiasm, or join activities). For self-ratings, girls with ADHD scored similar to girls without disabilities on all Pro-social items but one (Table 2). On *Faster - walking, biking, or working*, they self-rated significantly higher than girls without disabilities. Girls with LD self-rated significantly lower than girls with ADHD on this faster moving item and on *Has many interests (hobbies, games, music, projects, sports, fads, or crafts)*.

*Emotionality*. The Supplementary Descriptive Assessment included two factors--Unregulated Emotions and Anxiety. See Table 1 for parent ratings and Table 2 for student self-ratings. Girls with ADHD were rated higher than Comparison girls for all seven items of the Unregulated Emotions parents' factor. Parents' mean rating of girls with ADHD on the Unregulated Emotions factor was 3.51 (between
Table 6
Group Differences on the Factor Scores of Parents’ Ratings of the Supplementary Descriptive Assessment

<table>
<thead>
<tr>
<th>Variable</th>
<th>F-Value</th>
<th>SNK*</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>I Impulsivity/Hyperactivity</td>
<td>45.86****</td>
<td>A - ADHD 2.88</td>
<td>B - LD 2.29</td>
<td>C - NC 1.63</td>
</tr>
<tr>
<td>II Unregulated Emotions</td>
<td>18.29****</td>
<td>A - ADHD 3.51</td>
<td>B - LD 2.78</td>
<td>C - NC 2.23</td>
</tr>
<tr>
<td>III Pro-Social</td>
<td>4.78*</td>
<td>A - ADHD 3.23</td>
<td>A - NC 3.10</td>
<td>B - LD 2.59</td>
</tr>
<tr>
<td>IV Anxiety</td>
<td>2.03 ns</td>
<td>A - LD 2.65</td>
<td>2.13 1.13</td>
<td>A - NC 2.0</td>
</tr>
</tbody>
</table>

Comparison group n = 63, ADHD group n = 20, LD group n = 19
*Student Newman Keuls
Note: Letters that differ indicate significant differences between groups
*p < .05, **p < .01, ***p < .001, ****p < .0001

Often and Most of the Time, the highest mean score of any factor on the parents’ scale. Girls with ADHD were more stubborn, moody, overly reactive, and angry. They were also more likely to worry, feel guilty, and be loud with their family and friends. Their self-ratings on this factor yielded a mean score of 3.53, second only to their self-ratings of pro-social activity. Although girls rated themselves as high as parents rated them on this factor, only one item of their self-ratings differentiated them from the other groups. The one item indicated that they were aware that they were more likely than other girls to react with strong feelings. The second emotional factor, Anxiety, did not seem to characterize this sample as different from Comparison or LD groups.

Self-concept. In the present study, girls with ADHD were found to have lower total self-concept on the Piers-Harris than Comparison girls, and girls with LD had the lowest self-concept (see Table 7).

Table 7
Group Differences on the Piers Harris Self-Concept Scale

<table>
<thead>
<tr>
<th>Variable</th>
<th>F-Value</th>
<th>SNK*</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Self-concept</td>
<td>6.04**</td>
<td>A - NC 57.27</td>
<td>B - ADHD 51.70</td>
<td>C - LD 49.26</td>
</tr>
<tr>
<td>Behavioral Self-concept</td>
<td>3.35*</td>
<td>A - NC 55.84</td>
<td>A - LD 51.84</td>
<td>A - ADHD 49.50</td>
</tr>
<tr>
<td>Intellectual Self-concept</td>
<td>4.49*</td>
<td>A - NC 54.48</td>
<td>AB - ADHD 49.65</td>
<td>B - LD 46.58</td>
</tr>
<tr>
<td>Anxiety Self-concept</td>
<td>4.38*</td>
<td>A - NC 53.11</td>
<td>AB - ADHD 49.70</td>
<td>B - LD 45.21</td>
</tr>
<tr>
<td>Popularity Self-concept</td>
<td>3.67*</td>
<td>A - NC 50.24</td>
<td>AB - ADHD 46.60</td>
<td>B - LD 43.74</td>
</tr>
<tr>
<td>Physical Appearance</td>
<td>4.15*</td>
<td>A - NC 56.52</td>
<td>AB - ADHD 53.80</td>
<td>B - LD 48.79</td>
</tr>
<tr>
<td>Self-concept</td>
<td>2.68</td>
<td>A - NC 55.09</td>
<td>A - ADHD 52.45</td>
<td>A - LD 49.63</td>
</tr>
</tbody>
</table>

*Student Newman Keuls
Note: Letters that differ indicate significant differences between groups
*p < .05, **p < .01, ***p < .001, ****p < .0001

As presented in Table 8, for girls with symptoms of ADHD, lower self-concept was associated with higher levels of (a) impulsivity and hyperactivity on parent (but not student) ratings on the descriptor
assessment and (b) self-ratings of inappropriate behavior. Lower self-concept in girls with symptoms of ADHD was also associated with self-rating of inattention on the ACTeRS, parent ratings of unregulated emotions, and self-ratings of social skill problems on the ACTeRS. Girls reporting high levels of pro-social activity reported the highest self-concept.

Table 8
Correlations of Total Self-concept and Behavioral Ratings

<table>
<thead>
<tr>
<th>ACTeRS Subscales</th>
<th>Total Sample</th>
<th>AD/HD (n = 20)</th>
<th>LD (n = 19)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teachers’ Ratings</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attention</td>
<td>-.29****</td>
<td>.15</td>
<td>-.53*</td>
</tr>
<tr>
<td>Hyperactivity</td>
<td>-.01</td>
<td>.57*</td>
<td>.13</td>
</tr>
<tr>
<td>Social Skills</td>
<td>-.26***</td>
<td>.22</td>
<td>-.78***</td>
</tr>
<tr>
<td>Oppositional</td>
<td>-.03</td>
<td>-.27</td>
<td>-.18</td>
</tr>
<tr>
<td>Parents’ Ratings</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attention</td>
<td>-.31****</td>
<td>-.42 (p &lt; .08)</td>
<td>-.21</td>
</tr>
<tr>
<td>Hyperactivity</td>
<td>-.25***</td>
<td>-.35</td>
<td>.02</td>
</tr>
<tr>
<td>Social Skills</td>
<td>-.32****</td>
<td>-.40</td>
<td>-.32</td>
</tr>
<tr>
<td>Oppositional</td>
<td>-.23**</td>
<td>-.27</td>
<td>-.38</td>
</tr>
<tr>
<td>Students’ Ratings</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attention</td>
<td>-.46****</td>
<td>-.48*</td>
<td>-.25</td>
</tr>
<tr>
<td>Hyperactivity</td>
<td>-.31****</td>
<td>.07</td>
<td>-.42</td>
</tr>
<tr>
<td>Social Skills</td>
<td>-.58****</td>
<td>-.76***</td>
<td>.40</td>
</tr>
<tr>
<td>Oppositional</td>
<td>-.43****</td>
<td>-.31</td>
<td>-.43 (p &lt; .09)</td>
</tr>
<tr>
<td>Factors on the Supplementary Assessment</td>
<td>Total Sample</td>
<td>AD/HD</td>
<td>LD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parents’ Ratings</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I. Impulsivity/Hyperactivity</td>
<td>-.33****</td>
<td>-.49*</td>
<td>-.03</td>
</tr>
<tr>
<td>II. Unregulated Emotions</td>
<td>-.24***</td>
<td>-.59**</td>
<td>.16</td>
</tr>
<tr>
<td>III. Pro-Social Activity</td>
<td>.31****</td>
<td>.20</td>
<td>.44 (p &lt; .08)</td>
</tr>
<tr>
<td>IV. Anxiety</td>
<td>-.20**</td>
<td>-.05</td>
<td>.18</td>
</tr>
<tr>
<td>V. Cognitive Stimulation</td>
<td>-.10</td>
<td>.14</td>
<td>.04</td>
</tr>
<tr>
<td>Students’ Ratings</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I. Impulsivity/Hyperactivity</td>
<td>-.31****</td>
<td>-.15</td>
<td>-.37</td>
</tr>
<tr>
<td>II. Inappropriate Behavior</td>
<td>-.43****</td>
<td>-.52*</td>
<td>-.27</td>
</tr>
<tr>
<td>III. Pro-Social Activity</td>
<td>-.26****</td>
<td>.49*</td>
<td>.08</td>
</tr>
<tr>
<td>IV. Unregulated Emotions</td>
<td>-.17*</td>
<td>.11</td>
<td>-.08</td>
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<tr>
<td>V. Anxiety</td>
<td>-.41****</td>
<td>-.11</td>
<td>-.11</td>
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</tbody>
</table>

Note: *p < .05, **p < .01, ***p < .001, ****p < .0001
Subscales of Social Skills and Attention on the ACTeRS were reverse-coded so that high scores reflect greater problems on all subscales.

Discussion
The purposes of this study were comprehensively to identify: (1) sensitive raters or rating contexts, (2) types of behavior that could increase the sensitivity of assessment of girls with ADHD and could supplement traditional rating scales, and (3) possible protective factors for girls with ADHD. Limitations that qualify the findings are that our school-based participants would be considered as exhibiting symptoms of ADHD. That is, even though they had been identified by their doctors and we administered both parent and teacher rating scales using both home and school criteria, we did not determine the age of onset of these rated characteristics or interview parents. These limitations are inherent in the difficulties of recruiting large school-based samples, rather than convenient samples of clinic-referred participants. Other sample limitations were that we did not differentiate children into the inattentive, hyperactive, and combined subtypes within community samples or identify a sufficient number of children with co-occurring learning disabilities with and without ADHD.

Our initial analysis compared ratings of girls with ADHD on traditional ADHD rating scales versus our assessment. Traditional scale items describe large motor activities like running, climbing or getting out of seats in the classroom. In this study we documented findings concordant with traditional rating scales, but with additional important specificity. That is, both parents’ and girls’ ratings on Impulsivity/hyperactivity (Factor I) significantly discriminated between girls with and without ADHD. Impulsivity may have contributed to their seeking a fast pace in both conversations and in their work, to their greater clumsiness (tripping and bumping into things), and to poor handwriting. Our supplementary assessment also documented that girls were busy with small motor activities like foot shaking, doodling, twirling their hair, or chewing their fingernails on both parent and student ratings. Similarly the Supplementary Descriptive Assessment items in this study provided more specific
assessment of social behavior (e.g., Swears, cusses, uses gesture; Breaks rules when unsupervised; Stirs up trouble) than the general ACTeRS Social Skill items (e.g., Behaves positively with peers/classmates).

Related to the importance of context, we predicted group differences in the social domain. We found that the most defining feature of ADHD behavior in girls was not large motor movement, but verbal impulsivity, as defined by both parents and students. They interrupted others, talked too loudly, changed topics inappropriately, often lost track of their own thoughts in conversations, and said things before thinking. Both parents and girls rated girls with ADHD as becoming easily bored and having difficulty waiting, items also related to impulsivity. These results support those presented by Ohan and Johnston (2005) who assessed eight female-sensitive characteristics of ADHD (i.e., talks excessively and without thinking first, instead of doing homework or class work, writes/passes notes, whispers and talks to friends, doodles, changes friends impulsively, forgetful in social situations), all of which involved social interaction. They found that their female-sensitive ADHD items accounted for variance in impairment over and above that accounted for by the DSM-IV symptoms. Similarly, our social items overlapped three of those by Ohan and Johnston (likes to talk, says things without thinking, and changes topics of conversation) and provided unique information about girls’ social functioning.

Also related to our expectations about the importance of girls as raters, we found that girls with ADHD saw themselves as engaging in more inappropriate behavior than Comparison girls (i.e., not just the amount of activity/impulsivity, see Students’ Factor II, Table 9).

<table>
<thead>
<tr>
<th>Variable</th>
<th>F-Value</th>
<th>SNK*</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>I Impulsivity/Hyperactivity</td>
<td>4.60*</td>
<td>A - ADHD 3.43</td>
<td>1.02</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>AB - LD 2.93</td>
<td>0.69</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B - NC   2.76</td>
<td>0.86</td>
<td></td>
</tr>
<tr>
<td>II Inappropriate Behavior</td>
<td>3.93*</td>
<td>A - ADHD 2.96</td>
<td>0.93</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B - LD   2.28</td>
<td>1.02</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>B - NC   2.26</td>
<td>1.01</td>
<td></td>
</tr>
<tr>
<td>III Pro-Social</td>
<td>4.73*</td>
<td>A - ADHD 3.99</td>
<td>0.67</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B - NC   3.61</td>
<td>0.61</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B - LD   3.35</td>
<td>0.79</td>
<td></td>
</tr>
<tr>
<td>IV Unregulated Emotions</td>
<td>2.49ns</td>
<td>A - ADHD 3.33</td>
<td>0.99</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>A - NC   3.10</td>
<td>0.85</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>A - LD   2.96</td>
<td>0.73</td>
<td></td>
</tr>
<tr>
<td>V Anxiety</td>
<td>9.44***</td>
<td>A - ADHD 3.16</td>
<td>0.72</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B - LD   2.47</td>
<td>0.78</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>B - NC   2.36</td>
<td>0.70</td>
<td></td>
</tr>
</tbody>
</table>

Comparison group n = 63, ADHD group n = 20, LD group n = 19

*Student Newman Keuls
Note: Letters that differ indicate significant differences between groups
  *p < .05, **p < .01, ***p < .001, ****p < .0001

That is, girls were able to assess the quality of their own impulsive/hyperactive behavior. In contrast, parents rated impulsive/hyperactive and inappropriate behavior as one construct. Girls may better assess the specific nature and function of their own active behavior than do their parents. In line with these conclusions, low self-concepts in girls with ADHD was not associated with high levels of impulsivity and hyperactivity on their self-ratings. In contrast, boys with ADHD self-reported more impulsivity and hyperactivity associated with lower self-concept (Slomkowski, Klein, & Mannuzza, 1995). From these findings we concluded that because girls could differentiate between their appropriate and inappropriate hyperactivity and impulsivity (using the supplemental assessment), their negative self-judgments were only associated with their inappropriate activities (i.e., when they swore, broke rules, and stirred up trouble) and not with global assessments of hyperactivity/impulsivity as has been observed with boys.

Our conclusions about the emotional characteristics of girls with ADHD in this school-based sample did not support prior work with clinical samples, which has indicated that girls with ADHD are at risk for anxiety and mood disorders (Gaub & Carlson, 1997; Rucklidge & Tannock, 2001). For example, the second emotional factor, Anxiety, did not characterize this sample as different from comparisons,
which is consistent with other research using school-based samples and a comparison group (Hinshaw, 2002).

There were supplementary items that were included to identify possible protective behavior for girls with ADHD that could preclude their identification. Prior work (Mikami & Hinshaw, 2006) had documented that those girls with ADHD, who were more confident about their academic abilities, showed reductions in internalizing and externalizing symptoms over time, lower levels of substance use in adolescence, and further gains in academic achievement. To extend this line of research, we found a pro-social factor on both parent and student ratings (active involvement with friends, organizations, and activities in educational settings) that was equivalently exhibited by girls with and without ADHD [Only Hispanic parents rated their daughters as engaging in less pro-social activity than the other parent groups]. This pro-social factor was related to higher self-esteem for girls with ADHD. Overall, we presented evidence to suggest that girls with ADHD may be more tractable than boys; that is, girls with ADHD (a) were already aware at this age that they were more likely to react with strong feelings than other groups of girls, and (b) could make a distinction between inappropriate behavior (e.g., swearing) and self-regulatory activity, such as doodling.

**Educational/Clinical Implications**

Overall, the identification implications of this study are related to the importance of recognizing ADHD characteristic behavior and performance in girls, so that earlier treatment of these girls can be studied and improved. The current study focused on school-based samples of girls who could be identified prior to clinical labeling and adverse functional outcomes. We documented high levels of hyperactivity/impulsivity similar to traditional rating scales but with greater specificity (i.e., faster talking and moving, leading perhaps to lower quality performance of gross motor clumsiness and fine motor handwriting). The importance of the social context was clearly in evidence. That is, verbal impulsivity within the social context was the single most defining characteristic of girls with ADHD, in contrast to the motor activity of boys. Parents and girls agreed on this defining characteristic. Rater differences were documented on the appropriateness of motor behavior, which only the girls self-assessed with greater specificity (e.g., self-regulatory busy activity versus inappropriate stirring-up-trouble activity). Thus, both parents and girls assessed impulsive behavior in relation to the social context.

Related to the early identification of these girls by teachers, it was expected that girls in this age group would inhibit behavior in school and go relatively unnoticed by their teachers. We found, however, that teachers identified six percent of the total sample as having severe problems at the 10th percentile in hyperactivity on the ACTeRs scale. Of those girls identified as hyperactive by their teachers, less than a third had been diagnosed as having ADHD. We also documented that girls with ADHD (without LD) scored significantly lower than Comparison girls in both math and reading achievement, even though their IQ scores were equivalent (i.e., academic impairment). Since girls with ADHD are twice as likely as boys with ADHD to have low achievement (Caseau, Luckasson, & Kroth, 1994), early recognition of poor achievement relative to IQ scores may be another important marker within school-based samples and another important intervention target (Mikami & Hinshaw, 2006).

In summary, teachers can identify girls with ADHD but fail to refer them, perhaps not recognizing the importance of early referral or due to the tractability of girls in school settings. This study highlights the importance of future research examining why girls in school-based samples of children are not referred for services, in spite of clear documentation of poor long-term outcomes for girls with ADHD (e.g., Mikami & Hinshaw, 2006). Some of the implications for intervention derived from the present study are related to their pro-social behavior, which was equivalent to that of their peers. Because this behavior was within the normal range, reinforcing their active involvement in school activities and sports may be relatively easy to accomplish and could be associated with gains in self-esteem (as was documented in this study). Overall, we concluded that engaging young girls with ADHD in social activities and sports may reduce their likelihood of formal identification and help them develop peer relationships that could protect them from developing additional dysfunction. Recent research by Booth, Farrell, and Varano (2008) also reported that for girls, the risk of engaging in delinquent behavior was significantly reduced if they took part in sports, and Owens et al. (2009) reported that although most girls with ADHD failed to meet criteria for positive adjustment across five of six domains, nearly all (94%) demonstrated positive adjustment in at least one domain. Focusing on positive behavior may be an important balance to implementing interventions on the social inappropriateness of some of their behavior and their over-emotionality. That is, girls were aware of...
their intense social and emotional style, and for this reason, they may respond to services to help them understand and regulate their faster pace and inappropriate activity.

References
Kitzinger, J. (2008). The methodology of Focus Groups: the importance of interaction between research participants. Sociology of Health and Illness, 16 (1), 103 – 121.


South Carolina State Board Of Education, Regulation 43-243.1, Criteria for entry into programs of special education for students with disabilities.


PEER RELATIONSHIP PROBLEMS OF CHILDREN WITH AD/HD: CONTRIBUTING FACTORS AND IMPLICATIONS FOR PRACTICE

Selda Ozdemir
Gazi University, Turkey

Research has consistently documented that children with attention deficit/hyperactivity disorder (AD/HD) have significant problems in peer relationships and are strongly rejected by their typically developing peers. There is a growing recognition that traditional interventions, such as social skills trainings are no longer sufficient to address the staggering social needs of children with AD/HD. This paper introduces new directions in interventions for children with AD/HD and advocates that multi-component interventions can be highly beneficial to ameliorate the social problems of children with the disorder. Studies examining the peer relations in children with AD/HD are reviewed and available interventions are explored. In addition, problems with the application of various interventions are discussed and suggested practices are presented.

Attention Deficit/Hyperactivity Disorder is the most commonly diagnosed childhood disorder, affecting an estimated three to five percent of the kindergarten and school age children in the U.S. (American Psychiatric Association, 1994). This prevalence estimate means that almost one in every twenty children, or at least one child per classroom, is likely to be identified as having AD/HD (Mc Goey, Eckert, & DuPaul, 2002). Some AD/HD symptoms include being easily distracted by outside stimuli, failing to listen to directions, making comments out of turn, initiating conversations at inappropriate times, having difficulty organizing tasks, excessive talking, feelings of restlessness, and failing to finish school work (Barkley, 2006; DuPaul & Stoner, 1994; Rowland, Umbach, Stallone, Naftel, Bohlig, & Sandier, 2002). Secondary features associated with the disorder are also often quite problematic; such difficulties involve aggression, poor peer relations, academic underachievement, learning problems, and low self-esteem and depressive symptoms (Barkley, 2006; Hinshaw, 1994; Treuting & Hinshaw, 2001).

Extensive research has shown that children with AD/HD have seriously disturbed social relations. More specifically, children with the disorder are less popular among their peers, and are more often rejected by their peers (Gaub & Carlson, 1997; Hodgens, Cole, & Boldizar, 2000; Landau & Moore, 1991). Problems caused by inattention and impulse control effect negatively the social performance of children with this disorder in a number of areas (DuPaul & Stoner, 2003). First, they may enter ongoing peer activities in a sudden, disruptive manner. Second, their communication style often differs than their typically developing counterparts. Children with AD/HD have difficulty in following the implicit rules of good conversation. They are likely to interrupt others, pay minimal attention to what others are saying, and respond in an irrelevant fashion to the queries or statements of peers. Third, these children frequently approach interpersonal problems in an aggressive manner, lose their temper, and become angry quite easily. Therefore, arguments and fights with peers are common (DuPaul & Stoner, 2003). In addition, the interpersonal behaviors of children with AD/HD are often described as more impulsive, intrusive, excessive, disorganized, engaging, aggressive, intense, and emotional (Barkley, 2006; Mikami & Hinshaw, 2003; Stroes, Alberts, & Van der Meere, 2003). Thus they are disruptive of the smoothness of the ongoing stream of social interactions, reciprocity, and cooperation, which is an increasingly essential part of the children’s social lives with others (Barkley, 2006). Furthermore, children with AD/HD appear to perceive social and emotional cues from others in a more limited and inaccurate fashion, as if they were not paying as much attention to emotional information provided by others. However, research also shows that these children do not differ in terms of their capacity to understand the emotional expressions of other children (Casey, 1996). It is not surprising then, that children with AD/HD are rejected at higher rates than are their non-AD/HD peers (Hinshaw &
Emotion Regulation Problems

The social behaviors of children with AD/HD are suggestive of underlying difficulties with emotion regulation (Maedgen & Carlson, 2000; Melnick & Hinshaw, 2000; Southam-Gerow & Kendall, 2002). Children with AD/HD frequently exhibit increased emotionality, displaying greater degrees of explosive, unpredictable, and oppositional behavior. Over reactions to minor inconveniences are common, and such children may seem overly aroused when in stimulating situations (Guevremont & Dumas, 1994). According to Barkley (1997a), most children with AD/HD (except for those with purely inattentive symptoms) have a disinhibitory deficit, which causes secondary impairments in domains of self-regulation such as emotion. Barkley (1997a) emphasized that children with the disorder display greater proponent emotional reactivity to charged events and less capacity to regulate emotion/arousal states in the service of goal-directed behavior. However, research has also revealed that only high aggressive children with AD/HD have poorer emotional regulation skills than low aggressive children with AD/HD (Hinshaw & Melnick, 1995). Melnick and Hinshaw (2000) demonstrated that a high-aggressive subgroup of AD/HD boys showed a significantly less constructive pattern of emotional coping than did both a low-aggressive AD/HD subgroup of boys and nondiagnosed comparison boys, who did not differ. In another study, Maedgen and Carlson, (2000) compared children with AD/HD combined type, children with AD/HD predominantly inattentive type (AD/HD-I), and controls on parent and teacher ratings of social status and performance, self-report of social knowledge and performance, and observations of behavior on an emotional regulation task. Their analyses indicated that children with AD/HD-C were rated as showing more aggressive behavior; furthermore, they displayed emotional dysregulation characterized by high intensity and high levels of both positive and negative behavior. In contrast, children with AD/HD-I were perceived as displaying social passivity and showed deficits in social knowledge on the self-report measure but did not evidence problems in emotional regulation.

Deficits in emotion regulation signify one of the primary areas of impairment in AD/HD, which eventually result in various problems in peer relationships (Barkley, 1997a). In fact, research suggests that children with AD/HD often display unpredictable, explosive behaviors and fail to regulate their emotions effectively (Mercugliano, Power, & Blum, 1999). Children with the disorder have also been described as overly exuberant (Whalen & Henker, 1985), emotionally labile and inflexible to the situational demands (Landau & Milich, 1988), and intense and hyperactive (Barkley, 1997a). Likewise, peers tend to view these children as more aggressive, inflexible, intrusive, disruptive, and annoying (Taylor, 1994).

Overall, limited research in the area of emotion regulation in children with AD/HD has provided preliminary evidence that emotion regulation abilities are modestly related to underlying problems with impulse control and hyperactivity, and also represent a different domain of skills that add incremental information to the prediction of social functioning in children with AD/HD (Melnick & Hinshaw, 2000). Developmentally inappropriate inattention and /or hyperactivity and impulsivity, posited to be central to AD/HD, appear to overwhelm a child’s capacity to self-regulate at each developmental level, thereby interfering with the development of age appropriate emotion regulation.
Social Skills Deficit versus Social Performance Deficit

Social skills deficits reflect knowledge deficits in the social domain. In other words, children who have social skills deficits do not know appropriate social behaviors to make friends, respond to social situations, or read social cues (Landau, Milich, & Diener, 1998; Maedgen & Carlson, 2000). Research has shown that inattention in children may function to delay the acquisition of skills and reasoning related to social competence. Thus, children with inattention may compensate for their poorer social skills or social understanding by engaging in more solitary or parallel play. Accordingly, by engaging in fewer interactions with peer, children with AD/HD may restrict their opportunities for social learning and for positive social interactions. As children enter school, peer interactions become more complex and involve more cooperative and competitive interaction and less solitary or parallel play (Hartup, 1983). In this context, less skilled children easily may be overlooked, resulting in social isolation and higher levels of social problems.

In addition, Wheeler and Carlson (1994) indicated that children with AD/HD-Inattentive type might have deficits in both social performance and knowledge, whereas children with AD/HD-Combined type have performance deficits. They further argued that these deficiencies might be differentially mediated by symptoms typically co-occurring with each subtype. Thus, impulsivity and hyperactivity may prevent a child with AD/HD-C from using social knowledge appropriately, whereas the anxiety and disorganization that characterize children with AD/HD-I may limit social interactions and thereby restrict acquisition of adequate social knowledge (Wheeler & Carlson, 1994). If such a pattern is the nature of children with AD/HD-I, they may be too fearful to experience social interactions and therefore have fewer opportunities to learn appropriate social behaviors than children with AD/HD-C.

Children who have performance deficits in the social domain also have difficulty in consistently and efficiently implementing their social skills in response to daily social challenges (Maedgen & Carlson, 2000). In fact, children with AD/HD engage in higher rates of unmodulated behaviors that are often inappropriate in the given context and insensitive to social expectations (e.g., yelling, running around, or talking at inappropriate times) both as verbal (teasing, commanding) and physical (hitting) (Barkley, 2006).

Social performance deficit in children with AD/HD-C is based on research findings showing that children with AD/HD interact with other people as much as their peers. Thus, they have enough opportunity to learn about proper social behaviors (Wheeler & Carlson, 1994). Since these children engage in prosocial behaviors such as social initiation, which supports the fact that they do have appropriate social knowledge. Moreover, according to DuPaul and Stoner (2003) children with AD/HD-C are able to state the rules for appropriate social behavior as well as their typically developing peers. However, what makes them have problems in social situations is that they often do not act in accord with these rules. This performance deficit is consistent with the hypotheses that children with AD/HD-C are impaired in delaying responses to the environment. Thus, in many social situations, they behave before they have a chance to think about the consequences of their behaviors.

Additionally, extant research has emphasized that impulsivity and hyperactivity can be the reasons that obstruct a child with AD/HD-C from displaying social knowledge properly (Maedgen & Carlson, 2000). In particular, impulsivity may effect the social interactions of children with AD/HD negatively by causing them to act without thinking and to have a difficult time waiting their turn in games. Consequently, this behavioral style is expected to meet with dislike and subsequent peer rejection (Wheeler & Carlson, 1994).

Aggression

Aggression has been a popular topic of study in children with AD/HD (Melnick & Hinshaw, 1996). Researchers have shown that children with AD/HD display social behavior that is described as disruptive, controlling, trouble making, and frequently aggressive (Melnick & Hinshaw, 1996; Reid, 1993). The primary features of AD/HD combined with aggression often interfere negatively with a child’s ability to interact effectively with peers, family members, and others. They demand a great deal of attention from others, with their behaviors often being more intense or forceful than the situation requires (Sheridan, 1998).

Researchers have found that at least one-half of all children with AD/HD are known to have comorbid problems with aggressive conduct (Hinshaw, 1987; Hodgens et al., 2000; Maedgen and Carlson, 2000). These children are more likely to propose aggressive solutions to a problem situation and are less able...
Aggression seems to be differentially linked to many factors including the type of attentional disorder (Stromberg, 2001). The negative social outcome of aggression is associated with children with AD/HD who have both hyperactivity-impulsivity and attention problems (combined type) but not with children with AD/HD-I without excessive hyperactivity and impulsivity (Maedgen & Carlson, 2000). In particular, boys diagnosed with AD/HD-C have consistently been found to be more aggressive than boys with AD/HD-I (Lahey, Schaughency, Strauss, & Frame, 1984; Lahey, Schaughency, Hynd, Carlson, & Nieves, 1987). In addition, children with AD/HD overestimated their social skills when compared to same-age peers (Diener & Milich, 1997). Hoza et al., (1993) found that children with AD/HD view themselves just as competent as comparison children in the social domain. Consistent with this result, current research has documented that following a failed dyadic social interaction children with AD/HD rated their social interaction more positively than their non-AD/HD peers (Hoza, Waschbusch, Pelham, Molina, & Milich, 2000). Such findings show that children with AD/HD may not perceive clearly the effects of their social behaviors on their relationships with peers and overestimate their social skills.

Psychosocial Interventions

Interventions for children with AD/HD and disruptive behaviors often include parent management training and behavioral intervention along with social skills training. Various training programs exist but all strive to promote more positive, compliant, and generally prosocial behavior while decreasing negative, defiant, and disruptive behavior in children (Shelton et al., 2000). These programs generally focus on peer relations, classroom conduct, and school achievement (Arnold et al., 1997; Bierman, Miller, & Stabb, 1987). One of the most widely used psychosocial interventions that directly targets peer relationships is social skills training (SST). Social skills training was developed for the purpose of enhancing the peer relationships of rejected and neglected children. It is based on the social skills deficit model, which posits that a child’s lack of social skills results in less positive peer interactions and lower social status. Although short-term effects of SST are positive, long-term outcomes reveal discouraging results on social, vocational, and academic measures (Carlson & Bunner, 1993; Charles & Schain, 1981). Apparently, the nature of AD/HD requires certain changes in both the content and the form of the interventions (Mrug, Hoza, & Gerdes, 2001). In particular, research showed that children with AD/HD-C display performance deficit rather than a skill deficit. In other words, children with AD/HD are able to express the socially appropriate rules and behaviors, but they often do not act accord with these rules (DuPaul & Stoner, 2003). Social performance deficits are more complicated to ameliorate than social skills deficits for two reasons. First, existing social relationship interventions focus on deficits in skills rather than deficits in performance. Furthermore, social performance problems exist across settings (e.g., classroom, playground, neighborhood), interventions addressing these difficulties must be carried out by various individuals in a cross-situational fashion (DuPaul & Stoner, 2003).

The other main problem is that most SST programs are designed for children who are apparently rejected without considering the unique topography of each child's performance in the social domain. In other words, pretreatment assessment data may not have been gathered to clarify the specific needs of each treated child, thus leading to a poor fit between presenting problems and SST objectives (Landau, & Milich, 1998). Obviously, children with AD/HD-I who are withdrawn and isolated are different than children with AD/HD-C who display hyperactive and impulsive symptoms (Wheeler & Carlson, 1994). Thus, a social skills deficit approach may be applied to the children with AD/HD-I whereas performance deficit approach may work with children with AD/HD-C.

Another important area to review is related to the structure of social skills interventions. Social knowledge and the acquisition of prosocial behaviors are thought and practiced generally in group therapy formats. However, research indicates that traditional group therapy format do not lead to stable changes in social relationships of children with AD/HD in real-world environments (DuPaul & Stoner,
2003). The lack of maintenance and generalization of social skills training become a major problem because of the fact that appropriate social behaviors are not essentially prompted by adults and peers on a consistent basis (DuPaul & Stoner, 2003). Thus, the generalization of the newly acquired skills to other contexts requires their reinforcement across different settings in the child’s natural environment for an enough period of time (Mrug, Hoza, & Gerdes, 2001). Essential components of environmental programming may involve teaching parents and teachers to reinforce children to perform the behaviors trained in the social skills sessions and developing contingency management programs at home and at school to prompt trained skills (DuPaul & Eckert, 1994). Therefore, it is critical to accomplish the inclusion of teachers and parents as crucial members of the *social skills treatment team* for generalization.

A considerable problem is that once the child is rejected, peers cognitive processing of the child behavior becomes biased. In other words, the peers may develop a negative stereotypical perspective of the child, and as a result of their view, the peers may selectively perceive and respond to the stereotype-consistent behaviors (Mrug, Hoza, & Gerdes, 2001). Thus, social skills interventions not only should work on changing the negative social behaviors of children with AD/HD, but also the interventions should attempt to increase peers awareness of positive changes in children behaviors (Mrug, Hoza, & Gerdes, 2001). In order to do that, peers should be allowed to play active roles in every phases of social skills intervention. Specifically, peers can participate in the social skills training sessions as role models and encourage the enactment of positive social behaviors of children with AD/HD (DuPaul & Stoner, 2003). Indeed, research supports that including diverse peer group rather than using only children with disturbed behaviors increases the success of social skills training (Ang & Hughes, 2002).

Further, individuals within the child's natural environment such as parents typically have not been involved in training. Thus providing parents with necessary knowledge and training not only increases the continuity of the program but also, the intensity. Indeed, parents are generally with their children more than are teachers; this puts parents in the top position to create difficult behavior environments, or, more constructively, to provide long-term interventions. Parents who are educated in the description, causes, prognosis, and treatment of AD/HD are better able to facilitate behavioral change in their children (DuPaul, Guevremont, & Barkley, 1991). Likewise, interventions can be more effective especially with respect to generalization of improved behavior across settings, when parental involvement is combined with social skills training programs.

In addition, family characteristics and secondary symptoms with regard to family functioning, such as aggressive behavior, have been shown to be among the most significant predictors of long-term negative outcome for children with AD/HD (Weiss & Hechtman, 1986). Positive future outcome for all children has been associated with stable family environments, consistent discipline, positive parental expectations for their future, positive parents-child relationships, perceptions of competence perceived by parents, and low rates of parental criticism. Behavioral treatment that teaches parents to modify their reactions to the child’s primary symptoms, should directly alter parental negative responses, and also train parents to increase their positive responses to children (Wells et al., 2000). However, the use of their relationship as a positive corrective experience in changing the relationship patterns of the child requires insight and support over time. Family members should learn skills to apply behavioral interventions in a supportive environment and gain knowledge to identify indicators of emerging negative manifestations that will need assessment and intervention modifications (Barkley, 2006). Observing the child/parent interaction and then coaching parents in providing corrective behavioral interventions can be used via home visits while utilizing an empathic approach to the child and parents.

Finally inclusion of parents in the SST program establishes consistency between the school and home environments. There must be a continuity of behavioral expectations between home and school. Discussing behavioral strategies, rewards, and limits with parents to ensure continuity of approach to dealing with challenging behaviors between home and school is crucial. In that way, parents can encourage the same skills and performance at home and in different peer groups. Indeed many children with AD/HD appear to need very strong and intense levels of reinforcement to produce appropriate behavior in certain settings (Barkley, 1997b; Landau & Moore, 1991). Parents must learn to identify the specific behaviors they want to substitute and then by giving rewards for the new more appropriate behavior, teach the child how to control his actions and reactions. This is particularly important for children who have difficulty with anger management. An anger management program focused on adaptive ways of managing anger in children with AD/HD and a behavioral skills training program
focused on both social skills and motivation can be used to help children with AD/HD experience more positive social outcomes.

Another most widely used form of psychosocial interventions for young children is parent management training. Parent management training aims to alter parental disciplinary practices, including reducing the frequency of coercive exchanges between parents and children. In addition, parents are encouraged to consistently monitor their children to prevent antisocial behavior (e.g., physical aggression) and to prevent accidental injuries associated with impulsive behavior (DuPaul & Stoner, 2003). Despite the success of training programs for parents of children with AD/HD, improvements in child behavior within the family do not significantly transfer to school or to other environments (Anastopoulos, Barkley, & Shelton, 1996). Anastopoulos and colleagues (1996) posit such programs work because they lower parental stress by teaching them to regard disruptive behaviors as less severe than previously thought. The teaching of skills to ignore minor missteps is a common element in parental training programs (Barkley, 1997b). Furthermore, parent training only treats one of the many environments of which a child is a part. In fact, research indicates that the key to change is connecting conduct at home with conduct at school while creating a system of communication between the two (Goldstein & Goldstein, 1998). Results of such psychosocial interventions, at least in the short term, have been promising, but evaluations of the longer-term effects of these programs are quite limited at the moment (Shelton et al., 2000). Conversely, prospective studies of children with AD/HD provide the best opportunity to understand more thoroughly the adult outcomes of AD/HD. Due to the heavy burden of suffering of AD/HD and the short-term effectiveness of the interventions, there is a compelling argument in favor of an increased emphasis on primary prevention efforts. However, until recently, minimal research has been conducted to aid practitioners in identifying and supporting young children at risk for this disorder.

Among the few empirically supported early intervention programs for at-risk children for antisocial behaviors, the First Step to Success (FSS) has been shown to be effective in decreasing the number of psychosocial risk factors associated with antisocial behavior and in increasing the overall well-being and adjustment of kindergartners at risk (Kashani, Jones, Bumby, & Thomas, 1999). The FSS was designed to achieve secondary prevention goals with its three main components: kindergarten-wide screening process, the classroom-based CLASS curriculum, and HomeBase, which recruits parents as partners with the school in teaching the at-risk child a behavior pattern contributing to school success and the development of friendships (Walker, Kavanagh, Stiller, Golly, Severson, & Feil, 1998).

In a recent review study, Leff, Power, Manz, Costigan, and Nабors (2001) has critically reviewed literature in an effort to identify best practices in aggression prevention programming. Thirty-four programs were evaluated on the following standards (a) an experimental group design including the use of random assignment procedures; (b) a well-documented treatment procedure; (c) uniform therapist training and treatment integrity monitoring procedures; (d) multimethod outcome measures demonstrating adequate reliability and validity; (e) assessment of effects at follow-up (at least six-month follow-up); and (f) replication conducted by different investigators. The results of this study showed that the First Step to Success program provided strong empirical support for the maintenance of certain treatment gains several years following treatment and information documenting that their intervention was viewed as important, acceptable, and feasible, though costly and somewhat intensive.

Recent investigations have showed that the FSS intervention produced extremely robust effect sizes in the following areas as indicated by teacher ratings and direct observations: adaptive behavior, aggressive behavior, maladaptive behavior, and average percentage of academic engaged time in teacher-assigned tasks (Walker et al., 1998). For example, Ozdemir (2006) evaluated the efficacy of the First Step to Success Early Intervention program on Turkish children identified with AD/HD. Findings from the study revealed that all participant children displayed increased levels of academic engagement behavior with the introduction of the program and at three months follow-up. Study results also showed that all participant parents and three teachers reported substantial decreases on participant children’s social emotional problems, and problem behaviors. The results of this study indicate compelling evidence that implementing a multicomponent early intervention program, the First Step to Success, can yield important benefits for children with AD/HD.

Conclusion

Many articles have been written about the AD/HD treatment options for children over the past several decades. Currently, most professionals argue that children with AD/HD should be treated with a
combination of interventions that typically involves stimulant medication along with behavior management in the home and at school (Barkley, 2006; Hinshaw, 1994). However, some professionals are hesitant to medicate young children with AD/HD and instead often suggest behavior management and parent training. Furthermore, although medications have been effective in reducing aggressive problems (Hinshaw, Henker, Whalen, Erhardt, & Dunnington, 1989), it does not increase positive behavior nor does it normalize the peer status of AD/HD children (Landau & Moore, 1991). Thus, despite the popularity of pharmacotherapy, a psychosocial intervention is necessary to enhance children with AD/HD’s social functioning with peers and adults (Whalen & Henker, 1991).

Several programs have already initiated to intervene early in the lives of children having disruptive behavior patterns or having other factors that place them at risk for developing later antisocial behavior. These interventions have typically focused on either parent or classroom interventions or a combination of these programs (Shelton et al., 2000). Although short-term effects of such interventions are positive, long-term outcomes reveal discouraging results on social, vocational, and academic measures (Carlson & Bunner, 1993; Charles & Schain, 1981). Apparently, the nature of AD/HD requires certain changes in both the content and the form of the interventions (Mrug, Hoza, & Gerdes, 2001). The First Step to Success program is a successful early intervention program, which involves careful and sensitive consideration of the individual characteristics of children, the intensity of behaviors, specific strengths and weaknesses, social and emotional needs, environmental and family factors. Furthermore, program’s many critical components such as CLASS curriculum and Home Base, parent-training module, address the unique needs of children with AD/HD. However, when the program used with children with AD/HD, incorporating a teacher training module on the nature of the disorder and behavioral and instructional methods to address the specific needs of children with AD/HD would be an important adaptation for the First Step to Success program to achieve the expected behavioral changes while working with children with AD/HD. Indeed, research showed that teachers with more training and experience in the area of AD/HD expressed more confidence in modifying the behavior of children with the disorder (Reid, Vasa, Maag, & Wright, 1994).

A review of the literature indicates a large research base on the negative effects of AD/HD on children’s social relationships and emotional well being (Hinshaw & Melnick, 1995; Hoza, Pelham, Dobbs, Owens, & Pillow 2002; Hoza et al., 2005). Therefore, helping children with AD/HD with well-designed interventions is crucially important. The First Step to Success program is a successful early intervention program, which involves careful and sensitive consideration of the individual characteristics of children, the intensity of behaviors, specific strengths and weaknesses, social and emotional needs, environmental and family factors. However, incorporating an AD/HD training module designed specifically for teachers and parents would strengthen the program outcomes and in turn, increase the effectiveness of the program with children with AD/HD.

References


EFFECTIVENESS OF THE TOUCH MATH TECHNIQUE IN TEACHING ADDITION SKILLS TO STUDENTS WITH INTELLECTUAL DISABILITIES

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The aim of this study was to investigate the effectiveness, generalizability, and the permanency of the instruction with the touch math technique. Direct instruction was used to the instruction of the basic summation skills of the students with mild intellectual disabilities. A multiple probe design across the subjects was used in this study. The participants included three students with mild intellectual disabilities in inclusive classrooms. They were second grader and their ages were 7-8 years old. The results of the study show that the use of touch math technique, based on direct instruction approach is effective in teaching the basic summation skills to the students with mild intellectual disabilities. The social validity results demonstrated that all the teachers have positive views towards the touch math technique and express that they would use this technique in their classes.

Mathematics is developmental in nature and should be taught through sequential cases. Although the sequences are previously determined, the students’ development is individualistic. Adaptations in accordance with the students’ needs are required in education so as to ensure effective teaching. These adaptations include course planning, differentiation of teaching methods, arrangement of content, and arrangement of evaluation (Spencer, 1998; Wood, 1992).

In general education classrooms, adaptations and arrangements are required in teaching mathematics not only for the students with special needs but for all the students. Lock (1996) stated that minor changes made by mathematics teachers in the presentation of mathematical concepts would not only increase the number of correct answers given by the students, but also help them to understand the process more clearly.

When teachers express the goals explicitly, provide instructions, and make simple adaptations, the students’ success and interest increase. Furthermore, goals reflect the learning expectations, which have a close effect on the students’ success. In their studies on successful teaching, Porter and Brophy (1988) stated that successful teachers clearly express their expectations as well as the course objectives. While introducing the objectives, successful teachers also explain in detail what the student has to do to be successful, and what he/she will learn through the study (Christenson, Ysseldyke, & Thurlow, 1989).

Although there are only a few researches on how students with special needs learn addition, there are several researches in the field concerning how students without disabilities gain addition skills (Groen & Parkman, 1972; Hughes, 1986). Perhaps, the most outstanding study has been the one by Carpenter and Moser (1984), who examined the different strategies that students use when performing addition problems at different stages of learning. They identified three strategies that students without disabilities employ for solving addition problems. The first one of these strategies is the use of a count-all strategy that consists of counting, with the use of fingers or other objects, each addend in an addition problem starting at 1, until all the numbers have been counted. For example, when solving the problem 4 + 5, the student begins by holding up four fingers on the one hand while counting to 4, and then holding up five fingers on the other hand while counting to 5, and finally, the student counts all the fingers that are held up to find the solution, 9. The count-all strategy is limited, in that the student can only easily add to 10 using his/her fingers and will experience considerable difficulty when adding
numbers greater than 10. However, the count-all strategy is used by most learners at the early stages of learning.

Once the count-all strategy is learnt, students generally need to move to another strategy for solving addition problems. This strategy, called the count-on strategy, involves saying the first addend of the addition problem and then counting on from that number (Carpenter & Moser, 1984; Secada, Fuson, & Hall, 1983). For example, a student would solve the problem 4 + 5 by saying the first number, in this case 4, and then counting on from 4. Through this strategy, students eventually learn to begin the count with the largest addend, thus saving time.

The final stage of addition learning identified by Carpenter and Moser (1984) involves storing and later retrieving the addition facts from the long-term memory. With repeated practice and reinforcement, students memorize the basic addition facts and retrieve them from memory when needed. For example, in time, students memorize the addition problem 4 + 5 = 9. In addition to the research mentioned earlier, there are some researches in the literature on how students with intellectual disabilities learn to make additions. In a research on addition skills by Hanrahan, Rapagna, and Poth (1993), a group of students with intellectual disabilities was found to use the same three strategies as their non-disabled counterparts when learning to solve addition problems.

The use of count-all and count-on strategies may not be preferred by many students. Especially students with special needs may be embarrassed to count their fingers when they see their peers without disabilities making additions rapidly and using their memory. That is why many students with special needs may not prefer using finger-counting strategies that can be detected either by their classmates or teachers, thus revealing their incompetency. One way to overcome these drawbacks is by using a dot-notation method, whereby dots are associated with each number from 1 to 9 according to a specified pattern. By using such a technique, the students count the dots on the numbers rather than fingers or blocks and, in time, learn to count the positions of the dots, and the dots are subsequently removed from the numbers.

Dot notation method (touch math) involves visual, auditory, and tactile learning. The students mark the touch dots (dots on the numbers and dots in circles) while looking at the number (visual) and counting the number (auditory) with their pencils (tactile). The students are taught to count the touch dots on each number so as to help them in addition, subtraction, multiplication, and division. While the students count forward in addition, they count backward in subtraction. For multiplication and division, they align the sums (Bullock, Pierce, and McClelland, 1989). Touch Math is a multisensory method for teaching addition by breaking down the task of adding into small, logical steps without requiring the storage of arithmetic facts in memory. Furthermore, it is a silent method helping students with special needs in a classroom to solve addition problems without using methods such as finger counting that can be easily seen by other students; thus, preventing them from being labeled by their peers (Scott, 1993).

When using the Touch Math technique, the students begin by learning the positions of the dots on each number from 1 to 9 according to the specified pattern. Once this task has been mastered, the instruction begins with the most basic type of addition problems, single-digit pairs. Students are taught to begin with the first number, count all the dots on that number, and then continue counting the dots on the second number until all the dots have been counted. For example, when adding 4 + 5, the students are taught first to count the dots on the number 4 and then to continue counting the dots on the number 5, until all the nine dots have been touched and counted. Students are also encouraged to repeat the problem and its solution verbally once it has been solved. When students successfully master this task, the dots are removed from the largest number, and they are then taught to add by identifying the largest number, mention it verbally, and continue to count-on from that number to find the solution. Once the students learn this step, all dots are removed and they are taught to continue to count-on from the largest number and then count the dots removed from all the other numbers.

When the touch dots are removed from the papers, the students still can touch the dots with their pencils using their memories. While reading the mathematical problems, the students are encouraged to read both the problem and the solution verbally so as to facilitate their memorization.
The Touch Math technique appears to teach addition according to the same strategies that students naturally develop to solve addition problems. The system offers a method for teaching addition that involves count-all and count-on strategies, but does not require the retrieval of stored facts from memory, an area of difficulty for many students with intellectual disabilities. Students are encouraged to repeat their answers to problems aloud when using the Touch Math technique; it is expected that addition facts will gradually be stored in a student’s long-term memory. A study conducted by Marsh and Coke in 1996 proved that the repetition of visual materials aided retrieval from the memory. The Touch Math technique also has the advantage of being a multisensory method, as it involves the use of auditory, visual, and tactile information. The use of multisensory approaches in teaching the basic concepts of mathematics has been supported by many researchers (Scott, 1993; Thornton, Jones, and Toohy, 1983). Furthermore, the technique assumes less prior knowledge of arithmetic on behalf of the learner. This knowledge involves remembering and counting numbers from 1 to 20, and to count-on from the largest number when adding and to count-down when subtracting.

Pupo (1994) investigated the utility of this technique with three students with intellectual disabilities. Before the research, the students were unable to solve addition problems correctly; however, after the teaching of Touch Math, they managed to solve addition problems correctly. Similarly, in a study by Newman (1994), a group of students with Down’s syndrome successfully learnt and applied the Touch Math technique to solve the single-digit addition problems.

Looking at the literature in the light of this conclusion, Touch Math technique has a clear impact on teaching addition skills to students. Nonetheless, direct studies in the framework of remedial education services using single subject patterns concerning addition skills of students with special needs in general education classrooms appear to be limited. Therefore, the aim of this study is to investigate the effectiveness, generalizability, and the permanency of the instruction with the touch math technique. In this research following questions is answered: a) Is the Touch Math technique effective in teaching basic addition skills to students with mild intellectual disabilities attending second grade?, b) Can the students with mild intellectual disabilities, attending second grade, generalize the skills they have learnt to the classroom environment and to addition problems consisting of the combinations of the same numbers when they learn addition skills through teaching provided in accordance with the Touch Math technique?, c) Can the students with mild intellectual disabilities in second grade sustain the skills they have learnt after 10 or 20 working days, when they learn addition skills through teaching provided in accordance with the Touch Math technique?, d) What are the opinions of primary school teachers who have been working in primary schools in Turkey for at least 5 years, concerning the teaching provided in accordance with the Touch Math technique to the students with intellectual disabilities (social validity)?

Method
Participants
The research was conducted in a Primary School located in Ankara, Turkey. Two girls and one boy are attending this study. Prior of the study, parents of targeted students were informed about the research and signed an agreement on the terms and conditions of the study. Seven pre-requisites were considered and met in the selection of the participants. To determine the participants’ levels of the pre-requisites, checklists developed by the researchers were used and in addition to that, the teacher provided information concerning the participants’ performance to this pre-requisites skills, such as: (a) following written and oral instructions, (b) counting rhythmically one by one and two by two up to 20, (c) matching and writing numbers between 1 and 20, (d) recognizing the addition sign, (e) counting pictures of objects using count-all strategy and telling the total, (f) count-all from the largest number, and (g) having the skills to count the dots on the numbers prepared in accordance with Touch Math, and draw the dots on the sample without dots.

The first participant, A, was an 8-year-old girl with borderline mental capabilities (IQ score 73- ), second participant, B, was an 8-year-old girl with mild mental disabilities (IQ score 68), and third participant, C, was an 8-year-old boy with borderline mental capabilities (IQ score 75). IQ scores were
obtained from WISC-R. All participants didn’t receive any formal preschool education and they all are second grader, second semester in their school. Based on the information provided by the teachers, all of participants were seen to perform quite lower than the average in the classroom concerning issues, such as maintaining their attention for a long time, carrying out the four mathematical operations and literacy skills, and they had difficulty in comprehending participants in social lessons such as social studies. Thus, all the three students were observed to fulfill the pre-requisites and they were included in the research based on the results of the related evaluation.

Settings and Materials
The research was conducted in a room in the participants’ school. In this room there was a study table and two chairs (one for staff and one for student). A camera system was installed in order to keep reliability and intervention data. Keeping a record for the participants’ performance, some worksheets on a variety of addition operation sets and data collection forms were used in the study.

Design
Multiple probe design across the subjects was used. In multiple probe design across the subjects, the change in the subjects’ performance can be explained as follows: the change only occurs for the subjects to whom the independent variable is applied and no significant change occurs for those to whom independent variable is not applied; and this effect recurs consecutively for all the subjects (Tekin-Iftar and Kircaali-Iftar, 2004).

Dependent and Independent Variable
The dependent variable of this research was basic addition skill in mathematics, and the independent variable was the teaching program delivered in line with Touch Math technique based on direct teaching approach. The possible participant responses considered in the assessment of this skill are; a) correct response: in 10 seconds after directive, answering the question given in the directive independently. b) Incorrect responses: after giving directive related to skill, answering question incorrectly or deficiently. c) No response: the participant doesn’t answer the question. In this condition, after a ten second waiting, staff passes to the next step.

Independent Variable
Pilot study. In order to predetermine the possible problems in the research process and provide the necessary modifications, a pilot study had been conducted with another participant apart from the three participants. The pilot study was applied following procedures of main study. Pilot study was also video-recorded. After the application of pilot study, all the records were watched and necessary modifications were decided (e.g., the duration of the session period and processing) for main study.

Main study. In the main study, the procedures included the baseline sessions, the probe sessions, the training sessions, the maintenance sessions, and the generalization sessions. All the sessions were carried out in the room, Monday through Friday, twice in a day. For the mathematics lessons, the participants were taken individually from their classroom to the room.

Probe sessions (Baseline/Probe Sessions). During this phase, before the teaching application, the basic addition skill baseline data were gathered for each student prior to instruction in order to determine participants’ basic addition skill levels. Probe sessions were held in order to determine the levels of every related skill of all participants after the teaching sessions. These sessions were held immediately after the teaching sessions to calculate the percentages of correctly solved problems without receiving clues like dots, as the participants were continuously presented with dots as clues up to a certain level during teaching with the Touch Math technique. These success criteria in these quiz instruments were determined as 100 % independent correct reactions in at least three successive sessions.

Teaching Sessions by the Touch Math Technique
Teaching sessions were held in accordance with the implementation plan prepared for the teaching of the related skills, in the room designed as the source room at the primary school regularly attended by the participants. During the teaching sessions, the participant and researcher sat face-to-face around a table. In the teaching session with the first participant, the teaching commenced with the use of small numbers with dots and large numbers without dots and during each trial within the first session, the participant was aided through modeling and by guided practice, and was constantly reinforced via verbal reinforcement in line with the reinforcement plan.
After the first session, until the teaching sessions where the dots were removed, the participant was aided through modeling in the event of incorrect reactions, and was verbally reinforced for the correct reactions in line with the reinforcement plan. After the first teaching session, once the participant reached 100% success, the dots on the numbers were removed and teaching continued using numbers without dots.

During the teaching sessions using numbers without dots, the participant was aided through modeling in the event of incorrect reactions, and in the case of correct reactions, the participant was reinforced verbally in line with the flexible rate reinforcement plan. The participant’s attention towards the study, cooperativeness, and participation was verbally reinforced through fixed rate reinforcement plan (e.g., through saying ... you did what I said, you solved the problems etc.).

The participant’s incorrect reactions were corrected. The incorrect reactions were recorded as incorrect and the participant was presented again with the skill instructions and aided through modeling so that the problem could be solved correctly; however, the reaction was recorded as incorrect. Both the correct and incorrect reactions were recorded and collected, and the percentage of correct reactions was calculated. Data collected at the end of the research were analyzed through graphical analysis.

**Maintenance Sessions**

Maintenance sessions were arranged 10 and 20 days after meeting the criteria for the target behavior. In maintenance sessions, the same process was followed as in the probe sessions.

**Generalization Sessions**

To examine the generalizability of the skill taught under the scope of the research to the classroom environment, pre-testing was applied to all the participants in the classroom, one day before the baseline sessions were held, and post-test was applied to all the students as well as the participants one day after the research had been finalized and the final collective probe session had been held. For the purposes of this research, only the percentages of the correct reactions given by the three participants in the post-test were calculated. Thereby, estimations were made concerning whether they could generalize the skills they had learnt to the classroom environment.

**Social Validation**

The social validity aspect of the study was analyzed with a view to determine the significance of the research aims, the teaching practices used to meet these aims, and the research findings. Social validation questionnaires developed by the researcher were used for the collection of social validity data. The related questionnaires were filled in by previously selected five primary school teachers having a minimum experience of 5 years as a primary school teacher. The frequencies and percentages for the data collected through social validity data collection instrument were calculated and the related data were also evaluated qualitatively.

**Reliability**

Two different reliability data were collected: (1) dependent variable reliability, (2) independent variable reliability (treatment integrity). Dependent variable reliability and treatment reliability data were collected in at least 35% of the sessions held throughout the study. In the determined sessions, both dependent variable reliability data and independent variable reliability (treatment integrity) data were collected and analyzed by using inter-coder reliability procedures.

In order to collect and analyze dependent reliability data, two independent observers watched the video recording of the sessions of the students selected randomly and recorded their observations on the data record form. Dependent variable reliability was calculated by dividing the number of agreements by the number of agreements plus the number of disagreements and multiplying by 100 (Tekin-Iftar & Kırcaali-Iftar, 2006). Dependent reliability data for A, B and C indicated 100% agreement for basic addition skills during the baseline, intervention, maintenance, and probe sessions.

In order to collect and analyze independent variable reliability (treatment integrity) data, two independent observers watched the video recordings of the selected sessions of each student and recorded their observations on the record form. Later, independent variable reliability was calculated by dividing the number of observed teacher behaviors by the number of planned teacher behaviors and multiplying by 100 (Tekin-Iftar & Kırcaali-Iftar, 2006). Independent reliability for A, B, and C indicated 99.99% agreements during all the sessions.
Results

Effectiveness on Acquisition and Maintenance

The first subject, A, met the criteria through increasing her basic addition skills success rate from 30% to 100% after 9 teaching sessions were delivered in line with the Touch Math technique based on a direct teaching approach, and sustained her success afterwards, during the probe sessions and maintenance sessions held 10 and 20 days after all the probe sessions had been finalized. Accordingly, the teaching sessions provided in line with the Touch Math technique based on a direct teaching approach may be considered as effective for subject A’s learning and sustainment of basic addition skills (Figure 1).

![Graph showing basic addition skills performance for subjects A, B, and C over Baseline, Intervention, Probe, and Maintenance Sessions.](image)

**Figure 1.** Basic Addition Skills Performance by the first subject A, the second subject B, and the third subject C in Baseline, Intervention, Probe, and Maintenance Sessions

The second subject, B, met the criteria through increasing her basic addition skills success rate from 40% to 100% after 9 teaching sessions were delivered in line with the Touch Math technique based on...
a direct teaching approach, and sustained her success afterwards, during the probe sessions and maintenance sessions held 10 and 20 days after all the probe sessions had been finalized. Accordingly, the teaching sessions provided in line with the Touch Math technique based on a direct teaching approach may be considered as an effective tool for subject B’s learning and sustainment of basic addition skills (Figure 1 above).

The third subject, C, met the criteria through increasing his basic addition skills success rate from 30% to 100% after 8 teaching sessions were delivered in line with the Touch Math technique based on a direct teaching approach and sustained his success afterwards, during the probe sessions and maintenance sessions held 10 and 20 days after all the probe sessions had been finalized. Accordingly, the teaching sessions provided in line with the Touch Math technique based on a direct teaching approach may be considered as an effective tool for subject C’s learning and sustainment of basic addition skills (Figure 1 above).

![Basic addition skills performance levels of the first subject A, the second subject B, and the third subject C in Generalization Sessions.](image_url)
Effectiveness on Generalization

While the first subject, A, had correctly answered 3 out of 10 questions and scored 30% success in the pre-test, after the teaching sessions were held, she scored 100% success in the post-test, by correctly answering 10 out of 10 questions.

While the second subject, B, had correctly answered 4 out of 10 questions and scored 40% success in the pre-test, after the teaching sessions were held, she scored 100% success in the post-test, by correctly answering 10 out of 10 questions.

Lastly, while the third subject, C, had correctly answered 4 out of 10 questions and scored 40% success in the pre-test, after the teaching sessions were held, he scored 100% success in the post-test, by correctly answering 10 out of 10 questions.

Finally, in the light of the data presented earlier and as observed in the post-test results, all the three subjects scored 100% success in the generalization of the skills that they had learnt in an individual environment to the classroom environment and to the addition problems comprising same number combinations (Figure 2 above).

Social Validation

The social validation questionnaire developed for the determination of social validity of this research was distributed to the teachers at the end of the teaching sessions. After analyzing the questionnaires, the teachers’ views concerning this research and its results can be summarized as follows (Table 1):

<table>
<thead>
<tr>
<th>Questions</th>
<th>Yes n</th>
<th>No n</th>
<th>Indecisive n</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Did you use the Touch Math technique during the activities you had with students with special needs who had Intellectual disabilities or are in a risk group?</td>
<td>5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2. Do you think the Touch Maths technique is practical/applicable in teaching mathematics (arithmetic)?</td>
<td>5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3. Would you prefer integrating the Touch Math technique into the content of arithmetic lessons?</td>
<td>5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4. Would you recommend the Touch Math technique to Primary School teachers working with students with special needs who have intellectual disabilities or are in a risk group?</td>
<td>5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5. Do you agree that the skills taught through the Touch Math approach have a higher possibility of generalization?</td>
<td>4</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>6. Do you agree that there is no need for large-scale changes in the classroom for activities based on the Touch Math approach?</td>
<td>5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>7. Do you agree that it is appropriate to use teaching provided in line with the Touch Math technique based on a direct teaching approach in inclusion classrooms?</td>
<td>5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>8. Do you agree that there is a need for research concerning the teaching of basic addition skills to students with special needs who have intellectual disabilities and/or in a risk group?</td>
<td>5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>9. Do you agree that students having participated in this research will have more fruitful mathematics lessons in their classroom environments thanks to the basic additions skills they learnt through this research?</td>
<td>4</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>10. Do you agree that students having participated in this research will increase their grades in mathematics thanks to the basic addition skills they learnt through this research?</td>
<td>4</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Discussion

Based on the findings of the research, the teaching provided in line with the Touch Math technique based on a direct teaching approach is found to be effective in teaching the basic addition skills to the
students with mild intellectual disabilities in general education classrooms. Findings on effectiveness reported in this research are in conformity with the findings of the previous four researches concerning teaching of basic addition skills with the Touch Math technique (Kokaska, 1975; Newman, 1994; Pupo, 1994; Simon and Hanrahan, 2004).

Under the scope of the research, the effectiveness of teaching provided in line with the Touch Math approach did not change either in the achievement or sustainment stage. The sustainability of teaching was proved by the fact that all the subjects could perform the taught skills, 10 and 20 days after the teaching sessions. This finding is also coherent with the findings of the research on the teaching of basic addition skills in line with the Touch Math technique, undertaken by Simon and Hanrahan (2004) and Scott (1993). Therefore, it may be claimed that the findings of this study have broadened the current literature concerning the assessment of sustainability effect of the Touch Math technique.

At the end of the pre-test and post-test sessions, all the subjects were observed to generalize the skills they had learnt to different number combinations and different environments. In the two previously published researches (Scott, 1993; Simon and Hanrahan, 2004), the subjects were tested whether they could generalize the basic addition skills taught in line with the Touch Math technique to addition problems that had not been used during teaching, and it was observed in both the researches that all the subjects could generalize the skills that they learnt to different addition problems. Only one research (Simon and Hanrahan, 2004) has presented a conclusion on whether the students could generalize the basic addition skills they were taught in line with the Touch Math technique in the source room to the classroom environment. Simon and Hanrahan (2004) held a separate test session so as to reach a conclusion concerning generalization. Based on the in-class observations of the subjects’ primary school teacher, it was inferred that the subjects could generalize the skills that they had learnt to the classroom environment. Based on all the above-mentioned facts, the generalization findings of the research may be considered as having contributed to the literature concerning effective teaching and the use of a source room.

Research findings have shown that teaching sessions in line with the Touch Math technique based on a direct teaching approach is effective in teaching basic addition skills to the students with intellectual disabilities. These findings are coherent with the findings of other researches that adopted a direct teaching approach. Under the scope of this research, the single opportunity method was used in the probe sessions held to assess the subjects’ performances. This situation may be assumed to have an effect on the error rates of the subject responses in the probe sessions.

In conclusion, the finding that teaching provided in line with the Touch Math technique based on a direct teaching approach is effective, sustainable, generalizable, and socially valid in teaching basic addition skills to students with mild intellectual disabilities in general education classrooms, conforms to other research conclusions in the literature.

Some limitations of this research that are thought to have an effect on the results of the research are as follows: a) the research is limited to three subjects attending second grade at Primary School located in Ankara. Therefore, this imposes a limitation on the generalization of the effectiveness, sustainability, and social validity findings of the research to environments of inclusion; b) the study is limited to five primary school teachers with a minimum experience of 5 years of primary school teaching in Turkey; c) teaching of addition is limited to single digit numbers added to single digit numbers, one over the other, with single digit or double digit totals; d) addition problems in this research are limited to numbers between 0 and 9, and additions consisting of different number combinations (e.g., 5+2 or 3+6) e) is limited to teaching materials prepared in line with the Touch Math technique; f) the research is limited to addition problems used to teach and assess addition skills; g) limitations of the multiple probe design across subjects are imposed on this research; and h) limitations of the single opportunity method used in the probe sessions with an aim to assess subject performances are imposed on this research, and the data concerning erroneous responses could not be collected through error analysis method fearing that realistic error analysis pattern could not be achieved.

Furthermore, some suggestions for further researches in the light of the conclusions and limitations listed earlier are as follows: a) initially, similar researches should be repeated with different groups so as to increase the generalizability of effectiveness, generalizability, and sustainability findings of the research; b) the research should be applied to different disability groups at different ages, and thereby, the effectiveness should be assessed; c) the effectiveness and the productivity of the Touch Math
technique should be compared with those of other methods used to teach addition skills to students with intellectual disabilities.

References