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# **International Journal of Special Education**

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- **Educating Pre-Service Teachers in Inclusive Education: Reflections on the Stellenbosch Experience in South Africa**



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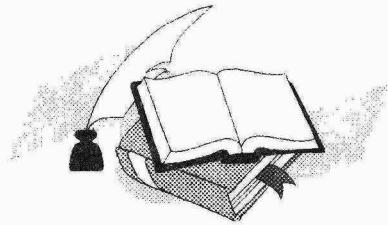
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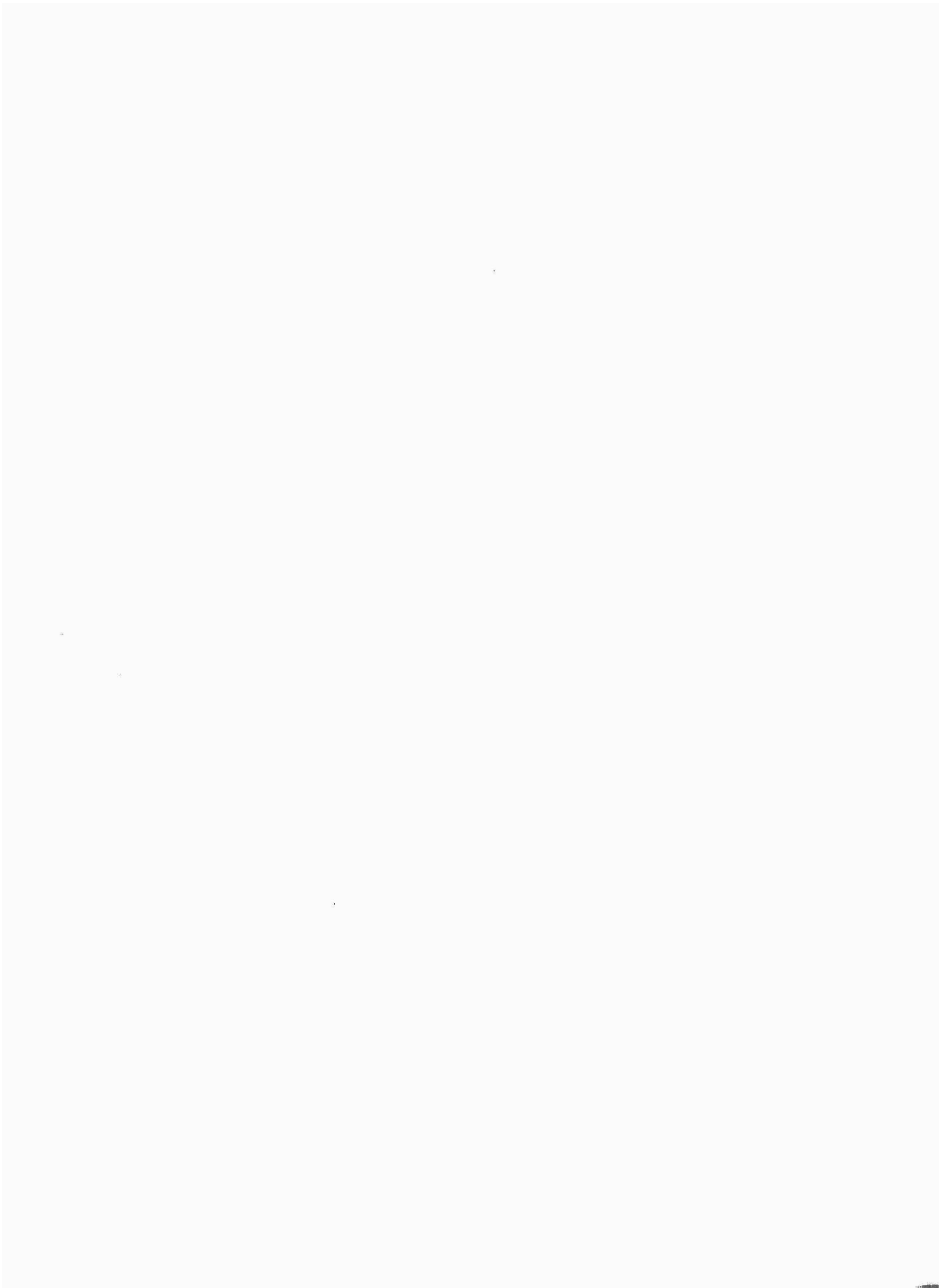




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**EVALUATIONS OF COMPETENCY IMPORTANCE: A STUDY OF  
KNOWLEDGE AND SKILLS BY TEACHERS OF STUDENTS WITH  
EMOTIONAL AND BEHAVIORAL DISORDERS**

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*This investigation assessed elementary and secondary level teachers of students diagnosed with emotional / behavioral disorders' (E/BD) evaluations of the relative importance of knowledge and skill competencies. Assessment was accomplished by administering the E/BD Knowledge Competencies Rating and E/BD Skill Competencies Rating scales to 75 teachers who had specialized training and experience with this population. The major finding was that while there were differences among the mean importance ratings within the knowledge and skills categories that were significant from a statistical perspective, from a substantive perspective, they were not. Basically, these teachers considered all of the knowledge and skills competency categories to be important. Issues and suggested approaches related to professional program development in higher education for teachers of students who are labeled E/BD were presented.*

Preparing students to enter the adult world in today's complex society is an enormous task for all teachers. For teachers of students diagnosed with emotional / behavioral disorders (E/BD), customary educational responsibilities are adjoined with complex challenges which are disability-related in nature. Ensuring that teachers are prepared to meet these student needs is a critical component of teacher training programs.

What are the training needs of teachers who will work with students with E/BD? Are some training needs more important than others? These questions continue to confront teacher educators and professionals in the field alike. Teachers of students with E/BD have one of the highest attrition and limited license rates of all professionals in the field (Brownell & Smith, 1993). In addition, the emphasis on inclusion of students with all types of disabilities in more typical education settings requires essential skill and knowledge competencies in numerous dimensions (e.g., interpersonal relationships between special educators and general education school personnel, student peer relationships) in conjunction with the educational needs of students. One can clearly recognize that identifying these competencies required for teachers to work effectively with students with E/BD is crucial for teacher educators. Research and discussion concerning the competencies needed for teachers of students with E/BD have been occurring for some time. Position papers delineating important knowledge and skills for teachers of these students have been presented by numerous professionals (Gable, Hendrickson, & Algozzine, 1987; Hewett, 1966; Lilly, 1975; Maag & Rutherford, 1987; Patavina, 1993; Simpson & Carter, 1993; Swan & Sirvis, 1992; Tulbert, Feldman, Egan-Koffman, & Braaten, 1997). Concurrently, training programs with related critical competencies have been described (Rabinow, 1960; Schwartz, 1967; Spence, 1978). States have also been surveyed to identify competencies required for licensure of these teachers (Ramsey, Algozzine, & Stephens, 1989).

Although an understanding of needed competencies is essential, little attention has been directed towards understanding the relative importance of each competency. Moreover, Fink and Janssen (1993) note one primary difficulty in determining needed competencies is that those assessed currently may not represent those that will be needed in the future. Due to these difficulties, researchers have attempted to resolve some of these issues by questioning teachers in the field concerning their views of needed competencies (Bullock & Whelan, 1971; Bullock, Ellis, & Wilson, 1994; Fink & Janssen, 1993).

In addition to identifying general competencies, some researchers have focused on examining the perceived importance of some specific competencies related to training issues. Cullinan, Epstein, and Schultz (1986) compared the importance rating of 55 competencies for teaching adolescents who were seriously emotionally disturbed. The respondents to the survey were from three professional groups in mainly more supervisory or teacher preparations settings. Competency items were derived from prior research and expert judgments. Results indicated that there was a general agreement among the three groups concerning the vast majority of competencies listed. Joyce and Wienke (1989) utilized a list of 34 competencies to identify those judged important by rural teachers of students with behavioral disorders and by faculty members who taught college / university courses in behavior disorders. While both groups found the competencies to be important, the authors did note some differences in views of importance on specific competencies between faculty members and teachers in the field. Gable, Hendrickson, Young, and

Shokoohi-Yeta (1992) surveyed 111 teachers and 25 teacher trainers concerning their perceptions of the importance of 30 teaching competencies and the degree to which training programs are meeting needs. While both groups were generally similar in their ratings of competencies, teacher educators were found to rate the preservice training programs higher in some of the categories than the teacher participants.

While Tulbert and her associates (1997) utilized a compilation of all current and previously identified competencies for teachers of students who have E/BD to validate competency factors, the question remains as to whether differing knowledge and skill competencies are deemed more crucial for teachers working with students with E/BD and thus, should have primacy in teacher education programs. Therefore, the primary purpose of the present study was to employ teachers of students with E/BD in identifying the relative importance of knowledge and skill competencies from the comprehensive competency list utilized in the study by Tulbert and her colleagues (1997). The following questions were generated for the present investigation:

1. What is the relative importance of knowledge competencies required of teachers of students diagnosed with E/BD as evaluated by these teachers?
2. What is the relative importance of skill competencies required of teachers of students diagnosed with E/BD as evaluated by these teachers?

## **Method**

### *Participants*

Participants for this study were 31 male (41%) and 44 female (59%) inservice teachers of students with E/BD ( $n=75$ ). All respondents volunteered to participate in this investigation and were currently teaching students who had E/BD in either full time special class ( $n=12$ ), part time special class ( $n=36$ ), cross-categorical resource class ( $n=18$ ), or in a hospital setting ( $n=9$ ). Thirty-eight of the 75 respondents had experience teaching students with E/BD at the elementary (K - 5) level ( $M=6.28$  years, range=3 - 10 years). Concurrently, forty-five of the 75 respondents had experience teaching students with E/BD at the secondary (6 - 12) level ( $M=5.37$  years, range=2 - 8 years). Approximately 25% of the respondents ( $n=19$ ) had both elementary and secondary level teaching experience ( $M=6.11$  years, range=3 - 10 years) with the population.

While all study participants were enrolled in graduate education courses at a state university in the Midwest portion of the United States, they were employed in all regions of the state. Four faculty from the university where the students were enrolled were the course instructors of record. All study participants were either in their last semester of coursework leading to initial or continuing certification in E/BD or had completed the program within the last two years. Thirty-nine (52%) participants had earned bachelors degrees, 34 (45%) participants had earned masters degrees, and two (3%) participants had earned education specialist degrees.



### *Measures*

Two educators' competency measures, the E/BD Knowledge Competency Rating Scale (KCRS) and the E/BD Skill Competency Rating Scale (SCRS) (Institute for Adolescents with Behavioral Disorders, 1994) were the instruments employed in the study. Each scale has strong empirical construct validity and reliability (Tulbert et al., 1997). The internal consistency for the 13 categories (131 items) on the KCRS ranges from .80 - .95. The internal consistency for the 13 categories (106 items) on the SCRS ranges from .88 - .95.

### *Procedure*

Participants were told that the purpose of this study was to investigate their perceptions about the relative importance of knowledge and skill competencies for teachers of students who had E/BD. As a result of random assignment, half of the participants were asked to first complete the KCRS and then complete the SCRS while the other half first completed the SCRS and then responded to the KCRS. Participants were requested to provide basic demographic information and subsequently rate each competency on a five point Likert scale (1=not at all important, 2=minor importance, 3=moderately important, 4=very important, 5=critically important).

### *Analysis*

Means and standard deviations were computed for each category within the SCRS and KCRS. A series of ANOVAs was used to compare participants' perceptions of the relative importance of the categories of the KCRS and SCRS. In order to determine the nature of the differences reflected by the ANOVA, Fisher's Protected Least Significant Difference (PLSD) multiple t-test (Abacus Concepts, 1992) was used for the post hoc comparison of mean scores. This very liberal post hoc procedure was used due to the preliminary nature of this investigation into the relative importance of knowledge and skill competency categories for teachers of students with E/BD as perceived by teachers of this population.

### **Results**

All knowledge and skill competency categories in the KCRS and SCRS received a mean rating near the very important range (4.0). The KCRS categories ranged from a minimum mean of 3.98 to a maximum mean of 4.47 (see Table 1). The SCRS categories ranged from a minimum mean of 3.81 to a maximum mean of 4.48 (see Table 2). Averages above 4.5 were considered to denote categories of critical importance. Consequently, no KCRS or SCRS categories were rated as critically important by the participants in this study based on their mean importance rating. When the mean importance ratings and rankings on the categories of the KCRS were compared to the mean importance ratings and rankings on the categories of the SCRS, large variations between the rank order of knowledge and skill categories were noted; however, the differences in mean importance ratings were minimal. For example, the Managing the Learning Environment category (ranking=2,  $\bar{M}$ =4.45) was ranked well above its skill competency counterpart (ranking=9,  $\bar{M}$ =4.33) but mean item ratings between them reflected a lack of substantial differences.

Mean ratings of importance for the categories of knowledge competencies on the KCRS

**Table 1**  
**Category Means for the E/BD Knowledge Competencies Ratings Scale (KCRS)**

	<u>Category</u>	<u>Mean (SD)</u>
1.	Legal and Administrative	4.47 (0.088)
2.	Management of the Learning Environment	4.45 (0.239)
3.	Monitoring and Evaluation	4.42 (0.221)
4.	Management of Behavior	4.38 (0.255)
5.	Community Resources	4.35 (0.126)
6.	Families	4.34 (0.137)
7.	Characteristics of Learners	4.27 (0.287)
8.	Professional Ethics	4.23 (0.201)
9.	Communication and Collaboration	4.22 (0.169)
10.	Assessment and Diagnosis	4.19 (0.230)
11.	Instructional Content and Practice	4.11 (0.266)
12.	Transitions	3.99 (0.307)
13.	Cultural and Linguistic Diversity	3.98 (0.055)

**Table 2**  
**Category Means for the E/BD Skill Competencies Ratings Scale (SCRS)**

	<u>Category</u>	<u>Mean (SD)</u>
1.	Professional Ethical Practices	4.48 (0.223)
2.	Management of Student Behavior	4.47 (0.182)
3.	Families	4.46 (0.197)
4.	Communication and Collaboration	4.44 (0.122)
5.	Cultural and Linguistic Diversity	4.41 (0.079)
6.	Assessment and Diagnosis	4.40 (0.219)
7.	Legal and Administrative Structure	4.37 (0.067)
8.	Instructional Content and Practice	4.35 (0.291)
9.	Management of the Learning Environment	4.33 (0.262)
10.	Monitoring and Evaluation	4.22 (0.434)
11.	Transitions	4.18 (0.265)
12.	Community Resources	4.06 (0.117)
13.	Characteristics of Learners	3.81 (0.103)

were evaluated to determine whether there were overall differences in the importance of these competency categories. ANOVA results revealed statistically significant differences among the KCRS categories [ $F(12, 140) = 4.279$ ,  $p = .0001$ ] (see Table 3).

Table 3

Matrix of Differences Among Categories on the E/BD Knowledge Competencies Ratings Scale (KCRS)

Category	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Legal and Administrative		ns	.157*	.159*	ns	.222*	ns	.259*	ns	ns	ns	ns	ns
2. Management: Learning Environment			ns	.173*	.157*	ns	.179*	ns	ns	ns	ns	.235*	ns
3. Monitoring and Evaluation				.161*	.141*	ns	.161*	ns	ns	.194*	ns	.223*	ns
4. Management of Behavior					ns	.225*	ns	.261*	.211*	ns	ns	ns	ns
5. Community Resources						.211*	ns	.248*	ns	ns	ns	ns	ns
6. Families							.226*	ns	ns	.249*	.333*	.271*	ns
7. Characteristics of Learners								.265*	ns	ns	ns	ns	ns
8. Professional Ethics									ns	.282*	.361*	.304*	ns
9. Communication and Collaboration										ns	ns	ns	ns
10. Assessment and Diagnosis											ns	ns	ns
11. Instructional Content and Practice												ns	ns
12. Transitions													ns
13. Cultural and Linguistic Diversity													

\* significant at  $p < .05$

The Characteristics of Learners category average was rated as more important than Assessment and Diagnosis of E/BD, Transitions, and Cultural and Linguistic Diversity. Managing the Learning Environment was rated as more important than Characteristics of Learners, Assessment and Diagnosis, Instructional Content and Practice, Transitions, Cultural and Linguistic Diversity, and Communications and Collaboration. Managing Student Behavior was rated as more important than Assessment and Diagnosis, Instructional Content and Practice, Transitions, and Cultural and Linguistic Diversity. Transitions was rated as more important than Legal and Administrative Structures. Monitoring and Evaluation was rated as more important than Assessment and Diagnosis, Instructional Content and Practice, and Transitions. Cultural and Linguistic Diversity was rated as more important than Monitoring and Evaluation. Families was rated as more important than Instructional Content and Practice, Transitions, and Cultural and Linguistic

Diversity. Community Resources was rated as more important than Transitions, and Cultural and Linguistic Diversity. Legal and Administrative Structures was rated as more important than Assessment and Diagnosis, Instructional Content and Practice, and Cultural and Linguistic Diversity.

Mean ratings of importance for the categories of skill competencies on the SCRS were evaluated to determine whether there were overall differences in the importance of these competency categories. ANOVA results indicated statistically significant differences between SCRS categories [ $F(12, 132)=4.717$ ,  $p=.0001$ ] (see Table 4). All skill categories were rated as more important than Characteristics of Learners. Concurrently, Managing Student Behavior as well as Professional and Ethical Practices were rated as more important than the categories of Instructional Content and Practice, Managing the Learning Environment, Transitions, and Monitoring and Evaluation.

**Table 4**  
**Matrix of Differences Among Categories on the E/BD Skill Competencies Rating Scale (SCRS)**

Category	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Professional Ethical Practice		.231*	.212*	.229*	.201*	.222*	.227*	.297*	.267*	.267*	.312*	.361*	.228*
2. Management of Behavior			ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
3. Families				ns	.122*	ns	ns	ns	ns	ns	ns	ns	.169*
4. Communications and Collaboration					.155*	ns	ns	ns	ns	ns	ns	ns	.169*
5. Cultural and Linguistic Diversity						.155*	.151*	ns	ns	ns	ns	ns	ns
6. Assessment and Diagnosis							ns	ns	ns	ns	ns	ns	.194*
7. Legal and Administrative Structure								ns	ns	ns	ns	ns	.193*
8. Instructional Content and Practice									ns	ns	ns	ns	ns
9. Management: Learning Environment										ns	ns	ns	ns
10. Monitoring and Evaluation											ns	ns	ns
11. Transitions												ns	ns
12. Community Resources													ns
13. Characteristics of Learners													

\* significant at  $p<.05$

### Discussion

Clearly, according to the ANOVA results, certain categories of skill and knowledge competencies for teachers of students with E/BD are thought to be more important than

others as rated by the study participants. The knowledge category of Managing the Learning Environment was considered to be more important than six other knowledge categories and both the knowledge and skill categories of Managing Student Behavior competencies were considered to be more important than four other knowledge and skill categories. This finding is not surprising considering the impact of the learning environment (e.g., organization and teaching techniques, and classroom and behavior management activities) on the behavior of all students (Doyle, 1986; Simmons & Kameenui, 1996), but especially on students with E/BD in self-contained settings (Johns & Carr, 1995).

The skills category of Characteristics of Learners on the SCRS was rated as less important than all other skill categories. In fact, this category was the only SCRS category to receive an average rating below 4.0 (i.e., very important). It appears that study participants did not consider skills related to defining E/BD and comparing and contrasting different models or theories of E/BD to be very important given the other apparently more pressing challenges and dilemmas they face on a daily basis. In contrast, however, the knowledge category of Characteristics of Learners was rated as more important than three other knowledge categories. This may be a good example of professional knowledge being indirectly important by providing the context within which teachers apply other important skills.

One distressing finding is that knowledge and skill competencies relating to Cultural and Linguistic Diversity were considered to be less important than six other categories and only more important than one other category on both the KCRS and the SCRS. The importance of understanding the cultural impact on behavior should be quite evident to teachers of students who have E/BD given the fact that the student population is becoming more and more diverse (e.g., increasing numbers of immigrants from other countries, citizens who have different ethnic backgrounds, citizens who speak languages other than English, families living below the poverty level, homeless families, etc.). When providing special education to students with E/BD who come from different cultures, professionals must have the knowledge and skills to protect these students from being misidentified as opposed to penalizing them by failing to provide necessary services due to incomprehension of their cultural differences (Park, Pullis, Reilly, & Townsend, 1994).

It is important to note that all categories of the skill and knowledge competencies were considered to be rather important by these teachers of students with E/BD. Even though the ANOVA results verified statistically significant differences between SCRS and KCRS categories, the differences do not appear to be meaningful. When the mean importance ratings of each KCRS category were rounded to the nearest tenth of a percent, the means ranged from only 4.0 to 4.4 (median=4.2).

Concurrently, when the mean importance ratings of each SCRS category were rounded to the nearest tenth of a percent, the means ranged from only 3.8 to 4.5 (median=4.3).

Perhaps the major finding of this study is that these teachers were unable to make substantive discriminations between knowledge and skill competency categories required of teachers of students with E/BD. This poses a dilemma for teacher educators. How do we help students identify which are the most critical competencies in teaching students who have E/BD?

To address this dilemma, comparing the mean ratings of skill and knowledge categories may provide a clue. It may be that we can scale back coverage of knowledge competencies for some categories rated as less important in related coursework while concurrently limiting or eliminating the time in practicum settings developing certain skills in those competency areas. For example, in categories where mean ratings were nearly identical, we could provide clarity between critical and complementary competencies. One approach would be to provide more ongoing interactive discussions with panels of mentor (i.e., exemplary) teachers. A second potential approach might be to address less important competencies in course content and readings, but not require demonstration of them in field-based settings and situations (e.g., practica, internships). Therefore, the inability of these teachers to distinguish between critical as opposed to complementary competencies could be addressed effectively by faculty in higher education.

Limitations of this study include selecting participants from a limited geographic area and from a single university's graduate program. Additionally, participants were not provided an opportunity to list new or different competency categories than those that the questionnaire provided. Future research may wish to address these limitations.

The conclusion from this study that categories on current lists of competencies are rated nearly equally in importance to teachers of students labeled as E/BD is an important finding. The inability to identify more critical competency categories demonstrates a lack of directed focus in higher education training programs for these teachers. In addition, considering the school reform efforts in place in many schools (e.g., inclusion), the identification of any new competencies and related categories needed for entry level teachers of students diagnosed with E/BD needs to be addressed. Other research directions may include the use of mentor teachers to impart the critical nature of particular knowledge and skill competency categories in preservice and / or inservice teachers of students with E/BD. Additionally, research efforts to identify particularly difficult areas for beginning teachers of students labeled as E/BD may enable teacher educators to focus their efforts in preservice teacher education programs. Researchers may also need to consider long term, in-depth research efforts using qualitative methods to identify the critical skills and knowledge competencies used by exemplary teachers of students with E/BD. These current and future research efforts will refine existing competency categories, identify new competencies and lead to a comprehensive list of competencies that will ensure a competent and capable cadre of teaching professionals of students with E/BD.



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**A COMPARISON AMONG AVERAGE-ACHIEVING,  
UNDERACHIEVING, AND DEAF/HARD-OF-HEARING STUDENTS  
ON EFFECTIVE STUDY SKILLS AND HABITS**

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*Differences among average-achieving, underachieving, and deaf/hard-of-hearing students on study skills and habits were examined in this study. The participants were 114 third grade elementary school students selected from various schools and Special Education Centers in the United Arab Emirates. Results revealed that there were more similarities than differences between deaf/hard-of-hearing students and average-achieving students in their strong study skills and habits. However, deaf/hard-of-hearing students were similar to underachieving students in their weak study skills and habits. Statistical analyses indicated that deaf/hard-of-hearing students and average-achieving students achieved significantly higher scores on the study skills and habits measure than underachieving students. However, no significant differences were found between deaf/hard-of-hearing students and average-achieving students. Also, results revealed that there were significant correlations between study skills and habits and students' academic achievement; and all students' grades in language, mathematics, and science significantly correlated with each other. Implications, limitations, and suggestions for future research are discussed in this study.*

Learning is a dynamic process. It requires students' strategic active involvement in educational settings. Addressing the issue of strategic independent active learners has been

the focus of mediational or mnemonic strategies, and study skills and habits techniques. Mediational strategies such as rehearsing, classification, mental imagery, and the key word strategy (see Mayer, 1987) influence positively students' academic performance (Pressley, Johnson, & Symons, 1987; Scruggs & Mastropieri, 1990). Al-Hilawani and Poteet (1995) found in their review of literature that using such techniques did improve the task performance of students with learning disabilities, emotional handicaps, and mild mental retardation. Some of these techniques were also effective in enhancing the memory performance of students without disabilities. For example, Levin, Levin, Glasman, and Nordwall (1992) found that using the keyword mnemonic strategy was more effective in enhancing the memory performance of elementary school students than using the contextual vocabulary-learning strategy.

Study skills and habits are tools for learning used in educational settings in order to help students perform efficiently, actively, and independently (Gartland, 1989). Students need to use these study skills and habits and refine them all the time, especially as they move upwards in their grade levels (Hoover, 1989). Some study skills are note-taking, time management, reading at different rates, listening skills, report writing, and organizational skills.

This current study focused on study skills and habits of elementary special education students and non-special education students for three reasons. First, it is noticed from classroom observations that teachers expected students to learn some good study skills and habits on their own to complete academic tasks even though students were not taught these skills (see Durkin, 1979). Second, there is a need to teach good study skills and habits as early as elementary schools to produce an independent learner with good academic performance. Third, research in this area has focused on older students such as college students (e.g., Polansky, Horan, & Hanish, 1993; Jones, Slate, & Kyle, 1992).

When examining the effect of study skills and habits on elementary school students, few research studies were found compared with the research studies conducted on high school and college students (see Al-Hilawani & Sartawi, 1997). The studies which covered study skills and habits at the elementary school level were few and limited in their scope and variability. For example, Ford (1991) had reported teaching study skills successfully to third grade low-achieving students. Also, Heldenbrand and Hixon (1991) compared traditional instruction (i.e. using an instructor to present the material accompanied with discussions and handouts) of study skills and test-taking strategies with video-assisted instruction. The participants were elementary school students who were identified to lack adequate study skills and test-taking strategies. Heldenbrand and Hixon found that the experimental group which received videotaped modeling and video-assisted instruction in study skills and test-taking strategies achieved significantly higher scores than the control group which received the traditional training. Due to the small sample used in this study,

the authors set the level of significance at .10 to avoid type II error. In another study, Hara (1997) examined library study skills at the elementary level using three methods of instruction: resource-based (using library resources in subject studies), non-integrated (library skills were taught by a teacher-librarian for 15 minutes per week), and no library study skills instructions (there was no formal instruction in library study skills and no teacher-librarian). The importance of learning library study skills is to help students become active and self-learners and better information users. The results revealed that the resource-based approach was more effective in acquiring library study skills than the other two approaches.

The bulk of literature at the elementary school level had focused on issues such as self-monitoring (e.g., Leal, Crays, & Moely, 1985), transferring and generalizing skills to new tasks (e.g., Gelzheiser, Shepherd, & Wozniak, 1986), metamemory (e.g., Andreassen & Waters, 1989), working memory and memory strategies (e.g. Swanson & Trahan, 1990), and the keyword mnemonic technique (e.g. Levin, et al., 1992) when addressing the issue of strategic independent active learners. However, study skills and habits such as time and behavior management, good listening skills, reading, writing, test-taking skills, note-taking, and outlining skills did not receive similar attention. In order to overcome problems resulting from numerous school requirements, students need to be taught good techniques in study skills and work habits. Therefore, the purpose of this study was to examine the study skills and habits of three groups of third grade elementary school students: average-achieving, underachieving, and deaf/hard-of-hearing students. Specifically speaking, this current study aimed at identifying the strong and the weak study skills and habits of each group of students who participated in this study, the significant correlations between academic achievements and students' study skills and habits, and whether or not there were significant differences among three groups of students in study skills and habits. Reviewing the literature revealed that no research has been done combining these groups of students at the elementary level.

## **Method**

### *Participants.*

Three grade-matched groups of third grade elementary students participated in this study. The first group consisted of 38 male and female average-achieving students. It had a mean age of 8.83 years and a standard deviation of .68 years (number of males = 12; mean age = 8.76 years; standard deviation = .63 years; number of females = 26; mean age = 8.87 years; standard deviation = .71 years). None of these students had been retained in school or had received special education services. They had grades ranging from 70 to 85 out of 100 in the content areas of mathematics, science, and language. On average, they were about a year and a half younger than the second group (i.e. underachieving students) and about two and a half years younger than the third group (i.e. deaf/hard-of-hearing students). The second group was the underachieving students. It was comprised of 38 male and

female students with a mean age of 10.53 years and a standard deviation of 1.41 years (number of males = 14; mean age = 10.25 years; standard deviation = 1.29 years; number of females = 24; mean age = 10.69 years; standard deviation = 1.48 years). All students in this group were retained at least once during the course of their study. They had school grades ranging from below 50 up to 60 out of 100 in regular classroom settings. Therefore, all students were receiving special education services in one or more content areas because of suspected learning disabilities.

Due to the absence of accurate diagnostic tools in Arabic, academic difficulties as a result of learning disabilities could not be differentiated from academic difficulties as a result of environmental factors (e.g., lack of opportunity to learn, cultural disadvantage, economic disadvantage, and inadequate instruction). Therefore, this group might have included some students who did not have intrinsic learning disabilities. However, all students in this group were retained at least once and obtained low or failing grades in some or all school subject areas; and they could not survive in regular classroom settings. Therefore, the term *underachievers* was used to describe this group of students.

The third group was deaf/hard-of-hearing students. It was comprised of 38 male and female students with a mean age of 11.33 years and a standard deviation of 2.08 years (number of males = 19; Mean age = 10.91 years; standard deviation = 1.93 years; number of females = 19; mean age = 11.75 years; standard deviation = 2.19 years). Eight students in this group had a mild hearing loss (41-55 dB); seven students had a moderate hearing loss (56-70 dB); fifteen students had a severe hearing loss (71-90 dB); and eight students had an extreme hearing loss (91 dB or more). All students with hearing impairments were using hearing aids at the time this study was conducted.

All participants (114 students) were selected based on the above mentioned criteria from various schools and Special Education Centers in the United Arab Emirates (see Sartawi, Al-Hilawani, and Easterbrooks (in press) for a brief review of the cultural context in which special education students are served in the United Arab Emirates. It was noted that these students were older than regular students by the time they entered school; and many of them did not received appropriate education due to limited spaces in educational settings).

#### *Survey Instrument*

A review of related literature (Durkin, 1979; Gartland, 1989; Hoover, 1989; Ford, 1991; Al-Hilawani & Sartawi, 1997) and the author's personal experience in teaching and conducting classroom observations provided the background information for the construction of a general study skills and habits survey instrument. This instrument contained a total of 53 items covering topics such as test-taking skills, reading, writing, time management, study habits, listening, and comprehension. All items were worded in a clear and simplified manner to get accurate responses from students. The instrument was

piloted with 15 professionals; and revisions were made accordingly.

Twenty five items were worded to reveal negative responses; and twenty eight items were worded to indicate positive responses. Items worded negatively were reverse-scored and all responses were totaled to make up an over-all score reflecting study skills and habits; obtaining a low total score on the survey would indicate poor study skills and habits; however, receiving a high total score on the survey would reveal good study skills and habits.

All items were formulated in a series of statements where students' responses were rated on a four-point Likert-type scale. The choices were *never* (which was given one point), *sometimes* (which was given two points), *often* (which was given three points), and *always* (which was given four points).

Four measures of Cronbach's alpha coefficient were obtained. The alpha coefficient for all items when all students were combined together (i.e., 114 participants) was + .90; the alpha coefficient for average-achieving students (i.e., 38 participants) was + .83; the alpha coefficient for underachieving students (i.e., 38 participants) was + .92; and the alpha coefficient for deaf/hard-of-hearing students (i.e., 38 participants) was + .84. The demographic information requested from students' classroom teachers was date of birth; whether or not students were retained in school; students' final grades in language (i.e. Arabic), mathematics, and science; and the degree of hearing loss for deaf/hard-of-hearing students.

#### *Data Collection*

A total of 25 pre-service special education female teachers participated in data collection during their practicum training in schools and Special Education Centers. Pre-service teachers who were doing their training in schools used the survey with average-achieving and underachieving students. However, students who were doing their practicum training in Special Education Centers used the survey with deaf/hard-of-hearing students.

A total of 3 training sessions, each of which lasted one hour, were conducted by the author before allowing the pre-service teachers to administer the survey. Follow-up was conducted during the author's weekly visits to schools and Special Education Centers. The author was the practicum supervisor for these pre-service teachers.

Students participating in this study were tested individually by one of the pre-service teachers; the items as well as the four choices were all read to students. Students were required to verbally respond with one of the four choices which they thought appropriate for the presented item. Assistance was requested from the classroom teachers of deaf/hard-of-hearing students to administer the survey; they helped convey the items and choices to students using the total communication approach.

Administering the survey to each average-achieving student lasted approximately 30-40 minutes; it took about 45-60 minutes to give it to each underachieving student. It took about 60-70 minutes to give it to each deaf/hard-of-hearing students.

### Results

Strengths and weaknesses in study skills and habits of the three groups of students are presented in table 1 and table 2. Table 1 shows that the strengths of average-achieving students were in listening, focusing attention, following directions, finishing homework, and preparing for exams. The table also shows that the strengths of underachieving students were in how they respond to questions (i.e., answer easy questions first), finish assignments (i.e., finish easy assignments first), and adhere to teachers' directions. The strengths of deaf/hard-of-hearing students were in finishing homework, following teachers' directions, responding to all test questions, thinking carefully about questions before answering them.

**Table 1**  
**Items Revealing Strong Study Skills and Habits for Average-Achieving, Underachieving, and Deaf/Hard-of-Hearing Students**

Item Number	Item Content	Percentage of Appropriate Responses
1.	Looking carefully for answers when solving unit questions. (AA)	82.9
2.	Getting distracted when trying to study. (AA)	84.9
3.	Finishing homework. (AA)	86.9
4.	Preparing very well for the exam. (AA)	88.2
5.	Listening carefully to instructions before answering questions. (AA)	89.5
6.	Following teacher's directions. (AA)	92.1
1.	Finishing easy assignments first then the difficult ones. (UA)	75.7
2.	Writing down everything the teacher writes on the board. (UA)	76.9
3.	Answering easy questions first then the difficult ones. (UA)	76.9
4.	Following teacher's directions. (UA)	78.3
1.	Writing down everything the teacher writes on the board. (D/H)	80.3
2.	Thinking carefully about questions before responding. (D/H)	81.6
3.	Devoting enough time to finishing homework. (D/H)	82.9
4.	Following teacher's directions. (D/H)	86.2
5.	Responding to all test questions. (D/H)	88.8
6.	Finishing homework. (D/H)	89.5
<b>Note:</b> AA = Average-Achieving Students; UA = Underachieving Students; D/H = Deaf/Hard-of-Hearing Students. The highest six study skills and habits were selected as strengths for average-achieving students and deaf/hard-of-hearing students. All these study skills and habits received above 80% of appropriate responses. However, the highest four study skills and habits were selected for underachieving students. The percentages of appropriate responses were between 75% and 79%.		

Table 1 shows that there are more similarities than differences between deaf / hard-of-



hearing students and average-achieving students in their strong study skills and habits. Both groups of students obtained a comparable percentage of appropriate responses on the listed items. The table also shows that these two groups of students differ from the underachieving students in their strong study skills and habits, and in the percentage of appropriate responses.

Table 2 shows that the weak study skills and habits of average-achieving students were in reading rates, not finishing easy assignments first then the difficult ones (which is a strength for underachieving students), and not requesting assistance when needed. For underachieving students, the table shows that their weaknesses are numerous. They had difficulties with assignments, note-taking, reading, writing, distractibility, endurance, comprehension, memorization, impulsiveness, listening, test-taking, and time management.

Table 2 also shows that the weaknesses of deaf/hard-of-hearing students were in distractibility (probably due to using hearing aids which amplify all sounds in their immediate environment in an equal manner), note-taking, assignments, reading, writing, preparing for exams, memorization, asking for help, and organizing their thoughts. It seems that there are more similarities than differences in weaknesses between underachieving students and deaf/hard-of-hearing students; and the two groups differ from the average-achieving students in their weak study skills and habits.

Means and standard deviations were calculated for the three groups of students. The mean raw score for average-achieving students (mean = 154.89; standard deviation = 15.47) was higher than the mean raw score for both the underachieving students (mean = 129.55; standard deviation = 23.09) and deaf/hard-of-hearing students (mean = 146.46; standard deviation = 17.21).

A 3 X 2 (average-achieving, underachieving, and deaf/hard-of-hearing X sex : males vs. females) analysis of covariance (ANCOVA) was used to determine if there were significant differences among the participants on the measure of study skills and habits. Students' grades in Arabic, mathematics, and science were used as covariates since the calculated Pearson Product-Moment correlations indicated significant correlations between grades in these three areas and students' performance on study skills and habits measure, as shown in table 3. The table also shows that these three school subjects are highly correlated with each other.

The ANCOVA results revealed that the covariates of Arabic [ $F(1,113) = .825, p=.366$ ], science [ $F(1,113) = .074, p=.787$ ], and mathematics [ $F(1,113) = 1.829, p=.179$ ] were not significant. The ANCOVA analyses, however, showed a significant main effect for students' type,  $F(2,113) = 3.29, p<=.04$ . That is, there are significant differences among the three groups of students on the measure of study skills and habits. The main effect for

**Table 2**  
**Items Revealing Weak Study Skills and Habits for Average-Achieving, Underachieving, and Deaf/Hard-of-Hearing Students**

Item Number	Item Content	Percentage of Appropriate Responses
1.	Reading fast to memorize important information in the unit. (AA)	42.8
2.	Finishing easy assignments first then the difficult ones. (AA)	67.8
3.	Requesting help when doing assignments. (AA)	68.7
1.	Summarizing in notebook major points in the unit. (UA)	36.9
2.	Asking for help during reading. (UA)	50.5
3.	Facing difficulties in spelling. (UA)	50.7
4.	Getting distracted when hearing sounds during study. (UA)	51.9
5.	Getting tired easily during the writing process. (UA)	52.6
6.	Answering questions after finishing reading the unit. (UA)	53.3
7.	Becoming hasty when doing homework. (UA)	53.3
8.	Forgetting what I have read. (UA)	53.3
9.	Asking the teacher to repeat what has been said. (UA)	53.9
10.	Facing problems reading some words in the unit. (UA)	53.9
11.	Getting distracted when doing many school assignments. (UA)	53.9
12.	Facing difficulties with sentence structure during the writing process. (UA)	54.6
13.	Finishing assignments depends solely on receiving help. (UA)	55.3
14.	Getting tired easily when doing assignments. (UA)	55.9
15.	Having difficulties allocating time appropriately to test questions. (UA)	56.6
16.	Reviewing answers to test questions. (UA)	56.6
17.	Having problems organizing my thoughts during the writing process. (UA)	58.6
18.	Spending a lot of time playing when I am supposed to be doing my homework. (UA)	58.6
19.	Studying all the material when preparing for the exam. (UA)	59.2
20.	Writing very slow (i.e., not fast enough). (UA)	59.2
1.	Getting distracted when hearing sounds during study. (D/H)	50.0
2.	Asking for help during reading. (D/H)	53.3
3.	Facing difficulties with sentence structure during the writing process. (D/H)	54.6
4.	Requesting help when doing assignments. (D/H)	55.9
5.	Having problems organizing my thoughts during the writing process. (D/H)	56.6
6.	Getting tired easily when doing assignments. (D/H)	56.6
7.	Studying all the material when preparing for the exam. (D/H)	57.9
8.	Writing very slow (i.e., not fast enough). (D/H)	59.2
9.	Having problems expressing my thoughts in writing. (D/H)	59.9
10.	Facing problems reading some words in the unit. (D/H)	61.2
11.	Getting distracted when doing many school assignments. (D/H)	61.9
12.	Going through periods of lethargy during study. (D/H)	61.9
13.	Forgetting what I have read. (D/H)	61.9
14.	Asking the teacher to repeat what has been said. (D/H)	61.9
15.	Facing difficulties in spelling. (D/H)	63.2
16.	Depending on teacher's explanations and clarifications when studying the unit. (D/H)	63.2
<b>Note:</b> AA = Average-Achieving Students; UA = Underachieving Students; D/H = Deaf/Hard-of-Hearing Students. Items received below 69% of appropriate responses are considered weak study skills and habits.		



the sex variable (males vs. females) was not significant,  $F(1,113) = .911$ ,  $p = .342$ . There are no significant differences between males and females on study skills and habits measure. The interaction of the three groups of students with the sex variable was not significant,  $F(2,113) = .096$ ,  $p = .908$ .

**Table 3**  
Pearson Product-Moment Correlations of the Total Score of Study Skills and Habits, Age, Arabic Language, Science, Mathematics, and Sex for the three groups of students.

Variables	1	2	3	4	5	6
1. Total Score	1.000					
2. Age	-.056	1.000				
3. Arabic	.495***	-.141	1.000			
4. Science	.459***	-.162	.872***	1.000		
5. Mathematics	.476***	-.111	.816***	.823***	1.000	
6. Sex	-.082	-.044	-.001	-.020	.001	1.000

**Note:** \*\*\* $P < .0001$

The Scheffe follow-up measure was used to compare the means performance of the three groups of students on the study skills and habits instrument. The analysis revealed that the average-achieving students and deaf/hard-of-hearing students achieved significantly better scores at the .05 level than the underachieving students. The analysis, however, did not reveal significant differences between average-achieving students and deaf/hard-of-hearing students.

### Discussion

This study investigated differences in study skills and habits among three groups of third grade students. The three groups were average-achieving students, underachieving students, and deaf/hard-of-hearing students.

Analyzing the percentages of appropriate responses on the instrument indicated that average-achieving students and deaf/hard-of-hearing students had in general similar and comparable strong study skills and habits. However, when weak study skills and habits were examined, it was found that deaf/hard-of-hearing students and underachieving students had similar deficiencies. This conclusion is supported by the pattern of percentages identified in this study. Specifically speaking, due to the varying percentages of appropriate responses, a common criterion for a cut-off percentage to identify strong

study skills and habits for the three groups of students was difficult to implement in this study. Had the cut-off percentage been set at 80% or more, no strong study skills and habits would have been identified for underachieving students. Therefore, for this group of students, the first four items which received the highest percentage of appropriate responses were identified as strong study skills and habits. However, setting the cut-off percentage at 69% yielded three weak study skills and habits for average-achieving students, but numerous deficient study skills and habits for the other two groups of students. It is also noticed that weak study skills and habits of underachieving students (e.g. reading, writing, listening, memorization, and distractibility) were common characteristics of students with learning disabilities (e.g., Smith & Luckasson, 1995; Smith 1991; Kirk & Chalfant, 1984).

When statistical analyses were performed on the mean total scores of the three groups of students, the results revealed that average-achieving students and deaf/hard-of-hearing students achieved significantly higher scores on the study skills and habits instrument than underachieving students. The results also indicated that there were no significant differences between average-achieving students and deaf/hard-of-hearing students. However, deaf/hard-of-hearing students had more weak study skills and habits than average-achieving students. That there is no significant difference on the total scores may be explained by the students' response patterns and the type of instruction that these students received in Special Education Centers which led to improved academic achievement; learning materials were presented to deaf/hard-of-hearing students in a concrete and simplified manner and at a slow pace; their average grades in Arabic language (73%), science (77%), and mathematics (76%) were higher than the average grades of underachieving students (Arabic language = 55%, science = 61%, and mathematics = 59%) but slightly lower than the average grades of average-achieving students (Arabic language = 82%, science = 84%, and mathematics = 81%). Since there were no big differences in achievement between deaf/hard-of-hearing students and average-achieving students, accompanied with positive correlations between good study skills and students' academic achievement, no significant difference on study skills and habits measure between these two groups was anticipated. This conclusion is consistent with what has been mentioned in the literature that the achievement of deaf/hard-of-hearing students is improving over time (Karchmer, 1984; Allen, 1986).

It seems that students' school grades in mathematics, science, and particularly in language are good predictors of good study skills and habits. This idea was examined at the college level. For example, Al-Hilawani and Sartawi (1997) found that female college students who had high Grade Point Average (GPA) showed better study skills and habits than students who had low GPA.

Implications for special education teachers are to encourage students to ask for help when

needed, use mnemonic techniques to help students remember the information (e.g., Levin, et al., 1992), reduce distractions, focus on written expressions, and cut down on the number of assignments which students have to do.

Also, eliminating deficient habits (e.g., not preparing sufficiently for exams and poor time-management), accompanied with teaching good study skills, all might help enhance students' academic achievement. Some deficient study skills and habits (e.g., not studying in advance for the exam or not asking for help when needed) could be diagnosed and dealt with efficiently, the result of which would be an improvement in students' academic performance. Furthermore, identifying strengths and weaknesses in study skills and habits may enrich the information available about students' academic achievement.

The importance of good study skills and habits stems from their use to overcome problems which result from numerous school requirements. Therefore, students need to be taught how to reflect on their work habits, so that deficient habits are identified and replaced with good ones. This could be done by training in self-monitoring. For example, Leal, Crays, and Moely (1985) found that training in self-testing was effective in helping children monitor their study habits.

For effective implementation, study skills and habits should be taught within school content materials and integrated into the curriculum. Skills such as test-taking, note-taking, listening, summarizing, and self-questioning are better taught and mastered by using content materials which students are studying.

Finally, the literature review revealed that there is a general need for more research at the elementary school level as compared to the many studies conducted at the high school and college levels. The literature at the elementary level has focused primarily on designing programs for study skills and habits in various academic areas (e.g., Fridley Independent School District 14, 1973; Oak Grove Elementary School District, 1975; Prince George's County Public Schools, 1980; Mieux, 1993). What missing from the literature are comparison studies among various special education groups in the area of study skills and habits. Future studies may address this issue taking into consideration variables such as degrees of hearing loss for deaf/hard-of-hearing students, students' age and sex, and a well defined special education category (i.e., learning disabilities) instead of the term underachievement.

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**TEAM MEMBERS' PERCEPTIONS OF THE INDIVIDUALIZED  
EDUCATION PLAN PROCESS (IEP)**

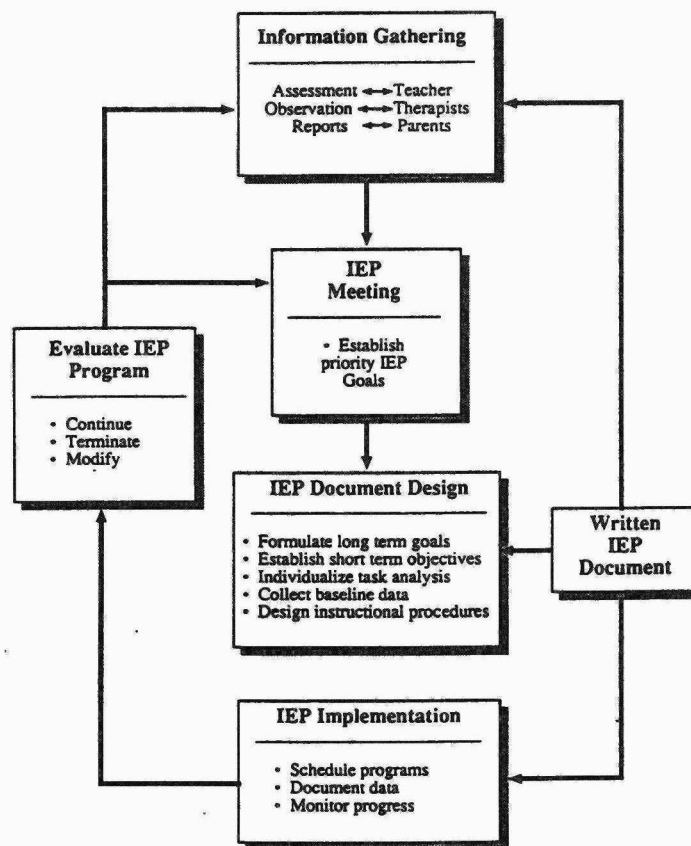
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*The Individualized Education Plan (IEP) process guides the delivery of special education and related services to children with disabilities in school settings. Given that IEPs are developed through a team process, it is important to determine team members' perceptions of this process in order to better understand their involvement and views of this process. In this study, 45 team members were interviewed to ascertain their perceptions of the IEP process. These individuals comprised parents, teachers, therapists, nurses, and program officers, who provided services to five classrooms in two special schools for students with moderate to severe and multiple disabilities. Interviews were conducted individually with all team members. Thematic analyses were conducted. Generally, team members agreed that the IEP process was worthwhile. Strengths of the process (such as goal prioritisation, involvement of parents/carers, and team decision making and consultation), as well as barriers to IEP implementation (for example, lack of time and insufficient team work) were also noted. The perceived effectiveness of the IEP process appears to be related to team members' ability to work collaboratively to develop and implement the IEP in the classroom.*

Occupational therapists, physiotherapists, and speech therapists working within educational settings have needed to become familiar with the Individualized Education Plan (IEP) process, because the IEP guides the delivery of educational and related services to students

with disabilities. The IEP process used in Queensland, Australia is consistent with the American literature and involves: gathering of assessment data from professionals and parents about the student's current level of functioning; conducting a meeting or conference with parents, education, and related service personnel; establishing annual priority goals, with relevant short-term instructional objectives; deciding which educational and related services need to be provided; writing a document which details this information; implementing the program in the classroom; and monitoring the student's progress towards goal achievement (Fiscuss & Mandell, 1983; Morgan, 1981; Rees, 1986; Smith, 1990; Turnbull & Turnbull, 1986). This process is illustrated in Figure 1.



**Figure 1: Model of the IEP Process**

Adapted from W.Rees (1986) *Developing Individual education Plans* Brisbane: Divn. of Sp.Ed.  
Queensland Department of Education



Previous research has provided insights into the IEP process. However, most of this research has focused on only one group of stakeholders at a time, for example, teachers (Bennett, Shaddock, & Bennett, 1991; Dudley-Marling, 1985; Gerardi, Grohe, Benedict, & Coolidge, 1984; Gerber, Banbury, Miller, & Griffin, 1986; Morgan & Rhode, 1983; Pugach, 1982; Safer, Morrissey, Kaufman, & Lewis, 1978; White & Calhoun, 1987) or parents (Goldstein & Turnbull, 1982; Skinner, 1991; Turnbull, 1983; Turnbull & Turnbull, 1986). For example, Morgan and Rhode (1983) assessed the attitudes of special education teachers toward IEPs and the IEP requirements. Two hundred and seventy five teachers responded to the IEP Attitude Questionnaire, which contained 27 Likert-type questions on the IEP process. They found that special education teachers did not perceive a clear relationship between the written IEP document and the classroom routine. Teachers viewed the development of the IEP as an administrative, rather than an instructional task. These teachers also said they could teach just as effectively without the IEP, questioning the premise that the IEP was a guide to facilitate the planning, delivery, and evaluation of instruction. Similar perceptions among special education, resource room, and regular education teachers have been reported (Gerardi et al., 1984; Safer et al., 1978; Tymitz, 1980, 1981).

Parents have often been marginal members of IEP teams. For example, Goldstein, Strickland, Turnbull, and Curry (1980) observed IEP conferences and found that parents were primarily the recipients of information. Skinner (1991) reported that most parents did not participate actively in IEP conferences, but instead spent most of their time at the IEP meeting listening to professionals. IEP conferences in this study fell far short of true collaborative consultation. Barriers to parental participation were raised by Skinner (1991) and Turnbull and Turnbull (1986) including: perceptions that the IEP was a static document, lack of information about the IEP process, team members' lack of consultation skills, feelings of intimidation and inferiority by parents, communication difficulties due to jargon and cultural differences, and logistical problems in attending meetings such as babysitting and transport difficulties. Thus, while parents are supposed to play a key role in the IEP process, parental perceptions of the IEP process have not always been positive.

Of course, for children with more severe disabilities, IEP teams often include more than teachers and parents. Indeed, a team including representatives from a variety of disciplines is perhaps more likely to guarantee a comprehensive IEP for students with severe and multiple disabilities (Orellove & Sobsey, 1991; Smith, 1990). However, questions about the efficacy of the team approach have been raised. For example, potential problems associated with interprofessional team functioning include lack of collaboration and poorly organised decision-making/planning processes especially as the number and variety of team members increase (Pfeiffer, 1980). Given that team members from various disciplines may hold differing positions and perceptions of the IEP process, it would seem important to ascertain perceptions of all team members. This would provide a better understanding of their



knowledge of, involvement in, and views of the IEP process. Team members' perceptions are likely to influence their attitudes, behaviour and implementation of IEPs. Thus, the present study aimed to understand the perceptions of all members of IEP teams about the IEP process. The results presented in this paper formed part of a larger study of IEP implementation (Rodger, 1996). In this paper a qualitative approach to data collection and analysis was used. As there is limited research to date addressing the views of all stakeholders in IEP teams, an open-ended qualitative methodology was considered appropriate to identify the issues which require further investigation.

### Method

#### *Participants and Settings.*

The complete IEP teams from five special education classrooms participated in the study. These five classrooms addressed the needs of 25 students (aged 3 to 15 years) with moderate to severe and multiple disabilities and were drawn from two special schools in the Brisbane metropolitan area, Australia. Table 1 provides a description of the 25 students in these five classrooms. In Queensland, Australia, at the time of the data collection for this study (1994) the majority of students with moderate to severe and multiple disabilities, who were ascertained as having the greatest level of educational need, were educated in special schools. Eleven special schools, representative of special schools for students with severe

**Table 1**  
**Characteristics of Students in Each Classroom**

School	Class	Number of Students	Characteristics		
			Gender males (females)	Age range (in years)	Primary Diagnosis <sup>1</sup> Degree of disability <sup>2</sup>
1	1	5	4(1)	3-7	Multiple disabilities Severe
1	2	4	1(3)	8-11	Multiple disabilities Moderate
1	3	5	3(2)	11-15	Multiple disabilities Severe
2	1	8	6(2)	5-9	Multiple disabilities Moderate
2	2	3	3	10-11	Multiple disabilities Severe

<sup>1</sup> Primary diagnosis - multiple disability refers to students with mental retardation and some additional physical (eg. cerebral palsy) or sensory impairment. Two students had a visual impairment and one student had both visual and hearing impairment.

<sup>2</sup> Degree of disability was based on description in the students' school records.

and multiple disabilities, were approached about the study and the staff in two special schools agreed to participate. Reasons for non-participation by the other schools included: three schools were involved in other research projects, and one school had students with major health crises at the time they were approached. Of the remaining seven schools, the teams in two schools (29%) agreed to participate. The need to obtain the consent of every team member, parent and principal in order for a classroom in a school to be included also influenced the inclusion of schools in the study. This may introduce a selection bias towards classrooms in which teams are open to review of the IEP process and team functioning. However, in the absence of any Australian research documenting the perceptions of all stakeholders, this study of five teams in five classrooms provides some initial insights into team members' perceptions. There were between three and eight students in each classroom. The teams comprised parents, guardians, teachers, aides, physical-, speech-, and occupational therapists. Some teams also included a program officer, nurse, or other specialist teacher (eg., physical education teacher). There were 47 team members involved. Of these, 45 (96%) agreed to be interviewed. Two teacher's aides declined to be interviewed because they perceived that they had little to offer in terms of knowledge of IEPs. Table 2 summarises the professions and backgrounds of the 47 team members.

**Table 2**  
**Team Members Participating in the Study by School**

School	Team Members Profession/Background	Number
1	Special education teachers	3
	Teachers' aides	3 <sup>1</sup>
	Physiotherapists	2
	Occupational therapist	1
	Speech therapist	1
	Educational program officer	1
	Nurse	1
	Parents/guardians	14
Total		26
2	Special education teachers	3
	Teachers' aides	3
	Physiotherapist	1
	Occupational therapist	1
	Speech therapist	1
	Physical education teacher	1
	Parents/guardians	10
Total		21
<b>Total for School 1 and 2</b>		<b>47</b>

<sup>1</sup> 2 teachers aides in this school requested not to be interviewed.

*Procedures.*

Interviews were conducted, by the first author, with each of the 45 participants, following a period of four weeks in the schools videotaping in classrooms. The videotaping was part of a broader study into the implementation of IEP programs (Rodger, 1996). Thus, the interviewer had developed considerable rapport with many of the team members prior to the interview sessions. The team members were interviewed individually either at the schools or at home (in the case of carers/parents). One interview was conducted by telephone because it was impossible to arrange any other mutually convenient meeting place/time.

School staff were all interviewed at school at a time when active instruction was not occurring. This was either before or after school or during staff lunch times. The interviews ranged from 5-50 minutes, with a mean of 35 minutes. The one interview that lasted only 5 minutes was conducted with a parent, who was unable to answer any of the questions, due to his lack of awareness of the existence of IEPs. The subsequent questions were therefore, irrelevant and the interview was discontinued.

A semi-structured interview protocol, designed to elicit team members' perceptions of the IEP process, was developed for the purposes of this study. Table 3 provides examples of the questions used in the interview protocol. This protocol was used as a guide for the interviewer only and other questions were posed as issues arose or where clarification of responses was required. The interviews were audiotaped and transcribed verbatim, prior to analysis of content using the QSR NUD.IST data management software program (Weitzman & Miles, 1995). Transcripts were read and recurrent themes and issues identified. These were subsequently labelled and coded as they appeared in the transcripts. Commonly occurring themes are presented as well as analysis of negative cases where relevant (Gliner, 1994). Triangulation of data was achieved by use of different data sources (e.g., interview, videotaped observations and analysis of written documents) (Patton, 1990). In this paper only the qualitative findings from the interviews are presented. However, in developing labels and identifying themes, the interview data were viewed in the context of other data that was collected as part of the broader study (Rodger, 1996).

The analysis of data from one interview question requires further explanation. Team members were asked to identify the IEP priority goals/objectives for students in their class, except for parents/carers who were only asked about the IEP priorities for their child. Team members' responses regarding knowledge of IEP priority objectives were compared with the written IEP documents of each student using a knowledge checklist developed for the purposes of the study. This enabled coding of team members' descriptions of IEP priorities from the transcripts and cross checking these with statements of objectives from the IEP document. Team members' knowledge of each priority goal was credited only if it provided a detailed description of each goal which matched what was documented in the

written IEP. Once the knowledge scoring checklist was completed, percentages were calculated for each team member for each class. Percentages represented the number of priority objectives team members accurately described, divided by the total number of priority objectives for students in each class. The higher the percentage, the greater the team members' knowledge of the IEP goals.

Because of the qualitative nature of the data collected the results will be discussed as they are presented. Direct quotation from the participants in the study is indicated by use of italics.

**Table 3**  
Semi-Structured Interview Questions Used in the Study

**Team Members' Perceptions of the IEP Process**

- 1.1 How does the IEP process work in the classroom(s) you work in?
- 1.2 How is the IEP relevant to the way you work?
- 1.3 How is the IEP useful to students with intellectual disabilities or multiple disabilities?
- 1.4 What would make the IEP more useful?
- 1.5 What are the strengths of the IEP process?
- 1.6 What are the weaknesses of the process?
- 1.7 How involved are you in developing IEPs for students for whom you are responsible? Could you describe your involvement?
- 1.8 How useful is the IEP meeting?
- 1.9 Tell me your views about the IEP process?
- 1.10 Do you feel enough time is spent in IEP activities in your classroom?

**IEP Questions related to Students in the Class**

- 1.1 What are the priority IEP goals/objectives for student #1, #2 etc?
- 2.2 How often are the goals/objectives implemented for student #1 and #2?
- 2.3 What is your role in implementing the goals/objectives for student #1 and student #2?
- 2.4 How important is the specification of team members to take responsibility for certain goals/objectives?
- 2.5 Do you feel these goals/objectives are realistic for the student(s)?

**Results and Discussion**

*Team Members' Knowledge of IEP Priority Objectives*

There was a range of responses regarding accuracy of knowledge of IEP priority objectives by team members. Table 4 provides the results for each discipline and parents/carers in each class. With respect to class teachers, knowledge of priority objectives ranged from 41 to 100% accuracy. Parents'/carers' knowledge ranged from 17 to 79% of priority objectives. The knowledge of therapists and specialists about students' IEP priorities

ranged from 0 to 58%. It was noteworthy though not surprising, that with few exceptions, the therapists' knowledge of priorities reflected their own professional background or areas of expertise. For example, physical-therapists could recount in detail motor, gait, and postural objectives; speech-therapists were able to describe accurately communication and feeding objectives; and occupational-therapists identified fine motor, technology and self-care objectives. With a few exceptions, therapists tended not to have a detailed or accurate knowledge of objectives outside their areas of expertise or practical involvement with the students.

**Table 4**  
**Team Members' Knowledge<sup>#</sup> of IEP Priority Objectives for Each Classroom**

School/ Class	Class Teacher	Parent/ Guardian	Teacher Aide	OT	PT	ST	PE/ EPO
1/1	19/24 (79%)	19/24 (79%)	*	14/24 (58%)	3/24 (12.5%)	9/20 <sup>1</sup> (45%)	2/4 <sup>2</sup> (50%)
1/2	13/31 (42%)	15/31 (48%)	8/31 (25.8%)	--	--	--	--
1/3	14/26 (54%)	9/26 (35%)	*	--	8/26 (31%)	--	1/4 (25%)
2/1	11/27 (41%)	8/27 (30%)	5/21 (24%)	0/7 <sup>3</sup> (0%)	5/10 <sup>4</sup> (50%)	5/14 <sup>5</sup> (36%)	--
2/2	6/6 (100%)	1/6 (17%)	3/6 (50%)	0/2 <sup>6</sup> (0%)	--	2/4 <sup>7</sup> (50%)	--

<sup>#</sup> Knowledge is presented as a percentage. Percentages are an expression of the number of priority objectives team members accurately described, divided by the total number of priority objectives for students in each class.

OT = occupational therapist, PT = physiotherapist, ST = speech therapist, PE = physical education teacher, EPO = educational program officer.

\* = teacher's aides in these two classes refused to be interviewed.

<sup>1</sup> <sup>2</sup> <sup>3</sup> <sup>4</sup> <sup>5</sup> <sup>6</sup> <sup>7</sup> The varying totals in these columns arises because these team members chose only to talk about several students in these classes, rather than all the students. Hence percentages are based on the number of objectives they accurately described, divided by the total number of objectives for the selected students.

-- = These team members did not choose to discuss students in this class.

This raises an issue for therapists who are often the only therapist responsible for all the students in the school, or for several schools. It may not be realistic for them to be familiar with all of the students' IEP goals, nor even the goals of all the students with whom they work. However, from the point of view of IEP implementation it seems logical that if all staff who interact with a child know the children's IEP priority goals, then there is perhaps more likelihood that these goals will be implemented by that staff person and this may promote generalisation across staff and settings.

With respect to the four teachers' aides who agreed to be interviewed, knowledge of IEP priority goals was less than 25% for the classes in which they worked. This seems disappointing given that teachers' aides have a key role in working with students on a daily basis and therefore implementing IEP goals. Poor first hand knowledge of IEP goals may negatively influence implementation. One aide stated: *when they write the individual programs for each child, then I get to see*, and another said *I'm not really involved*. Two teacher's aides refused to be interviewed because they felt they had little to offer by way of knowledge about the IEP process or students' IEPs. This in itself is perhaps indicative of their perception of lack of involvement in the IEP process and lack of specific knowledge about the students' IEPs. Jones and Bender (1993) and Giangreco, Edelman, Luiselli and MacFarland (in press) claimed that while there has been a proliferation in the use of special education instructional assistants, (or teachers' aides), this has outpaced the conceptualisation of team roles and responsibilities, as well as the training and supervision of these assistants. The findings of this study confirm some of those by Giangreco et al. (in press), who suggested that the current approaches to providing instructional assistance in inclusive settings might be counterproductive. The lack of involvement of aides in the IEP process in these special schools, the amount of time spent by aides directly with students, the responsibilities they are given, and their relationship with the class teacher and other members of the instructional team are currently unresolved issues (Jones & Bender, 1993; Giangreco et al., in press). This is an area in need of further research and planning so that teachers' aides are empowered to assist students appropriately, with adequate supervision, support, and ongoing training.

While information was obtained about knowledge of IEP specifications, it is not clear whether precise, accurate knowledge of IEP priority objectives leads to increased implementation of these objectives on a daily basis. Further investigation of the relationship between knowledge of IEP objectives and implementation is worthy of future research attention.

#### *The IEP Process*

All staff members and 13 out of 14 ( 93%) of parents could identify how the IEP process operated in their classrooms. Only one parent was unable to describe what an IEP was and how the process operated. IEP meetings were either conducted with parents from the



outset or staff team members formulated a draft IEP plan which was taken to a separate parent meeting. Parent involvement in the IEP process was valued highly by both parents and staff team members. Despite this, some team members appeared to act as gatekeepers in the process, permitting parents to offer IEP goals for consideration but with the final decision-making being made by the professionals or by allowing parents to contribute a particular number of goals eg. two goals from the parents and two from the staff.

For example, one teacher said:

*Generally we go with what the parents want, but we try to balance it out so that we have three to four priority goals, hopefully the parents only have one or two that they really want so that we can do them and build a couple of our own into the program.*

While on the surface this may seem a reasonable compromise, this method of operating contradicts the premise that developing and prioritising a unified set of student goals should be developed through consensus and should be agreed to by all team members (Campbell, 1987; Giangreco, Cloninger, & Iverson, 1993; Giangreco, Edelman & Dennis, 1992; Pfeiffer, 1982, Rainforth & York, 1987). The notion of having sets of discipline-specific goals, that is, the parents' goals, the therapists' goals and the teachers' goals (Giangreco et al., 1992; Giangreco, Dennis, Edelman & Cloninger, 1994) is counter-productive to the spirit of IEP development.

Formal annual IEP meetings were regarded by staff team members as the minimum requirement for reviewing student progress, with all staff commenting on a preference for more frequent formal review (approximately every 6 months) as well as regular informal discussions. One school had planning meetings weekly to review student progress and this ensured that the IEP for each student in the class was reviewed at least monthly. The need for an appropriate venue, flexible meeting times and convenient location for parents was commented on by all parents in this study. These findings concur with those of previous research which identified potential barriers to parental participation in the IEP process, such as lack of transport or babysitting and inconvenient times and locations for parents (Turnbull & Turnbull, 1986). One teacher in the present study conducted IEPs in the parents' homes. She and one therapist visited the family at home. While it may not be possible to take the whole team to someones' home, she said:

*I think it gives them more confidence in a lot of ways and they are more comfortable, and also they are not bombarded with six people around them, that are all saying you should do this and that ...Home is also where they are comfortable, the child is usually there ... It also helps them to be more relaxed, talk and gets the parents able to cope and feel more in control of the decisions.*

Improvements to the IEP process raised by participants included more frequent IEP meetings, better monitoring/evaluation of progress and improved teamwork. Staff members suggested that

*not enough time is set aside for follow-up or review of IEPs six monthly and this doesn't happen. I think that once a year is not enough to check on these goals*



These comments by staff members are consistent with the literature which highlights principles of collaborative instructional design (Rainforth et al., 1992) and the need to include assessment of performance on IEP goals as an in-built component of the monitoring/ evaluation of student progress. Methods of improving team work, collaboration and integrating related services into the educational program have been described extensively (Orellove & Sobsey, 1991; Giangreco, 1995, 1996; Rainforth et al., 1992) and there is some evidence of evaluation of these methods of service delivery (Giangreco et al., 1993).

#### *The IEP Meeting*

IEP meetings were generally viewed positively by all team members as an essential step in the IEP process. The consensus view was that meetings needed to be child-focussed and that team members should be well prepared to discuss the students' IEP priorities. This view summarised that of many staff:

*Many people don't do enough thinking about students beforehand and use the meeting as their thinking time rather than coming prepared to speak, with thoughts clarified. This can lead to lengthy meetings that don't get anywhere ... I prefer to think before I get there and then the meeting is more a matter of prioritising at that point.*

The composition of IEP meeting teams varied widely from just the parent and teacher to all team members. Therapists usually took direction from class teachers as to whether they should be present or not. One speech therapist said:

*It depends on the teacher, some like us there, especially if it comes up that there is likely to be a communication goal for the child. Probably not necessary to go to all of them. I do like to go sometimes, just to be able to put my point of view across.*

While the literature is consistent in the view that all team members should be present at IEP meetings (Giangreco et al., 1993; Gaingreco, Baumgart, & Doyle, 1995), staff in this study had differing views on who should be present. The constitution of IEP meetings is important for ownership of the IEP document, commitment to implementation and taking of personal responsibility for certain IEP goals. Gaingreco et al. (1995) raised the issue of ownership of the student within the context of teachers of students with special needs in inclusive settings. Washington, Schwartz, and Smith (1994) also discussed the philosophy of shared vision and ownership as a critical outcome of collaborative team work. Further, they proposed that all members of the team and school community have shared responsibility in meeting students' needs. In the current study, ownership of the IEP document by all team members and specific responsibility for parts or all of it, seemed important to staff if they are to be committed to implementing the document on a daily basis.

The importance of hearing other people's viewpoints was raised by almost all participants in the interviews. Parents tended to view this positively, and saw brainstorming as identifying options and solutions, of which they had otherwise not been aware. Parents discussed the importance of:

*Swapping ideas ...suggesting different things, having a positive set of things we'd like to do, work on, throwing ideas around together, encouraging me once again about it, being aware of what they are doing (at school), agreeing on goals, working out together what the child really needs.*

One teacher commented that :

*The meeting is useful as sometimes a teacher can get over involved and needs to stand back to hear other people's comments, important for getting the input from other people and also to focus on the 'positiveness' of it all.*

The need to develop common goals and plan programs to meet these was also highlighted so that the whole team was focussing on the same priorities.

#### *The IEP Document*

All staff members and all but one parent found the IEP document both useful and worthwhile for students with multiple disabilities. The individualised nature of IEPs, the identification of realistic and achievable goals and the role of the document in focusing the team on specific objectives were recurrent themes. Without the identification of realistic goals, monitoring of progress was regarded as impossible. These findings are consistent with those of another Australian study by Bennett et al., (1991) in which generally positive attitudes by teachers about the IEP as a planning tool were revealed.

The IEP was also said to provide direction and structure to the class program and daily timetable. For example, one teacher said *the IEP gives structure and direction so that you can see where you're heading*. Another teacher reported that *the IEP provides a focus on ideals of the goals and programs for transferring into action for the classroom. IEPs provide an outline ... it is important to have the IEP for each child in mind throughout the day*. Carry over between school and home was also considered important and commitment of the whole team was considered necessary for this to happen. One therapist commented:

*I think it depends a lot on how the team has worked on it, How they are working together and again on their level of commitment to producing a really good (IEP) document and ensuring that it become a way of practising.*

Most staff considered that the IEP was the basis for daily activities, *the driving force* behind therapy with these children and that *the IEP governs fairly strictly what I do. The IEP is a good guideline for us to go with, because you can't work on too many things at once with these kids*. These types of comments are in contrast to previous American research in which many teachers considered that they could teach just as effectively without an IEP (Banbury, 1983; Dudley-Marling, 1985; Morgan & Rhode, 1983). Indeed team

members in this study viewed the IEP as a guide to facilitate the planning, delivery and evaluation of instruction to students with special needs, which is in keeping with the basic premise of IEP development. Apart from more practical suggestions regarding the layout of the forms, no major improvements to the IEP document were considered necessary by staff team members or parents.

#### *IEP Objectives/Goals*

All parents and staff felt that IEP goals were realistic, however, some qualified their responses suggesting changes to the wording of goals and objectives and that consideration of personnel and student's health status were needed. Staff attributed their generally positive feeling about the realistic nature of IEP goals to close communication with parents, the setting of goals which were small, achievable and had discrete time frames, the recognition that goals took time to achieve; and that sometimes they may need rewriting or time frames may need extending. Contrary to other teacher reports (Price & Goodman, 1980; Tymitz, 1980, 1981), the team members in this study did not perceive that they lacked assessment skills or skills in writing short and long term goals. Instead, they appeared to feel reasonably competent in developing functional, realistic and attainable goals and objectives.

The frequency with which goals were implemented was an issue which emerged from the interviews. Staff felt that goals which were part of the obvious routine of the day (eg., self-care and behaviour management goals) were more likely to be implemented than specific individual goals requiring withdrawal. One therapist commented that:

*Some goals are easier to implement such as feeding goals, they are all eating in the classroom, another one is behaviour, which is happening all the time ... some behaviour goals have to be dealt with first as an underlying theme, in order to work on other goals.*

#### *Team Members*

Team members' responsibilities are a complex issue, which varied considerably from classroom to classroom. There was consensus that the classroom teacher needed to be the primary coordinator or manager of the students in the classroom, however, the amount of involvement of other team members varied depending on the teachers' management style. Some teachers involved therapists from the outset, negotiating with them to take responsibility for certain, usually discipline-specific goals. Others maintained that ownership of the IEP remained with the teacher with therapists implementing aspects of goals within their area of expertise only. Gent and Mulhauser (1988) concluded that the development and implementation of IEPs required the collaboration of parents and professionals as core members of the IEP team, with parents generating the long term goals and staff team members devising the short term objectives to meet the families' long term goals.

When teachers involved therapists from the outset in writing IEP goals, conducting task analyses, setting up programs and design strategies, this seemed to provide a more unified approach. These teachers expressed more satisfaction with the IEP process, in that they were less burdened by the enormity of the task. Some studies have reported concerns among teachers about the time wasting nature of writing up IEP documents (Morgan & Rhode, 1983; Safer et al., 1978). However, the current findings indicate that there may be practical methods of minimising this task and involving other team members at the same time.

Most staff felt that everybody should work together to implement the plan, and that while some one-to-one instruction was necessary, all team members should be aware of the child's goals and take some responsibility for implementing them. This was considered important for consistency. However, in terms of implementation, there was a pervading theme that one person should have overall responsibility, like a case manager, but all staff should be involved to some extent. One therapist stated:

*It is the responsibility of all staff, as well as for one to have prime responsibility ... all staff need to know that they are responsible for it happening. It is really the responsibility of the coordinator of the IEPs to keep it going and that is often the teacher ... Someone has to take on responsibility initially to set it up and then to monitor it.*

One teacher felt strongly that:

*I am the case manager in all cases ... I write up the IEPs in consultation with the therapists. I think it has to be my responsibility because I am the prime person involved ... I think if you get a therapist to actually write it, it becomes their program and not yours and you are the one who actually has to carry it out.*

Another teacher held the opposite view on ownership of goals. She claimed:

*Someone needs to take responsibility for each area of the program and write it up, ensuring someone owns different parts of the program; standing and transfers may be a PT goal to write up, switch access an OT one ... While the teacher is the leader or manager, having people own different parts of the plan, write them up, take responsibility for them is important ... That is the best way to get therapy integrated into the classroom. If therapists feel ownership of the program areas they will be responsible for them and see them through.*

While these thoughts are consistent with some aspects of the integrated programming approach (Rainforth et al., 1992), they contradict the concept of shared, discipline-free goals. Giangreco (1996) proposed that student learning outcomes and supports should not be selected on the basis of what is valued by professionals from various disciplines. Achieving effective and productive integration of related services into classroom settings remains a challenge for all team members, consistent with the growing body of literature on this topic. The evaluation of methods of providing related services within educational settings is still relatively scarce in the literature (Giangreco, 1995). Washington, et al.

(1994) discussed shared vision and ownership as a critical outcome of collaborative team work. Further, they proposed that all members of the team and school community have shared responsibility in meeting students' needs.

#### *Strengths of the IEP Process*

The strengths of the IEP process as perceived by the participants, included its individual focus, the prioritisation of goals, the ability to monitor progress, gauge development and provide accountability and direction, the involvement of parents/carers as equal partners in the decision making process, and the importance of team discussion, good communication and consultation skills among team members. The need to see the IEP process as a partnership, where team members have equal status, was also mentioned. All of these strengths are consistent with the proposed ideals of the IEP process (Rodger, 1995). One therapist stated:

*As long as people can communicate with each other, it works well. Once you have communication breakdowns and people are not told things are going on, ... or if people are not clear about each others' roles, then the IEP can't function.*

The importance of prioritising goals was highlighted by a carer's view of a child. She said:

*if you give her (the child) too many different things then I think it just gets too much for her, whereas if she concentrates on one or two things, you get more value out of that one or two things than if you did half a dozen.*

One therapist felt that *the IEP is really good for pulling a team together and for the accountability of the team ..giving you direction and also helping the parents get involved.* Another stated that *equal partnership is important, everyone has something to offer ... physical presence to attend meetings is important to form trust with other staff members.* Parent involvement and the development of school and home partnership were also viewed as strengths of the IEP process.

#### *Weaknesses of the IEP Process*

Weaknesses of the IEP process were identified, including lack of human resources, unrealistic goals, confusion regarding the emphasis of the IEP in relation to the child's overall education, lack of teamwork and inadequate time. The latter two were considered weaknesses as well as barriers to IEP implementation. In terms of the unrealistic nature of goals - some goals were considered unrealistic because they did not fit into the class program, others were considered to have been given an unrealistic time frame for achievement (the time frame usually being too short). Sometimes staff felt parents had unrealistic expectations of their child and that the goals were therefore unachievable. In the spirit of the IEP process, these inconsistencies or points of conflict should be resolved through consensual decision making at the IEP meeting, where the IEP priorities are established for the year.



Staff were frequently frustrated about the emphasis on IEP priority goals and felt a lack of flexibility to pursue discipline-specific goals which they considered important. Sometimes parents' and staff members' views of priorities conflicted and had to be reconciled. The IEP priorities of students often impacted on how therapists prioritised their time to work with different students. They often found it difficult to justify spending time with a student who did not have an IEP priority in their particular area of expertise. This suggests that these teams have not yet established a *shared framework* (Giangreco, 1996) for decision making to which all team members agree, nor are they purposefully pursuing common goals.

People seemed to struggle with balancing the provision of a general education and achievement of specific IEP priority goals. Where students had severe multiple disabilities, staff tended to feel that the IEP was equivalent to the child's educational program, however, where students had moderate multiple disabilities the IEP was often considered part of the program, with students engaging in other curricular activities as well as their IEP.

One teacher expressed the views of several staff members:

*I think there is too much emphasis on the IEP or achieving IEP goals, and sometimes the focus is lost on the overall education. I guess that is a trade off, when you are really focussed on IEP goals then you might lose something else ... Sometimes, parents may tune in solely on the IEP and sort of see that as all that happens.*

#### *Barriers to Implementation*

Two key barriers to IEP implementation identified by staff were lack of time and insufficient teamwork. Several other less frequently cited barriers were lack of equipment and lack of continuity when the student changed classes from one year to the next. There were conflicting opinions about increased personnel and how it would influence the availability of one-to-one intervention with students. Barriers to teamwork included poor communication, non attendance of all team members at meetings, lack of commitment, and the need to reconcile conflicting views on priorities. Lack of team work was considered to impact negatively on the IEP process. The success of the IEP was considered dependent on:

*...how the team works on it, how they are working together and again on their level of commitment to producing a really good IEP document and ensuring that it becomes a way of practising... it really requires a commitment to making it work, both setting the process going and actually documenting it and actually carrying it out.*

The importance of ownership of priority goals and therefore responsibility for their implementation was also raised in this context. Some teachers became discouraged by team members who were seen as needing constant direction and not taking responsibility for familiarising themselves with goals and implementation. One teacher said:

*It gets really frustrating to have to keep reminding people over and over again.*

*I think that everyone coming into the classroom, should read the IEPs and know the students' goals, procedures and programs and it should be their responsibility to carry them out... I get really frustrated at having to constantly be at people to do things properly for the child.*

Lack of caregiver commitment to carry out programs in the home setting was also therapists felt they could assist teachers optimise activities in the classroom, when they were unable to be present.

#### *Views on IEP Implementation*

All but one parent considered that enough time was spent in IEP activities, but none could specify how often the IEP goals were implemented. Only one parent was dissatisfied with how little time her son spent in IEP activities. Some staff commented that IEP activities were going on continuously, for example, when the goals related to aspects of communication and behaviour management. Most staff felt it was unrealistic to expect IEPs to be implemented 100% of the school day. For example, one staff member said *a lot of communication goals are happening all the time. The nature of the goal affects the time taken to work on it.*

Another teacher commented:

*It really comes back to what the IEP goals are. I think ... with certain children the IEP goals are virtually run throughout the whole day and they dictate what is done ... communication and switch-related goals are done continually especially the communication goals.*

Staff also recognised that it was possible to over emphasise IEP goals. One physiotherapist stated that:

*How well the IEP is written and how relevant the goals are has a bearing on how well it is implemented and how effective, creative and innovative the program is.*

Another therapist commented that the nature of the child influenced goal implementation. She said:

*If a child is fairly demanding in terms of behaviours and attention, you are more likely to really focus on them and make sure that the goals are done ... The children who are quieter and perhaps not as responsive, more withdrawn may not have their IEP goals carried out as much, because it might have been harder to set goals for them in the first place.*

The perceptions of some staff that the behaviour of the student affects the teachers has been described by Taylor and Carr (1992) as *child effects*. The possibility that the temperament/personality of the student may affect team members' responses to the student is indeed worthy of further research, as the exact nature of this relationship is unclear.

Other staff focussed on the nature of the goals and how they influenced implementation. It seems that goals which are part of the obvious daily program, such as self-care goals, are



likely to be implemented, because self-care opportunities arise naturally during the day. Likewise communication and behaviour management goals tend to be implemented more easily because communication with the students is an obvious activity which occurs throughout the day. Managing challenging behaviour also tends to be required at various times during the course of the day or is used to assist with compliance with most daily activities. This highlights the need for teams to schedule carefully into the daily program IEP goals which are not part of the daily routine.

### **Conclusion**

By interviewing all stakeholders in the IEP process, we have gained a better understanding of the IEP process and the perceptions of all team members about the process in five classrooms in Queensland, Australia. The interviews revealed that team members viewed the IEP process as worthwhile. They could identify how it operated in their classrooms and had specific views about the strengths and weaknesses of the process, as well as barriers to IEP implementation. Parents and carers tended to be more satisfied with the IEP process than staff team members, who had more explicit knowledge of the process and its implementation at school. On the basis of this more specific knowledge they were able to be more critical of it and offer suggestions as to how to improve IEPs and their implementation. Some limitations of this study need to be recognised, namely: the 5 classrooms came from only 2 special schools in and around Brisbane, Australia. The possible selection-bias towards classrooms where teams were open to review and discussion of the IEP process is acknowledged. However, in the absence of published Australian research on the perceptions of all stakeholders or team members in the IEP process, this study provides some preliminary findings on the views of parents, therapists, and teachers. As such it has highlighted some issues in need of further clarification and research, as well as highlighting the importance of communication, collaboration, ownership of, and involvement in the IEP process by all members of the team.

A number of issues worthy of future research were identified in this study including: the effect of team members' knowledge of IEP goals on implementation, the nature of students' behaviour on staff interaction with the student and implementation of IEP goals, methods of collaborative team work to improve effective use of time and personnel, the effectiveness of different models of service delivery such as direct versus indirect service delivery (e.g., consultation), and the need to empower teachers' aides to best develop their role within the classroom. This research was restricted to special schools, however, with the trend towards inclusion of more students with severe and multiple disabilities into general education settings, the development and implementation of the IEP process in these settings is another area worthy of future research.

This study has highlighted the perceptions of key stakeholders in the IEP process and has added to our understanding of the IEP process from a range of perspectives. The insights

gained can help us optimise the successful operation of the IEP process in the schools and classrooms concerned, as well as develop further studies which are sensitive to the complexities of the IEP process and focus on the actual implementation of IEPs in such classrooms.

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**A NORTH AMERICAN ANALYSIS OF THE RELATIONSHIP BETWEEN  
DEFINITIONS OF LEARNING DISABILITY  
AND DEVELOPMENTAL COORDINATION DISORDER**

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*In North America, there is an increasing interest in, and recognition of a disorder recently titled Developmental Coordination Disorder (DCD). Researchers have suggested that DCD has some relationship to learning disabilities (LD), however, the nature of this relationship seems to have been ignored in the field of learning disabilities. Thus, the present review systematically explores the possible relationship between developmental coordination disorder and learning disabilities using existing Canadian and American learning disability definitions. It was concluded that despite variability in LD definitions' implications for the relationship between DCD and LD, the weight of the information suggests that DCD may co-occur with LDs but is not a direct symptom of LDs. Implications for practioners in the field of learning disabilities are presented.*

**The relationship between developmental coordination disorder and learning disability: What do the definitions tell us?**

Educators are increasingly identifying children who are so clumsy that they have difficulty in their daily achievements at school and during play (Missiuna & Polatajko, 1995). Most of these children have a little recognized disorder called Developmental Coordination Disorder (DCD). DCD first appeared in 1987 as a diagnosis in the Diagnostic Manual of

Mental Disorders (DSM III-R: American Psychiatric Association, 1987) and continues to appear in DSM-IV (APA, 1994). Longitudinal studies of children with DCD have suggested a strong association between clumsiness in the early school years and later learning difficulties and school failure (Cantell, Smyth, & Ahonen, 1994; Cermak, Trimble, Coryell, & Drake, 1990; Gillberg & Gillberg, 1989; Losse, Henderson, Elliman, Hall, Knight, & Jongmans, 1991). Despite these findings of a possible relationship between LD and DCD, nothing has been written about DCD in the learning disability literature; in fact, a search of the major LD and Special Education journals show that only two articles have been written considering children who are clumsy since the disorder was first formally recognized in 1987. In this paper, five possible relationships between DCD and LD are hypothesized. Several LD definitions used in Canada and/or the United States are then reviewed to systematically support or reject the suggested hypothesized relationship between Developmental Coordination Disorder and Learning Disabilities in order to mount the argument that the relationship needs further examination by educators and researchers.

#### **Defining Developmental Coordination Disorder**

In many classrooms, a child can be observed who experiences great difficulty with handwriting, frequently drops and bumps into things, has difficulty dressing for gym or recess, and is often last to be picked on a sports team. This child's difficulty in learning and mastering motor tasks sets him apart from his peers, affecting his performance in daily activities at school, at home, and in the community. This description typifies the child who has DCD.

DCD is defined as *a marked impairment in the development of motor coordination...[where] performance in daily activities that require motor coordination is substantially below that expected given the person's chronological age and measured intelligence* (APA, 1994, p. 54). The definition stipulates that this motor impairment is not due to a medical condition such as cerebral palsy, muscular dystrophy, or any other neuromuscular disorder. These children are slow in learning motor tasks such as writing, catching a ball, dressing themselves, buttoning their clothes, tying their shoe laces, or even handling a spoon (Gordon & McKinlay, 1980).

Although still rarely recognized and diagnosed, DCD has been described in the literature since the 1900's under a variety of labels such as developmental dyspraxia (Ayres, Mailloux, & Wendler, 1987; Cermak, 1985; Denckla, 1984; Goodgold-Edwards & Cermak, 1990), minimal brain dysfunction (Gillberg, 1985; Gillberg & Gillberg, 1989; Spreen, 1988), perceptuo-motor dysfunction (Bairstow & Laszlo, 1989), motor learning difficulties (McKinlay, 1987; Stephenson, McKay, & Chesson, 1991), physical awkwardness (Marchiori, Wall, Bedingfield, 1987; Wall, Reid, & Paton, 1990) and, most commonly, clumsiness (Cratty, 1994; Dare & Gordon, 1970; Gubbay, 1975; Gubbay, Ellis, Walton, & Court, 1965; Henderson & Hall, 1982).



Based upon an estimated prevalence of 5-6% (APA, 1994; Henderson & Hall, 1982; Missiuna, 1994; Sugden & Keogh, 1990), 129,000 Canadian elementary school-aged children and 1,419,039 American elementary school-aged children may be affected by DCD. These children are typically identified at school entry for this is when their motor difficulties become most apparent (Roussounis, Gaussen, & Stratton, 1987). They are often first identified by educators and parents (Henderson & Hall, 1982; Keogh, Sugden, Reynard, & Calkins, 1979) and are then referred to pediatricians and occupational therapists (Fox & Lent, 1996). Children with DCD now comprise a large percentage of the caseload of school-based therapists in both the United States and Canada (Missiuna & Pollock, 1995). The etiology of this disorder has yet to be identified, but its heterogeneous presentation is well-described (Missiuna & Polatajko, 1995; Willoughby & Polatajko, 1995). While several authors have attempted to hypothesize subtypes (Ayres, 1972; Cratty, 1994; Goodgold-Edwards & Cermak, 1990; Hoare, 1994; Larkin & Hoare, 1992), no generally accepted groupings have been identified and DCD continues to be the only disorder cited in the DSM-IV category of motor skills (Kaplan, Sadock, & Grebb, 1994). Longitudinal studies have shown that the condition persists into adulthood and is associated with secondary social, emotional, and behavioral difficulties (Cantell et al., 1994; Gillberg, Gillberg, & Groth, 1989; Losse et al., 1991).

#### **Learning Disabilities and DCD**

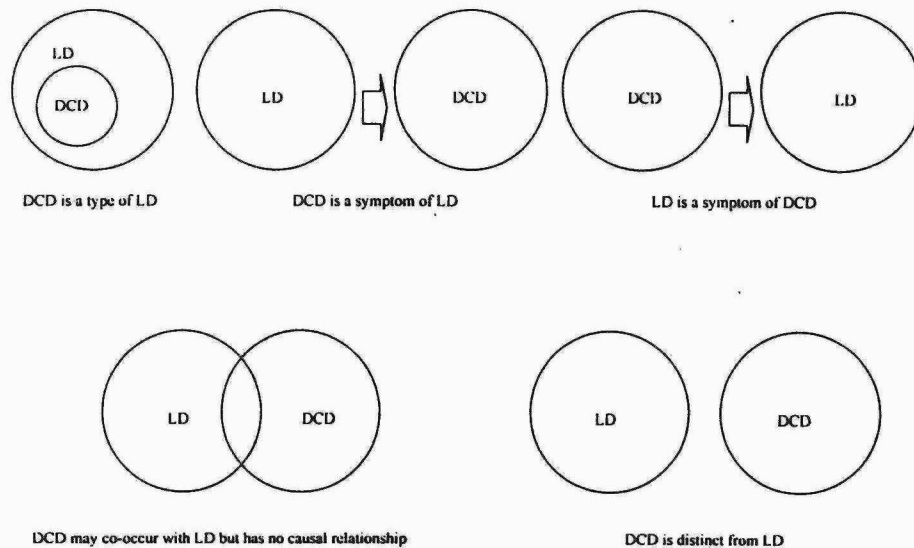
Motor incoordination is a characteristic that is described in many children with learning disabilities (LD) (Lazarus, 1990; APA, 1994). In fact, LD and DCD appear to share many common characteristics such as the original label of minimal brain dysfunction, associated disorders such as attention deficit disorder with/without hyperactivity (ADD/H)(Cratty, 1994; Kaplan et al., 1994; Kavale & Forness, 1994; Lazarus, 1990; Silver, 1990; Weber, 1994), as well as etiological conjectures of abnormal peri/pre-natal influences, sensory integrative difficulties, and/or sensory processing difficulties (Ayres, 1972; Doris, 1993; Gaddes, 1980; Larkin & Hoare, 1992; Sugden & Keogh, 1990). While this suggests that there may be a relationship between LD and DCD, the nature of that relationship has not been explored. If one were to examine every possible relationship, one could propose five hypotheses ranging on a continuum from a strong relationship with completely overlapping descriptions (i.e., DCD is a LD) through to no relationship (i.e., DCD is entirely distinct from LD). The relationships, then, may be hypothesized as follows (see Figure 1):

- 1) DCD is a type of LD;
- 2) DCD is a symptom of LD;
- 3) LD is a symptom of DCD;
- 4) DCD may co-occur with LD but has no causal relationship;
- 5) DCD as distinct from LD.

Since the 1960's, controversy has reigned over the attempt to define the term learning disabilities (Adelman & Taylor, 1986; Shaw, Cullen, McGuire, & Brickerhoff, 1995;



Tomlan & Mather, 1996). Over the years, definitions of LD have evolved and, as Hammill (1990) noted in his critical review of eleven definitions of LD, consensus has been found among LD definitions on various definitional elements. These elements include: CNS dysfunction etiology; the disruption of psychological processes; the presence of the LD throughout a person's life span; the specification of both language and conceptual problems as potential learning disabilities; the description of other related conditions, such



**Figure 1: Hypothesised relationship between DCD and LD**

as social skills difficulties, spatial orientation difficulties or motor difficulties; and the allowance for a multihandicapping nature. The finding that every well-recognized definition of learning disability shares these definitional elements, suggests that fundamental agreement exists on most issues surrounding the definition of a LD. Hammill (1990) recommends the use of a single umbrella definition and concludes that the National Joint Committee on Learning Disabilities (NJCLD) definition is presently the most widely accepted definition to date and may become the consensus definition. This definition, and others that have contributed to its evolution, will be reviewed in an effort to substantiate or refute each of the hypotheses outlined previously regarding the relationship with DCD.

#### *1.) DCD is a type of LD*

Hammill (1990) presents the Association for Children with Learning Disabilities (ACLD) (ACLD, 1986) definition:

*Specific Learning Disabilities is a chronic condition of presumed neurological*

*origin which selectively interferes with the development, integration, and/or demonstration of verbal and/or nonverbal abilities. Specific Learning Disabilities exist as a distinct handicapping condition and varies in its manifestations and in degree of severity. Throughout life, the condition can affect self esteem, education, vocation, socialization, and/or daily living activities. (p.78)*

The ACLD definition makes reference to nonverbal abilities, suggesting that motoric deficits could be conceived of as a LD. This definition also recognizes the secondary impact of these difficulties on daily tasks. In a similar vein, the definition put forth in 1986 by the Learning Disabilities Association of Canada (LDAC) states:

*Learning disabilities is a generic term that refers to a heterogeneous group of disorders due to identified or inferred central nervous system dysfunction. Such disorders may be manifested by delays in early development and/or difficulties in any of the following areas: attention, memory, reasoning, coordination, communication, reading, writing, spelling, calculation, social competence, and emotional maturation (LDAC, 1986).*

This definition includes difficulties in coordination (at the same level as reading, writing, or calculation) as an indication of a learning disability. Utilizing such a definition, the disorder of DCD would be viewed as a learning disability since DCD would be considered to be an impairment in coordination. Thus, there is some, albeit minimal, support for the idea that DCD could be a type of LD.

## *2.) DCD is a symptom of the LD*

The Learning Disabilities Association of Quebec (LDAQ) describes clumsiness, awkward movements, poor handwriting, and poor ball throwing and catching as some of the signs and symptoms of a learning disability (LDAQ, 1986). Under the definition and descriptions of the LDAQ, DCD might be recognized as a symptom of a learning disability. A number of studies have attempted to identify subtypes of LD; however, consensus has not yet been reached regarding specific clusters of difficulties (Bender, 1995; Hooper & Willis, 1989; Siegel & Metsala, 1992). The subtype that is of relevance to a discussion of DCD has been referred to as Nonverbal Learning Disability (NLD). The construct of NLD originated from developmental neuropsychological research of LD relating to differences between the functions of right and left hemispheres (Rourke, 1989). In 1967, Myklebust was one of the first to suggest the existence of a nonverbal learning disability (Little, 1993; Myklebust, 1975) when he defined learning as being either verbal or nonverbal. He reported that individuals who had non-verbal disabilities demonstrated difficulties with visual-spatial processes and in planning motor actions such as writing. This description seems to be similar to the motor planning difficulty often observed in children with DCD. Rourke (1989) established the characteristics of the NLD syndrome through a description of neuropsychological assets and deficits which are viewed as causative of the academic and socioemotional/adaptational aspects of the syndrome (Rourke, 1989). One of the primary deficits identified is complex psychomotor (along with tactile perception, visual perception,

and novel material). This complex psychomotor deficit is described as deficient bilateral psychomotor coordination, prominent, more marked on left side of the body, and increasing in severity with age (except with well practiced skills) (Rourke, 1989). Motor impairment is also described by Rourke within the categories of verbal deficits, including oral-motor praxis, and academic deficits, including early graphomotor problems. Furthermore, Harnadek and Rourke (1994) report results of a study which provide evidence that the most representative features of the NLD syndrome include deficient development in visual-perceptual-organizational ability, complex tactile-perception ability and psychomotor coordination skill: all of these skills are difficult for children with DCD. Thus, this literature also appears to suggest that DCD is a symptom of NLD.

### 3.) *LD is a symptom of DCD*

Adelman and Taylor (1986) developed a model to differentiate types of learning disabilities. The model views learning disabilities along a continuum that is dependent on the locus of the primary instigating factors (Adelman, 1994). Type I learning problems are those caused by factors outside of the individual; that is, factors in the environment. Type II learning problems are caused equally by factors both within the individual and in the environment. Type III learning problems result from factors within the individual. Adelman (1994) does not consider a fourth type of learning disability, but Adelman and Taylor (1986) earlier described a Type IV learning problem that would account for those learning difficulties that occur secondarily to other disorders such as autism.

A similar attempt to identify different levels of learning disabilities was undertaken by Shaw et al. (1995). Level I is described as an Intraindividual Discrepancy, within which specific areas are identified. Level II, Discrepancy Intrinsic to the Individual, is similar to Adelman and Taylor's Type III where it is determined that the learning disability stems from the individual. Within Level III, Related Considerations, associated limitations in physical, sensory, or psychosocial skills/abilities are established: this level appears to be equivalent to Adelman and Taylor's Type II learning problem. Finally, Level IV, Alternative Explanations of Learning Difficulty, proposes other reasons for the learning problems, such as decreased motivation or another disability such as a traumatic brain injury. This last category seems much like Adelman and Taylor's Type I learning problem.

Within these two models, one could suggest that DCD be considered as an impairment that is intrinsic to the individual that is contributing to, or causing, the learning difficulty. Learning problems may arise from aspects of DCD that are intrinsic to the individual (e.g., poor handwriting), as well as factors that are extrinsic to the individual (e.g., no computer or alternate writing method available). These models allow for the possibility of a DCD underlying or causing a learning problem, which in turn may be diagnosed as a learning disability. This hypothesis, however, could also be argued to be a misdiagnosis if the source of the problem is truly a motoric disorder.

#### 4.) DCD and LD may co-occur, with no causal link

The most recent definition put forth by the National Joint Committee on Learning Disabilities (NJCLD) is the following:

*[Learning Disabilities] is a general term that refers to a heterogeneous group of disorders manifested by significant difficulties in the acquisition and use of listening, speaking, reading, writing, reasoning, or mathematical abilities. These disorders are intrinsic to the individual and presumed to be due to central nervous system dysfunction. Problems in self-regulatory behaviors, social perception, and social interaction may exist with learning disabilities but do not by themselves constitute a learning disability. Even though a learning disability may occur concomitantly with other handicapping conditions (e.g., sensory impairment, mental retardation, social and emotional disturbance) or environmental influences (e.g., cultural differences, insufficient/ inappropriate instruction, psychogenic factors), it is not the result of those conditions or influences (National Joint Committee on Learning Disabilities, 1994, pp. 65-66).*

The above definition is reported to include all the essential elements as identified and advocated by professionals in the field of LD (Doris, 1993; Shaw et al., 1995) in that it is regarded as inclusive and not restricted by age. Coordination is not incorporated within this definition of learning disabilities; however, if one is to consider the fact that incoordination often exists in a child with learning disabilities, then this definition would likely consider DCD to be an associated disorder similar to difficulties in self-regulation, social perception and social interaction.

The NJCLD approach to defining LD as concomitant with other disorders - but excluding the possibility of LD resulting from such disorders - is shared by the vast majority of LD definitions. In fact, definitions such as the ones put forth by The National Advisory Committee on Handicapped Children (NACHC) (NACHC, 1968; the Northwestern University (Kass & Myklebust, 1969); and the 1977 U.S. Office of Education (USOE) (USOE, 1977) specifically exclude any difficulty stemming from a motor problem as being a LD. The Interagency Committee on Learning Disabilities Definition would seem to leave open the possibility of viewing DCD as a concomitant condition in the same way as sensory impairment, mental retardation, social and emotional disturbance (Smith, 1997).

#### 5.) DCD as distinct from LD

The medical diagnosis for a learning disorder is described by the American Psychiatric Association (1994). While the DSM III-R(1987) included motor skills disorder, along with academic skills disorder and language and speech disorders under the general classification of developmental learning disorder, the DSM-IV(1994), has separated them into three specific developmental disorders: 1) learning disorders; 2) motor skills disorder; and 3) communication disorders (APA, 1994). Learning disorders include: reading, mathematics,

written expression, and learning disorder not otherwise specified. Motor skills disorders includes only one disorder: developmental coordination disorder. Finally, communication disorders include: expressive language disorder, mixed receptive-expressive language disorder, phonological disorder, stuttering, and communication disorder not otherwise specified. The motor skills disorder, DCD, has been clearly removed from the umbrella of developmental learning disorders. One may argue that a disorder of written expression includes poor handwriting and copying ability, characteristic features of developmental coordination disorder; however, the differential diagnosis for this disorder specifies that if an impairment in coordination is the source of the writing difficulty, then a diagnosis of DCD should be given (APA, 1994). Therefore, a clear distinction and recognition of DCD as separate from LD has been made by the American Psychiatric Association.

In summary, moving from proposing a strong relationship between LD and DCD to a weak relationship we see a pattern of increasing support in the LD literature for an understanding of DCD as an associated disorder but with the exclusion of any causal link. The majority of LD definitions support this approach and, even the DSM-IV perspective, interpreted as supporting DCD as distinct from LD, suggests the possibility that they may co-exist in an individual (APA, 1994). It is important to note, however, that evidence such as the subtyping literature would appear to substantiate the possibility of a causal link. Clearly, the relationship warrants empirical investigation and further consideration by researchers and practitioners.

#### **What is the relevance of this relationship for educators?**

If we accept, at a theoretical level, that DCD and LD may be associated but exist separately and have no causal link, then what would the implications be for educators in the LD field?

The prevalence of children with DCD who have learning disabilities, or the converse, is not yet known. In one pilot study, 81.6% of children with DCD who were receiving intervention from occupational therapists in School Health Support Services were found to have associated learning disabilities and/or attention deficit disorder (Missiuna, Sonderegger, & Enns, 1997). The issue is that the presence of DCD has direct implications for academic functioning in the classroom. The child who has difficulty printing, copying from the blackboard and aligning numbers on the page, is likely to have difficulty in all aspects of written expression and many aspects of mathematics and spelling. Children with DCD require far more effort than usual simply to form letters and numbers and they take much longer to complete written assignments. Thus, written work is often messy, with poorly organized spacing and frequent errors of omission and reversal in spelling. They may also have difficulty learning and applying arithmetic operations since numbers may be copied incorrectly, aligned improperly or reversed. It becomes imperative to sort out whether the learning disability is co-occurring with DCD or whether an apparent learning difficulty is arising secondarily to the output difficulties experienced by the child. For a



child with DCD and no concomitant LD, modifications such as photocopying math pages, the use of computers for written language assignments, etc., may be of tremendous benefit and can virtually eliminate the apparent learning difficulty. The child with LD who also has DCD, however, may not learn as well through many of the methods that are believed to be helpful for children with LD; for example, some of the kinesthetic and multisensory methods may be aversive to a child with DCD who learns motor skills best through verbalizations.

If DCD is recognized as a concomitant condition to LD, rather than simply as a symptom of a known LD, teachers and other educators can be made aware of its distinguishing characteristics. This will facilitate identification and appropriate referral of children with DCD.

In conclusion, there has been an increasing focus on DCD in North America which prompted the authors to speculate concerning the complex relationship between DCD and LD definitions. However, in light of the differences between Canadian and U.S. perspectives on the LD/DCD definitions, it would be of great interest to obtain other countries' viewpoints on the relationship between DCD and LD. The present conclusion must be limited to a North American perspective until that time.

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**SCHOOL INTERVENTIONS FOR STUDENTS WITH ATTENTION  
DEFICIT HYPERACTIVITY DISORDER:  
SOME IMPLICATIONS FOR SCHOOL PERSONNEL**

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*Children diagnosed with Attention Deficit Hyperactivity Disorder (ADHD) consistently have a difficult time succeeding in the classroom environment. Diffused attention and distractibility, impulsivity, and overall general hyperactivity permit ADHD children from focusing on tasks, and thus from being successful. Teachers need to address antecedent conditions, as well as set up personalized behavioral interventions or systems of reinforcement for each individual student. There are a variety of interventions such as token economies, daily report cards, and cognitive-behavioral interventions that are effective, and each was examined. An important key is to match the intervention with the student's abilities and needs. This review examines the strengths and weaknesses of such interventions. In addition, implementation questions for each in the classroom are made.*

Children with Attention Deficit Hyperactivity Disorder (ADHD) have been observed to experience difficulties in the classroom time and time again (Abramowitz & O'Leary, 1991; Barkley, 1990). According to the American Psychiatric Association, Attention Deficit Hyperactivity Disorder, or ADHD, has three essential features: inattention, impulsivity, and hyperactivity. Through research it has been determined that 3 to 5% of all school aged children could be diagnosed as having ADHD (Ingersoll, 1988). *Children suffering from this disorder are typically of average intelligence; however, diffused attention and distractibility which contribute to lower academic achievement keep them from focusing*

on tasks (Blanton & Johnson, 1991). For this reason it is important for educators to begin focusing on implementing successful interventions in their classrooms. This paper will discuss some of the current approaches to helping children affected by Attention Deficit Hyperactivity Disorder perform some of basic tasks that will enable them to become more successful learners in the classroom setting.

### **Antecedent Conditions**

Antecedent conditions refers to the setting and environmental design, the structure of the setting, seating arrangements, and characteristics of the task (Abramowitz & O'Leary, 1991). When thinking about antecedent conditions teachers should ask themselves, *What can I change about the classroom environment that would give my students the best possible space in which to learn?* Teachers consider this aspect for all of their students when deciding where to place the desks so the black board is easily seen; however, structuring a classroom environment that will meet the needs of a child with ADHD may require more thought and time.

Structure seems to be the key when planning an environment for children and youth with ADHD. Students with ADHD need to be introduced to a strict classroom routine that will be followed daily (Abramowitz & O'Leary, 1991). There are several different aspects of the typical classroom that can be restructured to meet the needs of a child with ADHD. The first and easiest change that must take place has to do with classroom rules. Classroom rules need to be clear and concise to all students, especially those affected by ADHD. Teachers may want ADHD students to repeat the rules out loud, to further reinforce their importance (Barkley, 1990). By making the rules clear and concise, impulsive behaviors, which frequently evolve into difficult and unmanageable behaviors commonly displayed by ADHD student can be somewhat dissipated (Purvis, Jones, & Authement, 1992). Consequences for breaking the rules should also be clearly stated, though teachers should always remember that praise and rewards are often more effective than harsh consequences (Murphy & Johnson, 1988).

Making a decision on where to seat an ADHD student can be a trying job for teachers. Early research by O'Leary and O'Leary, (1977) suggested that isolating the hyperactive child would promote learning. Hyperactive children were given their own cubicles at the back of the classroom and were expected to complete their work individually (Abramowitz & O'Leary, 1991). It is true that reducing stimuli, or distractions such as noises from windows and doors is important for ADHD students; however, new research indicates a different approach to seating. Murphy and Johnson (1988) suggest sitting an ADHD student's desk near the teacher. This will allow the child to receive extra guidance from the teacher. In addition Murphy and Johnson believe that instead of seating the child in the back of the room, he/she should be moved to the front, so that he/she is not easily distracted by other youngsters (Murphy & Johnson, 1988). The authors also bring up the

idea of seating ADHD students next to well-behaved children who might model *appropriate behavior*. Research in the area of antecedent conditions should be continued, for before more complicated interventions can be successfully implemented, the classroom must be geared to meet the unique needs of the ADHD student.

### **Cognitive-Behavioral Training System**

There has been a great deal of research completed concerning the use of cognitive-behavioral interventions for children who are impulsive or hyperactive. *Cognitive-behavioral interventions generally focus on teaching the child generic cognitive strategies for solving academic/cognitive problems, and, to some degree, for successfully negotiating interpersonal exchanges* (Landau & Moore, 1991). The basis of this type of intervention is to teach ADHD children to regulate their own behavior. Cognitive difficulties of ADHD children can be traced to their inability to *stop, look, and listen* (Kendall, 1993). Therefore, students with ADHD involved with behavior and cognitive interventions would be taught such problem solving skills as problem identification, alternative thinking, consequential thinking, and means-ends thinking (Landau & Moore, 1991). The goal of such training is to instill a thought process in children with ADHD that will allow them to identify a problem and select a strategy, while remembering to think about the consequences of their actions. In short, cognitive-behavioral therapy seeks to replace impulsivity with a systematic thought process (Workman & Katz, 1995).

A seminal study carried out by Douglas (1972) revealed how this type therapy can be effective for children with ADHD. Douglas designed a program with the goals listed above, one that would teach ADHD children to deal with cognitive, academic, and social situations with thought rather than impulsivity. He did this through the use self-instruction, problem solving, and behavioral modeling. *Douglas' findings indicated that trained children showed significant improvement on cognitive and academic outcome measures at the end of training and at follow-up* (Douglas, 1972). Trained children outperformed Douglas' control children on a measure of affective reactions to frustration, and showed improvement on the Connors Teacher Rating Scale (Connors, 1985). However, overall effects of cognitive-behavioral interventions on children with hyperactivity have been marginal (Landau & Moore, 1991). The data suggests that although cognitive-behavioral training can reduce ADHD-impulsivity-it has not been uniformly found to rectify other features of ADHD (Kendall, 1993).

### **Token Economies and Response Cost Systems**

Token economy/response cost systems have been effective in improving many aspects of classroom behavior for ADHD students (Ganzell, Newby & Robinson, 1981). The token economy/response cost system of reinforcement involves awarding or removing tokens or points contingent upon behavior (Abramowitz & O'Leary, 1991; McLaughlin & Williams, 1988). *Although some educators prefer an all-positive approach, and are reluctant to*



*withdraw or withhold that which a child has already earned, in all probability youngsters with ADHD will require some reductive techniques* (Abramowitz & O'Leary, 1991).

The students are allowed to trade in their tokens at the end of a given period of time for prizes. *The strength of a token economies lies in the variety and attractiveness of the reinforcers for which tokens can be exchanged* (Kazdin, 1977). In other words, teachers can provide items for the students to purchase that are reinforcing to each individual. Reinforcing items can range from free time, to penny candy and match-box cars. The key to the token economy system is to discover what is reinforcing to each particular group of students. This can be done by asking the student what her or she wishes to earn, or through watching their every day behavior. When working with ADHD students, teachers must remember to change the reinforcers or rewards frequently. Reinforcers tend to lose their reinforcing value more quickly with ADHD students than *normal* students (Barkley, 1990).

In implementing a token economy response cost system, teachers need to be specific with the students on which behaviors will earn them tokens, and which behaviors will conversely cause them to lose tokens (Ayllon, Layman, & Kandel, 1975). In addition, teachers need to be very consistent in the awarding and removal the tokens. Students should be given ample opportunities to *cash in their tokens* to make this a truly reinforcing system (Ayllon et al., 1975; McLaughlin & Williams, 1988).

Hill Walker and associates have developed a token economy system referred to as CLASS (Contingencies for Learning Academic and Social Skills). This system addresses symptoms associated with hyperactivity, such as oppositional, disruptive behaviors that typically occur in school settings (Landau & Moore, 1991). CLASS involves both positive reinforcement and response-cost contingencies, as well as *a therapeutic suspension component, implemented contingent on severely disruptive and/or dangerous behavior* (Landau & Moore, 1991). In this program, a consultant is assigned to sit next to the child and provide feedback on the child's behavior. The class is involved, in that, if the target child's behavior is rated appropriate 80% of the time, the entire class, as well as the child, receives a reinforcer. The appropriate percentage of good behavior increases as time goes by, so the child is required to not only maintain good behavior, but also improve behavior. Research exists that shows this program was effective for improving children who are disruptive and act out in class (Landau & Moore, 1991).

Gordon, Thomason, Cooper, and Ivers, (1991) developed a contingency management/response cost program based on the use of an electronic module known as Mr. Attention (Gordon et al., 1991). Mr Attention was placed on ADHD students' desks to cut down on the amount of time these students spent engaged in off task activities such as day dreaming. Any time a subject was inattentive to task, an observer would press a



button that activated the red light on Mr. Attention. This light was to remind the student to get back on task. If Mr. Attention did not have to remind the student to pay attention for a period of a minute, he/she would be rewarded a point which could later be traded in for prizes. Conversely, points were subtracted each time Mr. Attention had to flash his light. This attention training system seemed to support previous data that indeed token economy/response cost systems are effective in reducing inappropriate behavior (Gordon et al., 1991).

Ganzell, Newby, and Robinson found some promising affects that the token economy systems had upon a group of 18 third grade boys. Ganzell et al. (1981) discovered that *it is possible to use a token economy system to control academic performance in a large class of hyperactive children*. At the end of their study their subjects had increased completion of daily vocabulary assignments, as well as increased completion of vocabulary on standardized level tests (Ganzell et al., 1981). Other findings confirmed that all developmental levels of ADHD children can benefit from this reinforcement system, and that token economies can be *effectively controlled* with one teacher (Ganzell et al., 1981). All in all, token economies appear to be a good approach to riding the classroom of undesirable behavior. *Empirical support for token economies has been clear as to their effectiveness in changing and maintaining behavior* (McLaughlin & Williams, 1988).

#### **Daily Report Card Systems**

According to literature, the use of the daily report card system is a successful method for altering classroom academic and social behavior (Atkeson & Forehand, 1979; Smith, Williams, & McLaughlin, 1983). It is also useful in improving study behavior and rule violations (Bailey, Wolf, & Phillips, 1970), talk-outs and out-of-seat (Coleman, 1973), class work performance and semester grades (Schumaker, Hovell, & Sherman, 1977), assignment completion (Dougherty & Dougherty, 1977), and motor activity (Ayllon, Garber, & Pisor, 1975).

Daily report cards are individualized for each student, and contain a list of target behaviors the child is to meet. These target behaviors can show both behavioral and academic progress and can range from one behavior to ten behaviors, though it is best to start out with only a few target behaviors (Barkley, 1990). In addition, homework-related activities can be included. ADHD students often have trouble remembering to bring home assignments, completing work, and then returning the completed work to school the following day (Barkley, 1990).

The daily report card system is based upon interaction between the teacher, student and parent. The student is given a *report card* to be delivered to the parents. The note contains information on the child's target behaviors. It is important to make sure that the

parent understands the format of the note, and that it contains relevant information for the parent. *Consequences are delivered by the parents to the child contingent upon receiving the card indicating that specific, desirable behaviors have occurred* (McLaughlin & Webb, 1985).

The success of the program is contingent upon whether or not a consistent translation of teacher reports into consequences at home has been established. It is generally true that ADHD children require stronger reinforcers than simply praise, so the parent may want to set up a token economy in the home as well. Children might earn extra T.V. time, a special snack, or a later bedtime (Barkley, 1990).

Despite that this reinforcement has been successful in improving many disturbing behaviors, questions remain. According to Strukuff, McLaughlin, and Bialozor (1987), little data exists that daily report cards work without formal home-based contingencies (Strukuff et al., 1987). In order for this system to be effective, parents must be active in communicating with the school, and be willing to devote time in working with their children. They must work on emphasizing positive behaviors, rewarding them with personal reinforcers to the child. If the parents are willing to follow through with extensive work, the daily report card system can be very effective. It is easy to implement, without a lot of teacher training, and can be used with one child, or a whole class (McLaughlin & Webb, 1985).

#### **Peer Mediated Strategies**

Peers play a major role in the attention or inattention of ADHD students in the classroom environment. *Peers often selectively attend to a child who is misbehaving, thereby reinforcing the child's misbehavior* (Abramowitz & O'Leary, 1991). If teachers can effectively transfer negative peer attention to positive peer attention, ADHD students will have a better chance at succeeding in a classroom environment. In addition, teaching peers to reinforce each other's positive behavior, may also facilitate generalization of good behavior across a variety of setting such as music class, physical education, and even the playground (K. D. O'Leary & S. G. O'Leary, 1977). Solomon and Wahler (1973) have successfully trained children to praise peers' appropriate behavior and ignore their inappropriate behavior.

Aside from simply manipulating peer attention to improve ADHD student behavior, teachers can pair ADHD students with their non-ADHD peers into peer tutoring groups to achieve academic success. Peer tutoring for ADHD students can help channel disruptive behaviors into constructive responses, because peer tutoring requires active responding. In addition, ADHD children are likely to respond more frequently in correct manners when performance feedback is immediate, and administered individually rather than delayed and delivered in a group setting (Barkley 1990).

DuPaul and North-Henningson (1993) examined the effectiveness of the peer tutoring on an ADHD male second grader. In the beginning of the study, the subject Don exhibited problems with attention span, impulse control, and activity level (DuPaul & North-Henningson, 1993). Don paid only minimal attention to his classroom teacher, and as a result was *underachieving* academically (DuPaul & North-Henningson, 1993). After implementing a peer tutoring program for Don in which he was paired with a boy who did not demonstrate any behavior problems, and was achieving good grades, Don exhibited a dramatic increase in on-task behavior and reduction in motor restlessness (DuPaul & North-Henningson, 1993). In conclusion, DuPaul and North-Henningson found that classwide peer tutoring appears to lead to significant improvements in the on-task behavior, activity level, and academic performance of students with ADHD (DuPaul & North-Henningson, 1993). The potential effects of peer tutoring on the social functioning, self-esteem, and long-term academic achievement of children with ADHD awaits further empirical study.

#### **Computer Assisted Instruction**

Computer assisted learning is an up and coming intervention used with ADHD students. As the number of computers available within the schools grows, teachers have a greater opportunity to use computers within their classroom curriculum (Adams & Fuchs, 1986). The computer has been said to be a safe place for ADHD students to learn. *It has infinite patience, offers privacy, safety from peer ridicule, and an atmosphere where ideas are treated with respect and judgment is temporarily suspended* (Ford, Cox, & Poe, 1993). In addition, studies have found that ADHD children voluntarily remained longer at the computer and completed more problems than they did at comparable paper and pencil tasks (Ford et al., 1993).

Ford et al. (1993) carried out a study to answer the question of whether or not specific software packages hold the attention of attention-deficit hyperactive children longer than others, therefore increasing time on task. After compiling a sample of seven third and fourteen fourth-graders, who were identified by their teachers as exhibiting hyperactive behavior, they introduced the students to four commercial software packages. Two of the packages were math, and two were reading. They varied in format from drill and practice with game format, drill and practice without game format, animated graphics for reinforcement, and no form of reinforcement (Ford et al., 1993).

The study showed that the novelty of the software seemed to increase student excitability, and thus increased attending behaviors. Attention also increased on software with a game format when animation was not excessive (Ford et al., 1993). A list has been developed to summarize the instructional features that facilitate focusing attention: (1) specific instructional objectives to tell the student what he or she is to focus on, (2) attention-focusing features to highlight the essential information on screen (large print, color, inverse

highlight), (3) avoidance of software with special features that draw attention away from the relevant instructional content such as animation, sound effects, or high resolution graphics, (4) multiple sensory modalities (such as simultaneous use of screen text and voice synthesis), and (5) limited amount of instructional information presented at any one time; content broken into logical chunks of information (Ford et al., 1993).

Research on the effectiveness of varying computer software on the behavior of students with ADHD needs to be continued, though currently, research is positive. In addition to capturing attention, thus lowering the percentage of non-attending behavior, computers have been shown to be very reinforcing for ADHD students, and could even be combined as a reinforcer in a token economy system.

### **Relaxation Training**

Relaxation training is a relatively new procedure for intervening with children identified as having ADHD. *Relaxation training has demonstrated promising results in lessening the anxiety, impulsivity, hyperactivity, distractibility, and emotional liability of exceptional learners, while positively influencing their self-concept, academic achievement, and classroom behavior* (Margolis, 1990). This type of training is based on the idea that heightened levels of activity induces student distress, which in turn inhibits focused attention on a task which is counter productive to the student (Blanton & Johnson, 1991). Relaxation has the potential to help students control their behavior in situations they find stress provoking.

One of the true benefits of relaxation training lies within implementing it into the classroom. In Margolis' opinion, ideal interventions should not require inordinate amounts of teacher time or preparation or the ongoing involvement of consultants (Margolis, 1990). It requires a limited amount of teacher training, and nor does put a lot of demands on the teacher. The potential advantages of relaxation as a self-control technique are as follows: (1) it can be used to reduce anxiety at will, (2) it can be applied voluntarily as a *stopping* technique that allows the child to relax and wait a moment instead of acting impulsively in problematic situations, (3) it can lessen tension prior to and during stressful situations, (4) it can be used by the child after training is completed, (5) it can foster independent growth and development in academic and social skills, and (6) it can serve as a preventive mental health function (Margolis, 1990).

One form of relaxation training is progressive muscle relaxation. *Progressive muscle relaxation is based on two premises: one cannot be simultaneously relaxed and stressed and mental relaxation is a natural consequence of physical relaxation* (Margolis, 1990). Students are taught muscle relaxation by sitting and alternately tensing and relaxing major muscle groups for brief periods of time (Blanton & Johnson, 1991). By going through this process, students learn to differentiate between tense and relaxed muscles. Students are

taught these skills in hopes that they will develop proficiency in relaxing muscles at will. *As competence develops, muscle groups can be combined and willful tensing gradually eliminated* (Margolis, 1990).

Meditation is another form of relaxation training. It is referred to as the simplest and most advanced form of relaxation (Margolis, 1990). Unlike progressive muscle relaxation which is primarily physical and external in nature, meditation is predominantly mental and internal. It is best practiced once or twice a day in the same place at the same time (Blanton & Johnson, 1991). To achieve relaxation from mediation, five things need to occur: (a) a quiet environment, (b) silent or subvocal repetition of a particular word, phrase, or sound, which does not provoke anxiety, (c) a focus on breathing, (d) elimination of all thoughts and distractions from the mind by passively disregarding intruding thoughts through continued repetition of, and focus on, the selected word, phrase or sound, and (e) a comfortable sitting position (Margolis, 1990). *Once students can readily meditate, the teacher's primary role is to provide a quiet, comfortable environment, and meditate with the students* (Margolis, 1990).

Studies have shown that relaxation training can positively influence ADHD student behavior. Porter and Omizo (1984) implemented a study using progressive muscle relaxation training with first and second grade hyperactive boys to determine their effects on attention, impulsivity, and locus of control (Margolis, 1990). They determined that the experimental students attended to task significantly better than their control peers, became significantly less impulsive, and displayed increased internal locus of control. Similarly, Oldfield and Petrosa (1986) found that students in grade kindergarten through grade five surpassed controls in time on task after receiving five relaxation training programs: autogenic statements, breathing exercises, meditation, progressive relaxation, and imagery (Margolis, 1990). Much of the research has found that individually providing youngsters with eight relaxation training sessions over four weeks helped increase time-on-task performance and decrease hyperactivity. Overall, these researchers concluded that *relaxation training enhanced attention span and lowered disruptive activity in the classroom* (Margolis, 1990). Despite these findings, research continues on the effectiveness of relaxation training. There are several studies that have yielded dissimilar results, and some teachers who question its validity in a classroom students with ADHD (Ferraro & McLaughlin, 1991). Can time be taken out of each class to sit and meditate? How do teachers know that indeed their students are using such skills? Although this seems to be the up and coming method of intervention for ADHD students, teachers should be weary of using it until more substantial studies are completed.

### Conclusions

Modifying the classroom environment by adding structure can assist children with ADHD in school (Ayllon, Layman, & Burke, 1972). However, more evasive procedures will have



to be implemented and it appears that employing behavior management systems within the classroom setting is essential when working with students with ADHD. Teachers must try a variety of interventions, remembering that students will behave differently to the wide range of behavior interventions. The current research provides many strategies for teachers to choose, ranging from computer aided instruction to token reinforcement programs. With the growing numbers of children and youth diagnosed with ADHD, teachers and other school personnel need to be aware which interventions are effective in reducing inattentive and impulsive behaviors that a majority of ADHD students display. Finally, knowledge and skills such instructional strategies, such a peer tutoring and computer aided instruction, to improve the academic skills of such children need wider implementation and use in the schools.

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**HUNTINGTON'S DISEASE: A FATAL AUTOSOMAL DOMINANT  
NEURODEGENERATIVE DISORDER  
FIRST NOTICED IN YOUNG ADULthood**

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*Huntington's disease, a debilitating autosomal neurological disorder affecting about 30,000 Americans, affects people during middle age and progressively worsen. Huntington's disease robs people of their physical and mental abilities. The etiology is unknown and there is no cure for the disease. Children of parents with Huntington's disease have a 50/50 chance of inheriting the disease. Treatment involves genetic counseling, screening tests, fetal-tissue transplants and drugs that relieve symptoms. Researchers have found the gene that causes Huntington's disease and hope the discovery will lead to a cure for the disease. As a result of the gene discovery, a more direct test for Huntington's disease could be devised. Researchers also hope to gain a better understanding of what causes the nerve degeneration associated with the disease. The government funding for research of this disease is unstable in most countries.*

Huntington's disease which is also known as Huntington's Chorea is a fatal, autosomal dominant neurodegenerative disorder causing involuntary, jerky (choreic) movements which contributes to the naming of the disease. It attacks brain nerves and fibers and causes severe emotional disturbance, cognitive decline or mental deterioration and eventually death (Hereditary Disease, Internet, 1997). Chorea is rarely a true cause of retardation as now defined because it begins after childhood. Chorea comes from the Greek meaning to *dance* and psychiatric manifestations a *tendency to insanity and suicide* (Huntington's Disease, Internet, 1995).

**Who is affected?**

Symptoms usually appear between age 35 and 40 and the disease leads to death in about 10-15 years. There is also a juvenile form of HD. There are a few cases in children--about 1% in children under 10 (da Fonseca and Walker, 1993). The disease can also affect teenagers. Children of patients with HD have a 50% chance of developing the disease and are considered *at risk*. Offsprings may inherit the dominant gene for the disorder before the symptoms appear in the parent (Bavley, 1996).

The term *autosomal dominant* means that if a parent is affected, each child has a 50% chance of developing the disorder. The disease affects about 30,000 Americans. There are very few cases where it strikes after the age of 50.

During a phone interview with Gisela Lino, Intern, of the Huntington's Disease Society of America in New York (U.S.A.), one of the authors ascertained that this disease affects all racial and ethnic groups and both sexes equally. Huntington's disease does not skip a generation. If one does not inherit the gene, it cannot be passed on. If one carries the gene, the person will develop the disease if their life is of sufficient length and if children are produced, they can develop the disorder. (G. Lino, personal communication, May 1, 1997).

**Symptoms**

Huntington's disease is characterized by abnormal involuntary movements called chorea, psychiatric symptoms and mental deterioration. The most striking visual aspect of the disease is chorea: abrupt, rapid, non patterned and uncoordinated random movements of the face, trunk, arms and legs. Other symptoms include: depression, emotional outbursts, fidgeting or clumsiness. As it progresses, sufferers become confused and forgetful and lose control of their body. Walking becomes difficult. Their arms and legs move ceaselessly. Postural deformities, clumsiness, walking is shuffling, writhing, twisting movements of body occurs and arms as the person attempts to walk. Speech is likely to become indistinct. Tongue/palate are involved in movement abnormalities. There is normally a severe personality change. The patient may eventual need institutional care (Bavley, 1996; Tapley, Rowland, Morris, and Lapook, 1995).

Dementia which is frequently associated with seizures appears independently of movement disorders and in some, dementia is the prominent symptom. In others dementia, appears months or years after movement disorder has been present. Typically, there is a phase of mild psychotic and behavioral symptoms which precedes chorea by up to 10 years (Tapley et al., 1995).

The results of a study by Shiwach and Norbury (as cited by Hereditary Disease, Internet, 1997) clashed with the conventional wisdom that psychiatric symptoms are a frequent

presentation of Huntington's disease before the development of neurologic symptoms. They depicted the minimal lifetime prevalence of depression to be 39%, symptomatic schizophrenia was 9% and personality change at 72%. Some subjects showed signs in the first decade while others did not show symptoms until after reaching age 60.

There is a form of HD where the movement is rigid, similar to Parkinson's. This type more likely occur in younger children, often present with mental retardation, seizures and difficulties in speech. This movement disorder is less prominent and a diagnosis in childhood may be dependent on obtaining a family history compatible with autosomal dominance inheritance (Tapley, Rowland, Morris and Weiss, 1989).

#### **Causes.**

In people with the disease, a small bit of the gene's DNA sequence repeats an abnormally large number of times. Following the mutant gene's instruction, cells create a protein that has extra amino acids. If a person has too many of these so-called CAG (cytosine-adenine-guanine) repeats, Huntington's usually strikes. The more repeats the gene has, the earlier the disease tends to commence. Investigators have tried to pin down exactly how many CAG repeats it takes to turn the huntingtin gene into a killer. Though most patients have 40 to 90 repeats, physicians have identified Huntington's patients with as few as 36 which is not always a death sentence (Morell, 1993).

While looking into the crime of Huntington's disease, investigators have nabbed a new suspect--a protein that plays a role in generating energy for cells. In 1993, researchers learned that this fatal disorder results from unexplained genetic stutters, expansions in the size of a particular gene. The stutters adds extra strings of the amino acid glutamine to huntingtin, the protein that the gene normally encodes. Other genes stutter similarly producing neurodegenerative diseases that share characteristics with Huntington's (Barinaga, 1996; Fackelmann and Sternberg, 1996).

In 1995 researchers found a clue they hoped might reveal the normal function of huntingtin and how mutant versions of it cause Huntington's disease (Fackelmann and Sternberg, 1996). They discovered a novel brain protein that binds more tightly to mutant huntingtin than to the normal form. No one knows the protein's purpose.

Investigators from Duke University have found another brain protein that hugs mutant huntingtins more tightly than normal versions (Fackelmann and Sternberg, 1996). Equally important, this protein, called GAPDH, has a number of known functions, such as providing energy to cells. The investigators speculate that brain cell death in Huntington's disease may stem from cells being starved for energy because of inappropriate, interactions between mutant huntingtins and GAPDH.

Huntington's disease falls under gross brain diseases which includes many disorders in which the etiology is unknown or uncertain. The disease is caused by degeneration of nerve cells and actual tissue shrinkage in the basal ganglia and cortex of the brain. Although the specific mechanism for this cell death is not yet known, molecular biologists have recently shown that the abnormal gene locus which results in HD is on the short arm of chromo 4, although the gene has not yet been identified (Tapley et al., 1995).

### **Testing for HD**

A blood test is in the experimental state that can identify the defective gene responsible for HD long before it occurs. The availability of this test may bring up difficult ethical and legal questions regarding who has a right to the results (Jaroff, 1992; Harper, 1993).

Genetic counseling and screening testing are recommended as a means of family planning. Some people have anonymous testing done in order that their insurance will not be canceled. Insurance companies prefer not to insure Huntington's disease patients. Different groups are fighting for their right to be insured (Lutterbeck, 1995).

### *Psychological Consequences of Presymptomatic Testing for Huntington's Disease*

In 1986 predictive testing for the Huntington's disease became available for informative families by studying DNA markers close to the Huntington gene on chromosome 4. There was a small error with such a test. In 1993 the Huntington's Disease Collaborative Research Group identified the gene and the mutation found in all HD patients; namely, an expanded run of cytosine-adenine-guanine (CAG) repeats. That made possible the accurate detection of the HD mutation in any relative at risk. About 20% of relatives at 1-in-2 risk of inheriting HD from an affected parent now accept the offer of presymptomatic testing and nearly 2000 such relatives have already been tested in the United Kingdom. Precise protocols have been followed in which participants are seen for two to four counseling sessions, spread over 3 months prior to testing. Support and follow-up are provided (Bundey, 1997).

The psychological effects of predictive or presymptomatic testing on those at risk for HD was assessed. A total of 208 participants were given psychological tests to detect depression, stress, optimism/pessimism, and general health. These evaluations were done at first presentations, 1-2 weeks after the gene test result had been given, and 6 months or a year later. Adverse events were defined as a suicide attempt or plan, admission to a hospital for psychiatric disorder, clinical depression lasting for more than 2 months, substance abuse, or breakdown of important relationships (Bundey, 1997).

In a Canadian study two of the 95 participants who were given informative results made plans for suicide and seven had clinical depression for more than 2 months (1 had to be hospitalized). There was no difference in the incidence of these end points between those

given a favorable result (n=58) and those given an unfavorable result (n=37); nor was there a difference when the comparison was between those in whom the predictive test was uninformative (n=17) and those who did not continue with the test protocol (n=23) (Bundey, 1997).

In a Dutch study (n=73), there were no significant clinical problems but psychological testing revealed increasing pessimism in some carriers, but with return to normal within 9-12 months (Bundey, 1997). No catastrophic event occurred in either group. Neither report gave the background rate for depression in their populations. A favorable (negative) gene result also produced some psychological upset perhaps because people felt guilty about relatives who were not so lucky or because sympathy previously extended to them by friends and health professionals when they were at risk had been withdrawn. The Canadian and Dutch groups concluded that long-term support is needed for all tested regardless of the result and that individuals with prior depression need additional assistance. Individuals who are tested and given unfavorable news have a more positive approach and are less anxious about their future than those who choose not to be tested (Bundey, 1997).

Adverse effects of receiving the news that HD will develop in the future is to be expected. What is surprising is the scarcity of such outcomes. Genetic testing for HD is a success story and the few adverse effects should be put in context of the many thousands of individuals who have been relieved of the anxiety of not knowing whether or not HD would develop (*Predictive Testing*, 1992; Bundey, 1997).

### **Treatment**

There is no cure for HD or no satisfactory treatment. Genetic counseling is the prevention (Bergsma, 1979). There is a 50% chance a child of HD parents will develop it. Drugs are administered such as diazepam which is used to decrease rigidity and perhaps alter movement disorder. Treatment has been limited to drugs that relieve symptoms as nothing can stop the inexorable progression (Bergsma, 1979; Goldberg and Kremer, 1994). Therapy-supportive measures may prevent some of the long terms of complications in the bedridden patient such as ulceration of skin, pneumonia and urinary tract (Tapley et al., 1989).

The controversy surrounding fetal tissue research has slowed in America but not halted progress (Lutterbeck, 1995). The use of transplanted fetal brain tissue to replace brain cells lost in Parkinson's disease patients has proved promising enough that researchers have begun to test the strategy on people with Huntington's disease. Transplant from fetuses could save HD patients' lives (Bavley, 1996).

Kopyov of Good Samaritan Hospital in Los Angeles, California, (U.S.A.), reported that the first three Huntington's disease patients receiving a transplant of fetal brain cells have experienced some improvement in motor and cognitive skills.



The most severely affected patient, who had been wheelchair-bound, briefly regained the ability to walk, though his condition has since deteriorated dramatically. The mental and motor skills of the two other patients, whose symptoms were much milder, continue to improve 8 to 9 months after surgery (*Fetal Cells* 1996).

It remains unclear whether or how the fetal cells are helping these patients. Experience from work on Parkinson's disease suggested that patients would see no improvement for many months, a period during which fetal cells presumably grow and establish connections within the brain. Yet his group found that the three Huntington's patients began to improve within weeks of the surgery. Kopyov said he did not understand the reason (*Fetal Tissue*, 1996; *Fetal Cells*, 1996).

In another case doctors had transplanted tissue from human fetuses into the brains of several Huntington's patients. Patients regained the ability to walk unassisted and to speak intelligibly and they have maintained that improvement (Bavley, 1996; *Fetal Tissue*, 1996; *Fetal Cells*, 1996).

Dinsmore described results obtained with Huntington's patient treated with fetal cells, but this team uses porcine tissue. Five Huntington's patients have recently received fetal pig brain cells and another seven transplants are scheduled. Dinsmore and his colleagues hope to establish that fetal brain cells from pigs offer a safe substitute in treating Parkinson's and other neurological illness, thus avoiding the political controversy of using human fetal cells and the difficulty of obtaining tissue. Dinsmore cautioned that it will take a significant amount of time and testing to determine if fetal brain cells, human or porcine, help people with Huntington's disease (*Fetal Cells*, 1996).

#### **Other diseases associated with HD**

The insight gained from research on this illness are relevant to the understanding of many other including Parkinson, Alzheimer's and dementia which is a deterioration of mental capability due to organic brain disease (Tapley et al., 1995). Many people still mistakenly consider dementia, or *senility*, as inevitable with age and a hopeless, untreatable condition. Both assumptions are false; most people do not suffer dementia as they grow older, and there are many types of dementia that can be reversed or halted with proper treatment. Thus, when dementia is suspected, it is vital that every attempt be made to determine whether it is, indeed, true dementia, and if so, its cause. There are many possible causes of reversible dementia; these range from brain injuries to nutritional deficiencies, adverse drug effects, infections, systemic illnesses, alcohol and other toxic substance or hormone disorders.

Evaluation of dementia should include a mental status exam and other tests of mental functions as well as a careful physical exam and a number of lab tests. The examining



physician should also determine what drugs are being taken including nonprescription medications and alcohol. Since malnutrition and vitamin deficiencies can cause dementia, eating habits should be reviewed. Many older people are malnourished for a variety of reasons, including economic factors, difficulty in chewing, loss of appetite, inability to shop or cook and metabolic disorders. Depression may be misdiagnosed as dementia (Tapley et al., 1995).

#### *Parkinson*

Parkinson is a chronic disorder of the nervous system characterized by tremors, slow movements and generalized body rigidity (Brueschke, Dent, Homan, Lopez, Rothschild, and Vanderbert, 1995). It occurs most commonly in persons between ages 50 and 65. The cause of this disease is unknown. It is thought to be caused by several factors: (1) arteriosclerosis in which there is degeneration of the brain cells that control body movements (2) encephalitis which involves inflammation of the brain (3) a brain tumor, brain damage or (4) poisoning, either from drugs such as the tranquilizer reserpine or poisonous gases such as carbon monoxide (Brueschke et al., 1995).

Other signs are blinking and reduced spontaneity of facial expression, stiff postures, loss of ease in changing positions (such as attempting to sit or stand) and a tendency to remain in a single position for unusually long periods of time. It is usually a shaking tremor of the hands, however, that finally brings the patient to a physician. The disease results from a deficiency of dopamine, a chemical that is important in the transmission of nerve impulses in the basal ganglia of the brain (Tapley et al., 1989).

#### *Alzheimer's Disease*

Alzheimer's disease is a condition affecting the brain, resulting in a rapid and severe deterioration of mental capacities. It was recorded in the early part of the last century by Dr. Alois Alzheimer. He noted its presence in the autopsy of a middle-aged patient suffering from an acute form of dementia. Because Alzheimer has often struck men and women in the 40-60 age group, it has sometimes been referred to as presenile dementia, a forerunner of senility (Brueschke et al., 1995).

Researchers have not been able to discover the cause of Alzheimer. Some suspect that it may be related to a chemical deficiency. Others speculate that the source may be a virus. Some research has hinted at an excessive accumulation of aluminum in the brain as the cause. There is no effective treatment for preventing or stopping the ravages of the disease. Numerous medications are in the experimental stages and show some promise. The best therapy at present is to keep the patient in familiar surroundings. The more active the person, the slower the progression of the disease (Tapley et al., 1995).

Senile dementia is a progressive, irreversible form of dementia that has gained considerable

public attention in recent years. The cause is unknown. Major distinguishing signs are degeneration of the cerebral neurons and ultimately shrinkage of areas of the brain. Although there currently there are no effective treatments, steps can be taken to minimize or delay its effects for both victim and family (Brueschke et al., 1995).

### **Research**

Researchers are steadily working and trying to find out more about this disease. Some of the research involve studying the molecular structure, the genes and comparing Huntington's disease with other groups. Funding for Huntington's disease research is unstable. At press time the United States Congress was poised to approve cuts in research funds for the National Institutes of Health (NIH) and teaching hospitals. Some lawmakers are also trying to limit a promising experimental treatment (Lutterbeck, 1995).

In addition, massive congressional cuts in Medicaid threaten the availability of even basic maintenance care for Huntington's sufferers, who often lose their private health insurance after being diagnosed (Harper, 1993; Lutterbeck, 1995).

Researchers hope to test whether an epilepsy drug can slow Huntington's disease progress, but the experiment is dependent on a grant proposal now pending at National Institutes of Health. Funding could be denied or delayed. Research is the front end of medical care and if it is not funded, limited progress is likely (Huntington's Disease, Internet, 1995).

A collaboration of scientists from the United Kingdom and Germany has raised mice whose genomes include a small portion of the repeat-laden human Huntington's disease gene. As they age, the mice begin to suffer symptom of Huntington's disease, including tremors, epileptic seizures, and neurodegeneration. It was noticed by Bates of Guy's Hospital in London that the brains of the mice were about 20 to 30 percent smaller than their normal sibling. (*Huntington strikes*, 1996). He suggested that the mice will help investigators unravel the mystery of how the mutant proteins cause Huntington's disease. Richard Myers of the Stanford University of the United States also noticed that the mice show the classic signs of the disease. They are experimenting with fetal tissue.

The Hereditary Disease Foundation continues its support of cutting edge science including the development of mouse models, studies of protein-proteins interactions, strategies for gene therapy and intercellular signaling in neurons. Through grants, fellowships and workshop program, the foundation continues to build a research community committed to the cure of HD and related disorders (Hereditary Disease, Internet, 1997).

### **Discussion and Summary**

The latest developments in Huntington's disease research were reported by a distinguished group of scientists at the HDSA convention in Philadelphia. Ross, Director, Baltimore HD

Center, (U.S.A.), discussed the cloning of the HD gene showed that there was a repeated sequence in the DNA, a so-called triplet repeat--CAG, CAG, CAG which translates into a protein. The protein is expressed everywhere in the brain. The scientists are puzzled as to how the protein can be expressed everywhere in the brain, yet causes a disease in a particular part of the brain rather than other places in the body. Scientists hypothesize that the protein is what is causing the problem.

Feigin (*Clinical Drug*, 1996) reported that there are two broad areas of clinical research interests: symptomatic treatments and neuroprotective treatments. Symptomatic therapy refers to treatments aimed at controlling the symptoms of HD such as abnormal movements, depression, or problems with thinking. Neuroprotective therapy refers to treatments that might slow the rate of progression of the disease, or forestall onset. Laboratory research has suggested several types of chemicals which might be useful in slowing the rate of progression of Huntington's disease. These include drugs which block the effects of excitotoxins, drugs which may bolster brain cell energy production and antioxidants or free radical scavengers. Excitotoxins are a group of chemicals that are produced normally in the brain but under certain circumstances may be toxic to brain cells.

Even with the development of a presymptomatic test for Huntington's disease which has enabled some persons at risk to determine whether they are carriers, many people choose to remain untested. The reasons include the fear they will lose their insurance, increased risk to children if one was found to be a gene carrier, absence of an effective cure and financial costs of testing. Some just did not want to know the results. Most said they would take the test if it were 100% accurate and if treatment was available. There is no universally accepted correct decision regarding testing.

People interested in taking the test can consult their physician, counselor, psychologist or psychiatrist. Testing should be a voluntary and an individual decision. The primary principles of confidentiality will have been broken if we accede to the wishes of the parents for their children to be tested. Privacy and individual justice are owed to those children. Testing for Huntington's disease is more complex and challenging than ever expected.

Each family member, whether they have the disease or not, is challenged emotionally, socially and economically. Environmental modifications, improving the quality of life for the affected individual and family and attending to events that trigger problems behavior may prove more beneficial in the long run. Families should contact support groups and international organizations for support and additional information.

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**TEACHER USE OF INSTRUCTIONAL PRACTICES TO  
ACCOMMODATE STUDENT DIVERSITY:  
VIEWS OF ISRAELI GENERAL AND SPECIAL EDUCATORS**

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*The study examined views of Israeli educators regarding the use and effectiveness of various instructional strategies necessary to accommodate student diversity. The sample consisted of 560 general educators and 139 special educators. All responded to a 68-item questionnaire. Findings revealed similar responses by the two teacher groups to many practices on the use and effectiveness scales. These included mainly practices which focus on a positive and supportive approach to assure an orderly and efficient learning environment. Several noticeable differences between groups were observed in the areas of individualizing instruction and communication.*

*Findings were compared to those reported in other similar investigations and discussed in light of the roles and responsibilities of educators in diverse and inclusive classrooms. Implications for teacher education and cross-cultural future research are presented.*

Educational systems and schools are facing new challenges and difficulties as they prepare for the 21st century. One of these challenges is related to the changes of the student population. Examples of such changes include a growth in the number of pupils in schools, especially in developing countries (Csapo, 1993); the changing demographics (i.e., an increase in the cultural and linguistic diversity of students, particularly in countries where immigration is on the rise); and a reported increase in the number of students who are at risk for school failure including children living in poverty, children who are abused and

neglected, or those who live with substance abuse. The classroom population is also rapidly changing as a result of the passage of special education legislation in many nations in the last quarter of this century. These laws have mandated the provision of special education and related services in the least restrictive environment, which for many students is a general education classroom. Firm commitment to the inclusion of students with disabilities with their age peers in a common comprehensive school system is documented in many western industrialized countries, including the United States (U.S. Department of Education, 1996), United Kingdom, Australia and New Zealand (Jordan & Powell, 1994; Center, Ward, Parmenter & Nash, 1985; Hegarty, 1982), and the Scandinavian countries (Jull, 1989; Oakland, Meazzini & Poulsen, 1991). Integration is also a trend in many other countries, such as in the former Eastern bloc countries (e.g., Poland) (Bogucka, 1994), as well as in China (Wang & Rule, 1994). Cavanage (1994) noted that casual integration does already exist in most developing countries (see also Leyser, Kapperman & Keller, 1994; UNESCO, 1988).

The increases in the numbers of students with challenging educational needs have major implications for the work of administrators, school service professionals, and, in particular, teachers. The willingness and the knowledge and skills of classroom teachers for making instructional adaptations and accommodations for diverse learners, will determine to a large extent the educational success and progress of each child.

In the state of Israel, education is free and compulsory between the ages of 5 and 16. Education is free, but not compulsory, between the ages of 3 and 4, and the ages of 17 and 18. Educators are faced with many of the same challenges as their colleagues in other nations, such as growth in the student population resulting from immigration. In Israel, this growth includes recent large waves of immigration from the former Soviet Union and a smaller wave from Ethiopia. Many students in the educational system are identified as educationally disadvantaged (Kurian, 1988), and reports reveal an increase of the number of students at risk for school failure. Furthermore, special education law passed in 1988, and the accompanying regulations by the Ministry of Education, Sports, and Culture, mandate that students with disabilities be provided with a free public education between the ages of 3 and 21 and be educated, whenever possible, alongside their nondisabled peers in general classrooms (Michael, 1989; Brandes & Nesher, 1996). Special education services are provided to 3.3% of the school population across a continuum of placement options representing segregation to integration.

Teacher preparation is accomplished in training colleges which certify teachers for kindergarten, elementary, and junior high levels, and in universities certifying teachers for secondary schools. In the past, most of the teacher training colleges required the completion of a three-year course. However, with the trend toward academization, many of these institutions now offer a four-year Bachelor of Education degree. For purposes of



educational administration, the country is divided into six major regions each under a superintendent.

Are teachers using promising instructional practices identified in the teacher effectiveness literature as having a positive effect on student learning? This question was explored by several investigators who examined the perceptions of general educators regarding the feasibility, use, and effectiveness of instructional and management strategies necessary to maximize the learning opportunities for all students, including those with challenging learning needs.

Collectively, data reported in these studies suggest the following:

1. Teachers state a preference for instructional practices that focus on direct intervention in the classroom rather than for practices involving other professionals, and/or for practices delivered outside the classroom: (i.e., teachers see themselves as the main source of instruction and classroom management) (Algozzine, Ysseldyke, Christenson, & Thurlow, 1983; Ellett, 1993; Myles & Simpson, 1989).
2. Teachers prefer adaptations related to the social or emotional well-being of mainstreamed students, such as those that provide reinforcement support and encouragement for student attempts and establish personal relationships with students (Baker & Zigmond, 1990; Ellett, 1993; Johnson & Pugach, 1993; Schumm & Vaughn, 1991).
3. Teachers seem to be more willing to consult other professionals, including other teachers, about academic problems than about behavior intervention strategies. However, consultative actions are not viewed as favored interventions (Algozzine et al., 1983; Ellett, 1993; Johnson & Pugach, 1990).
4. Teachers report using typical classroom accommodations they might make for any student. These do not seem to require increased time expenditure or major changes in usual teaching practices. The primary mode of teaching reported is whole group instruction. Teachers make few adaptations for individual students, such as adjusting the physical arrangement of the room, adapting regular materials, making long range plans, adjusting course content, and adapting scoring or grading criteria to accommodate a student with special needs (McIntosh, Vaughn, Schumm, Haager & Lee, 1994; Schumm & Vaughn, 1991; Ysseldyke, Thurlow, Wotruba & Nania, 1990; Schumm, Vaughn, Gordon & Rothlein, 1994).
5. Teachers state that they utilize positive or reinforcing interventions for classroom behavior problems rather than interventions that are punishing or include punishing consequences such as time out or removal from the classroom (Cole & Leyser, in press; Ellett, 1993; Johnson & Pugach, 1990; Sevcik & Ysseldyke, 1986; Whinnery, Fuchs, & Fuchs, 1991).

Only a few studies are reported which investigated and compared the perceptions of

regular and special educators regarding classroom instructional practices. For example, Blanton, Blanton, and Cross (1994) compared the ratings of regular and special education teachers of the importance of instructional strategies in helping a student with a mild disability. Few differences between groups were noted, yet for several practices (i.e., provide extra time; place student in small group, base instruction on learning style, and modify/adapt content areas), ratings by special education teachers were significantly higher than ratings of general education teachers. The authors also reported that special education teachers emphasized more curriculum/ instructional variables, while regular teachers put more emphasis on social/behavioral variables and on classroom management. Similar to data reported by others, the authors found that teachers indicated they would confer with other professionals in school (i.e., psychologists), yet not engage in regular collaborative activities with each other.

Davis and Moheady (1991) found agreement between general and special education teachers and building principals on the overall goals of the Regular Education Initiative. Some disagreements were noted regarding instructional modifications prior to referral, such as incorporating braille and sign language into regular classrooms and using the same general education curriculum with special needs students. In each instance, regular educators were least supportive, while special educators were most accepting.

Martens, Peterson, Witt, and Cirone (1986) found few differences in the ratings of school-based interventions for classroom behavior problems between regular education and special education teachers. Strategies rated by both groups as most effective, easiest to use, and most frequently used included redirection of a student toward appropriate behavior and manipulation of material rewards. Strategies rated as least effective and least frequently used were removal from the classrooms and consultation with specialists. Finally, Safran and Safran (1987) reported that regular classroom teachers rated classroom disruptive behaviors more negatively and were less tolerant than were special education teachers.

The main purpose of the present study was to extend research on views of general and special education teachers regarding instructional and behavioral practices needed to accommodate students in inclusive environments. Furthermore, the study was undertaken to provide an international perspective by examining a large sample of Israeli teachers. Specifically the goals of this investigation were (a) to examine views of general and special education teachers about classroom instructional strategies in terms of how frequently they are being used and how effective they are perceived to be, (b) to assess similarities and differences between responses by general education and special education teachers regarding the frequency of use and the perceived effectiveness of these instructional approaches, (c) to explore whether the responses by the present sample of Israeli educators are similar to responses and views reported in previous research (mainly in the U.S.A.) on the same topic.

## Method

### Instrument

A teacher rating instrument titled *A Questionnaire of Instructional Interventions in the Classroom* was employed in the study. The instrument was adapted and translated into Hebrew from several instruments used in similar investigations (Algozzine et al, 1983; Bender, 1992; Ellett, 1993; Johnson & Pugach, 1990; Schumm & Vaughn, 1991). These types of instruments were designed to measure teacher perceptions regarding instructional practices identified to be related to effective teaching and seen as essential for effective mainstreaming.

In the first part of the questionnaire used here, teachers were asked to provide demographic information; (i.e., gender, education, grade level presently teaching, years of teaching experience, and experience in mainstreaming). Part Two included a list of 68 instructional and management practices. Examples of items were: *model and demonstrate difficult academic tasks for the student* and *establish specific consequences for appropriate student behavior*. Participants were asked to rate each of these items twice on a five-point Likert-type scale in regard to (a) the frequency of their use and (b) the perceived effectiveness of the practice. Ratings were from 1 = not at all to 5 = very frequently for the use scale, and 1 = not at all to 5 = very effective for the effectiveness scale. Participants were not asked to identify themselves by name. The Cronbach alpha coefficient of reliability for this teacher sample yielded a coefficient of .942 for the use scale and .943 for the effectiveness scale.

### Administration

The survey instrument was administered with the permission and assistance of the superintendents of general and special education in two major school districts, one in the northern part of Israel and the other in the central region of the country. These two districts are quite similar in their demographics to several other districts with a large Jewish population. Surveys were sent to schools selected from lists of schools in cities and towns, which were provided by the superintendents' offices. Principals were asked to distribute the forms to teachers in their buildings. Most completed surveys were sent back in self-addressed return envelopes to the address provided. The remaining surveys were collected from schools. A total of 699 forms were returned, which represented about 45% of those distributed. The response rate in the central region was higher than that in the north.

### Sample

Participants included 560 regular education teachers and 139 special education elementary school teachers. About 98% of the regular education teachers were females. All but a few were certified. Close to 65% were senior teachers. Twenty-seven percent held a university degree. Years of teaching experience ranged from less than two years to 21 years or more. About 40% had less than 10 years of experience, while 27% had at least 21 years of

experience. Ages ranged from 25 to 55 and over. About 33% were between the ages of 25-34, while 23% were above 45 years of age. Many teachers (60.5%) reported little or no training in mainstreaming. Yet a majority (77%) reported having teaching experience with at least one or more mainstreamed students. The special education sample included teachers working in segregated as well as integrated settings. The majority of these teachers (92.1) were females. Fewer special education teachers (42.1%) were senior teachers as compared to general educators, however, more (51.1%) held a university degree. The age and experience distributions were similar to those of the general educators.

#### *Data Analysis*

Mean scores and standard deviations were calculated for each of the 68 items on the use and effectiveness scales for each of the two teacher groups. These scores were tabulated and converted to ranks. The item receiving the highest mean score for each group on use and on effectiveness was assigned a rank of 1, followed by rankings in descending order for all other mean scores, with the item receiving the lowest mean score assigned a rank of 68.

#### **Results**

Results from the Spearman rank correlation coefficients ( $\rho$ ) between the ranks of the two groups were .760 ( $p = .000$ ) for the use scale and .857 ( $p = .000$ ) for the effectiveness scale. These correlations suggest that these sets of rank-ordered data had a moderate to high positive relationship. Perusal of the ranks revealed, however, that many items were ranked differently by the two teacher groups.

Table 1 presents a list of instructional strategies and practices ranked highest by both teacher groups (i.e., in about the first quartile). These were practices that teachers reported using most frequently, and which they perceived as being most effective. Included here were strategies that support and reinforce desired academic and social behaviors in the classroom, such as providing positive supportive feedback for student attempts to improve classroom academic performance and behavior. Teachers indicated that they clarify behavioral expectations for students (yet did not view this practice as very effective) and that their responses are both systematic and consistent. As to the use of specific instructional strategies, teachers reported that they frequently model and demonstrate academic tasks and provide opportunities for drill and practice. In delivering instruction, teachers reported using various grouping techniques such as small groups or individualized instruction. Most of these educational practices were perceived as effective. Both teacher groups reported that they often collect data from other teachers regarding students' academic and conduct difficulties. Regular teachers seem to collect data especially about behavior problems more frequently than their special education counterparts. However, such input solicited from fellow teachers was not perceived by either group to be as effective. Teachers also often reported examining background information about students (i.e., health, family) to get a better understanding of the students' classroom problems.

**Table 1**  
**Instructional Practices Ranked as Most Frequency Used and Most Effective**  
**by Regular Education Teachers (N = 560)**  
**and Special Education Teachers (N = 139)**

	Use				Effectiveness			
	Regular Teachers		Special Teachers		Regular Teachers		Special Teachers	
	Rank	Mean	Rank	Mean	Rank	Mean	Rank	Mean
Encourage and support student's attempts at improving behavior	1	4.59	2	4.55	1	4.77	1	4.75
Reinforce and support student's attempts at academic improvements	2	4.44	1	4.60	2	4.75	4	4.71
Give systematic and positive feedback to student answers	3	4.41	3	4.48	3	4.68	5	4.70
Use of different reinforcers for desired student behavior	9	4.32	7	4.36	11	4.56	6	4.65
Focus on student's positive behavior	7	4.36	11	4.29	4	4.64	11	4.57
Model and demonstrate difficult academic tasks to student	16	4.11	4	4.64	5	4.63	2	4.74
Give consistent responses to appropriate and inappropriate student behavior	12	4.24	17	4.15	8	4.58	9.5	4.59
Collect data from other teachers about student behavior problems	5	4.37	13	4.27	15	4.46	20	4.44
Clarify behavior expectations to student with behavior problems	6	4.36	14	4.23	16	4.45	25	4.37
Use a different grouping technique (e.g., small group individualizing instruction)	14	4.16	16	4.22	9	4.57	9.5	4.59
Collect data from other teachers about the student's academic difficulties	10	4.29	12	4.28	19	4.44	18	4.46
Provide opportunities for drill and practice in learning	17	4.09	10	4.31	23	4.24	13	4.54
Examine factors related to health or family situation that may contribute to student's problem	13	4.18	18	4.15	10	4.56	22.5	4.43

Table 2 presents a list of instructional behaviors which both teacher groups ranked lowest (in about the fourth quartile) (i.e., strategies that were most infrequently used and also perceived as least effective). As can be seen, respondents expressed an unfavorable view about using instructional behaviors which result in extremely negative consequences, such as using physical restraint or removing students from the classroom. They also rejected the practice of establishing predetermined negative consequences for inappropriate behavior.

Table 2

**Instructional Practices Ranked as Being Least Used and Least Effective  
by Regular (N = 560) and Special (N = 139) Education Groups.**

	Use				Effectiveness			
	Regular Teachers		Special Teachers		Regular Teachers		Special Teachers	
	Rank	Mean	Rank	Mean	Rank	Mean	Rank	Mean
Use of physical restraint	68	1.37	66	2.00	68	1.75	67	2.63
Remove student with troubling behavior from classroom	67	1.89	68	1.86	67	2.20	68	2.35
Remove student to principal's office	66	2.00	67	1.92	66	2.66	66	2.72
Use group pressure to change undesirable behavior of a student	64	2.51	63	2.83	64	3.02	65	3.43
Recommend private tutoring after school	60	2.89	65	2.55	57	3.81	61	3.60
Compile data from principal about academic difficulties of students	61	2.88	64	2.82	63	3.44	64	3.46
Compile data from principal about students' behavior problems	59	2.92	61	3.02	61	3.47	63	3.48
Modify classroom rules for student when needed	57	3.11	44	3.46	60	3.55	54	3.82
Ignore inappropriate student behavior	56	3.14	53	3.23	62	3.45	58	3.69
Use peer tutors, volunteers, or aids to work with students individually	62	2.66	57	3.13	44	4.18	48	4.02
Consult with principal about student's academic difficulties	51	3.34	59	3.05	55	3.84	60	3.62
Establish specific negative consequences for inappropriate student behavior (i.e., no recess)	49	3.43	50	3.32	58	3.79	57	3.73

Interestingly, both groups did not view the building principal as a source from whom to solicit data about students' academic or behavioral difficulties, nor did they choose to consult with the principal about academic problems. Low rankings were also given to consultations with the principal about behavioral problems by both the regular and special education groups, (rankings were 45 and 42 for use and 52 and 45 for effectiveness respectively). Supporting the view that behavior problems should be prevented and given a systematic and consistent response, teachers indicated that they rarely ignored inappropriate behavior and that they were not willing to modify classroom rules. Ratings



were also low for the responses by the regular and special education groups to the practice of *using a specialized grading system which rewards efforts of student with disabilities* (rankings of 48 and 37 for use, and 41 and 46 for effectiveness respectively). A number of responses revealed that teachers perceived themselves as having the major responsibility for instruction and behavior management. They infrequently used volunteers or aides in their classrooms and did not rely on peer group help in behavior management. They also did not

Table 3

Instructional Strategies Ranked Approximately 20 Rankings Apart on Use and/or Effectiveness Between Regular (N = 560) and Special (N = 139) Education Groups.

	Use				Effectiveness			
	Regular Teachers		Special Teachers		Regular Teachers		Special Teachers	
	Rank	Mean	Rank	Mean	Rank	Mean	Rank	Mean
Provide individualized instruction for low ability students	27	3.91	5	4.39	6	4.59	3	4.73
Plan learning activities based on student's strengths and difficulties	37	3.72	6	4.36	24	4.41	7	4.65
Teach at a slower pace or in a different sequence based on student needs	35	3.75	8	4.34	18	4.45	8	4.63
Go over lesson again with individual students	26	3.94	9	4.33	22	4.43	21	4.44
Use alternative textbooks or materials to meet student needs	32	3.83	15	4.22	7	4.58	14.5	4.50
Determine ways how student learns best	41	3.70	23	4.02	21	4.42	16	4.49
Establish specific positive consequences for appropriate behavior	44	3.67	24.5	3.98	47	4.14	29	4.32
Offer social skills training for students with problems perspective	54	3.29	36	3.74	51	4.09	30	4.31
Talk to students' parents about ways to work on student behavior problems	4	4.40	34	3.78	20	4.44	39	4.17
Discuss behavior problems with student to get student's perspective	8	4.32	32	3.90	14	4.46	35	4.23
Involve parents in order to find solutions for students' academic problems	11	4.28	45	3.45	30	4.36	55	3.80
Discuss academic problems with student to get student's perspective	15	4.15	43	3.51	31.5	4.35	50	3.95
Consult with psychologist or counselor about ways to help student academically	18	4.08	38	3.62	26	4.38	38	4.18
Consult with psychologist and counselor about ways to improve student behavior	20	4.06	29.5	3.92	31.5	4.47	17	4.33

recommend private tutoring after school. As can be seen, all of these procedures were also perceived as ineffective. Although similar ratings of many strategies were observed for the two groups, there were several instructional approaches which were rated quite differently.

Table 3 presents a list of practices with rankings showing approximately a 20-point discrepancy between groups, suggesting a noticeable disagreement regarding their use or effectiveness. Special education teachers, who typically work in smaller classrooms and are trained to design and provide individualized instruction, a structured classroom and stress socialization skills, reported that they very frequently used such strategies (e.g., teach at a slower pace; go over the lesson again; plan learning activities based on individual learning needs, use alternative textbooks and materials, establish predetermined positive consequences and offer social skills training) and that they found most of them to be effective.

Regular classroom teachers ranked several practices as being more frequently used and more effective than did special education teachers. These strategies were in the area of communication with students and with parents. For example, regular classroom teachers reported holding frequent discussions with students about academic and behavior problems to get their perspective. They also noted that they often talk to and involve parents in the process of finding solutions to academic and behavior problems. These interactions, however, were not perceived to be as effective. General education teachers also reported more frequent consultations with the psychologist or the counselor to explore solutions for academic and behavior problems. These interactions were also not viewed to be very effective. Special education teachers reported fewer contacts than regular teachers with these support professionals yet found the contacts about student behavior problems quite effective.

#### *Relationships Between Use and Effectiveness – A Summary*

As has been shown, teachers in both groups gave similar ratings on many strategies in regard to their use and effectiveness. The Spearman correlation coefficients between rankings of use and effectiveness were .868 ( $p = 0.00$ ) for the general education group and .951 ( $p = .000$ ) for the special education group. These correlations reveal a strong relationship between the reported implementation of various instructional practices and their perceived effectiveness. As noted, strategies which were used most frequently were ranked as most effective, while strategies which were used infrequently were also reported as ineffective. However, the data also show that teachers used some practices infrequently, yet perceived them to be effective. On the other hand, other practices were ranked high on use and low for effectiveness. General education teachers, for example, reported that they do not frequently use strategies that focus on individualized and prescriptive instruction, although such practices (i.e., use alternative textbooks and materials and determine how students learn best) were perceived as effective. On the other hand, they reported frequent

interactions or communications with parents, students, and school professionals, even though these practices were ranked low for effectiveness overall. Special education teachers ranked some practices (i.e., consult with psychologist/counselor about behavior, give consistent responses to student behavior) higher for effectiveness yet lower on use, while others (i.e., examine factors related to student family and health, go over lesson again with a student) were ranked higher on use than effectiveness.

### **Discussion**

The purpose of this study was to examine perceptions of general and special education teachers in Israel regarding the frequency of use and effectiveness of classroom instructional practices. Rankings of these practices by the two teacher groups revealed an overall high level of agreement in regard to their frequency of use and perceived effectiveness. However, noticeable differences on several rankings were also observed. A high level of agreement was obtained on practices which were ranked by both groups either as most often used and perceived as most effective and on practices which were reported to be least used and perceived as least effective. As expected, teachers used and perceived as effective a number of instructional and management practices (e.g., provide systematic support, encouragement, and positive reinforcement for desired academic and social behavior), which are necessary for an ongoing efficient and smooth activity flow in the classroom (Blanton, Blanton & Cross, 1994; Cole & Leyser, in press). They also reported using modeling and demonstration of academic tasks, providing opportunities for drill and practice, and employing different grouping techniques.

Consistent with their positive approach to classroom management, teachers in both groups rejected the use of negative or punitive measures, such as use physical restraint or exclusion from the classroom, to change behavior. Teacher preference for positive over punitive student management practices has been reported previously by other researchers (i.e., Ellett 1993, Martens et. al. 1986; Whinnery, Fuchs & Fuchs, 1991).

Corroborating data reported in other investigations (Algozzine et. al. 1983; Cole & Leyser, in press; Myles and Simpson 1989; Whinnery et. al. 1991), teachers perceived themselves as being in charge, namely assuming the primary responsibility and ownership over classroom instruction and behavior management. Rankings revealed that they did not want to involve the principal in academic and behavior problems, nor did they frequently use volunteers and aides in their classrooms. They also did not capitalize on the influence of the peer group to assist in the management of behavior problems, and did not recommend private tutoring.

Findings revealed several differences or disagreements between the two teacher groups in the reported use of strategies and the judgement of their effectiveness. Those disagreements seem to reflect differences in training, experience, work settings, and ways in

which teachers think about students and their families. For example, special education teachers, more than the regular education counterparts, reported the use of strategies which stress individualized instruction and diagnostic prescriptive teaching which are more feasible (and expected) in small classrooms. These strategies included providing instruction at a slower pace or planning activities based on student needs, and were perceived by the special education group as effective. Similar results were recently reported by Blanton et al. (1994). It was surprising to find that regular teachers reported being much more involved in communicating and interacting with parents in order to find solutions and ways for dealing with classroom problems than did special education teachers. Special educators may perceive parents as the source of the child's problem, blame them for lack of involvement at home, or view their involvement as intrusive. Parents, on the other hand, may have experienced negative contacts with school, may hold different expectations for their child, or may question the expertise of teachers (see Bennett, Deluca, & Burns, 1997). Regular education teachers also reported more frequent interactions than the special education group with students in order to find solutions to problems. It is possible that many special education teachers who teach students with special needs, especially those with behavior and cognitive disabilities, may have found such interactions to be ineffective.

Results have shown a high positive correlation between the rankings on the use and effectiveness scales for both teacher groups. Overall strategies that teachers reported using most frequently were also seen as most effective, while strategies used infrequently were seen as ineffective. Still, several strategies were rated high on effectiveness yet lower for use, while some others were rated low on effectiveness yet higher on use.

Overall, the data seem to suggest, that perceived effectiveness plays an important part in determining which strategy will be implemented, as also reported by Whinnery et al. (1991). However, a variety of other factors (not examined in this study) are involved in teachers' choices of instructional strategies. For example, knowledge, sense of competence, training, possible side effects, risk to students, and requirements of teachers' time (Whinnery et al. 1991). Additional factors include teacher concerns that the school might disapprove of an intervention, that the intervention might diminish teacher authority or makes the situation worse, or that an intervention might be unfair to other children (Johnson & Pugach, 1991). Some caution is needed in drawing conclusions from the reported relationship between use and effectiveness. Teachers in this study were asked to rate each strategy twice, first for use and then for effectiveness. It is possible that the similarities in ratings were an outcome of a response set, namely the tendency to agree or disagree with items on the questionnaire.

Results from this study have several implications for practice and teacher training. First, as findings indicated, general educators seem to make only limited teaching modifications and adaptations which are needed to accommodate individual differences in their diverse

classrooms. Although being aware of the effectiveness, of these accommodations, teachers provide little individualized instruction. Considering the emerging international agenda of mainstreaming and inclusion, educators should receive more training in the area of instructional and curricular methods, and have adequate practice opportunities in implementing these skills. Furthermore, it is necessary to offer teachers proper on-going support in the classroom to enable them to carry out their new teaching roles and responsibilities. Finally, teachers could benefit from training and experience in co-teaching models in which a regular and special educator share the instructional responsibilities in the classroom and where each contributes his/her unique educational skills and instructional practices. Second, changes in schools and in the student population require more partnership, collaboration, and teaming among teachers, the principal, and other school professionals. Evidence here suggested that teachers did not widely engage in collaborative activities such as shared problem solving or sharing the instructional and management responsibilities with other school professionals. There is a need for teacher education programs at the preservice and inservice levels to develop skills which are essential for effective collaboration and teaming. Finally, principals need to be informed about the reluctance of teachers to discuss with them instructional and behavior problems of students and be provided with workshops that focus on the development of behaviors that will improve rapport with teachers, so that their concerns may be met in a supportive environment.

Third, special education teachers reported quite limited and ineffective contacts with parents. Parent involvement in the planning, implementation, and evaluation of this child's individual special education plan is mandated by law and is a sound practice. Special education teachers need additional training to promote a better understanding of what it is like to be a parent of a child with a disability, and of family strengths and needs as well as training in behaviors and skills necessary for effective working relationships with them.

Several limitations of the study should to be mentioned. First, although a large number of teachers from two major school districts participated in the study, the response rate was not high, and the number of special education teachers responding was relatively low. Data should be collected from additional samples of teachers, especially from other school districts. Also, teacher educators and researchers in other countries may wish to examine the use by teachers of pedagogic practices that are modified to accommodate student diversity. Results from such cross-cultural studies could provide a large data base on effective classroom practices. Finally, data here were collected by using a self-report instrument. Other measures of classroom teaching behavior (e.g., conducting classroom observations or teacher interviews and obtaining teachers' responses to videotape episodes) are needed to validate the reported data. It may also be useful to solicit student views about teachers' instructional approaches.



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**EDUCATING PRE-SERVICE TEACHERS IN INCLUSIVE EDUCATION:  
REFLECTIONS ON THE STELLENBOSCH EXPERIENCE  
IN SOUTH AFRICA**

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*The traditional approach to the education of learners with special needs was that only specially educated teachers could deal with this task, and only in separate educational settings. Against the background of the challenges of inclusive education, the University of Stellenbosch initiated a new course with as its main focus the accommodation of diversity within inclusive schools and classrooms. This article focuses on the development of the course, outlining both the rewards and challenges in the move towards reforming pre-service teacher education in South Africa.*

**Introduction**

Philosophical and theoretical differences have traditionally characterised general and special education at the pre-service teacher training level in South Africa. The traditional approach to the education of learners with special needs was that only specially educated teachers could deal with this task, and only in separate educational settings. The belief was instilled that learners must be able to conform to the ways teachers teach, and that those learners who do not conform, do not belong in the mainstream. Mainstream teachers were therefore relieved of responsibility for the education of the learner with special needs (Welch, 1996). Pre-service teachers who were interested in special educational needs were encouraged to specialise on a postgraduate level in special needs, doing an alternative programme, e.g. a diploma in educating learners with a visual impairment within a special school.

The training of pre-service teachers at the University of Stellenbosch was based on this approach until 1996, when it became clear that the challenges of rapid and dramatic

changes in the way special education services were being provided, would have to be accommodated in teacher training. Recognising the need for change and committing ourselves to pursue such change, we therefore decided to combine the three postgraduate diplomas, namely on mental handicap, hearing impairment and remedial teaching, into one general further diploma with as main focus the accommodation of diversity within inclusive schools and classrooms.

The purpose of this article is to reflect on the development of the course, outlining both the rewards and the challenges we have faced as we moved towards reforming pre-service teacher education in special needs, providing a description of our experiences and insight into this complex process.

### **Development Of The Further Diploma In Education: Special Educational Needs**

#### *Philosophy and theoretical framework of the programme*

We have adopted a number of core philosophies that provide the foundation for our further diploma, which is now in its second year:

- It was decided that the point of departure would be the principles and values contained in the Constitution and the White Paper on Education and Training, in other words, recognition of and adherence to human rights and social justice for all learners. The implications of these values and principles for a single, inclusive education system were discussed in the core planning group and it soon became clear that this belief was not shared by all. Two members of the group had strong feelings about the necessity for maintaining special educational settings, and the discussion around this issue provided an excellent opportunity, not only to develop as a team, but also to come to grips with inclusive education.
- The theoretical framework of the course is based on an ecosystemic and constructivist approach, taking the wider social context into consideration.
- Our belief that we as lecturers and our students are involved in an active process of exploration and intellectual development, resulted in a strong orientation to teaching and learning as integral processes, which implies a commitment to provide intensive academic and practical learning experiences for students which will be basic to their development as teachers.

#### *General outcomes of the programme*

We consulted widely, both nationally and internationally, with roleplayers and stakeholders, and subsequently formulated the following general outcome for the programme:

*To provide students with the necessary skills to facilitate and support special needs within inclusive schools.*

This general outcome also implied the necessity of enabling students

- to view the broader worlds of education and society and the more specific world of special needs education more critically;
- to have the confidence and ability to make instructional, curricular and professional decisions based on new policy documents as well as on the needs of learners;

- to develop the necessary skills to work collaboratively with colleagues and to adopt key roles of leadership and coordination;
- to develop ownership in their professional contexts;
- to become advocates for positive change in the profession, schools and society;
- to develop as reflective practitioners (Walker, Tedick, 1996).

#### **Contents of the programme**

The following brief outline of the programme is at best cursory. However, it captures the essential components of what we include in the programme. The task appears simple on paper, but its development was complex, to say the least. We had to ensure that each part would prove to be interactive and functional in the preparation of competent teachers for the profession, without losing sight of our core philosophies.

**Mainstream education** focuses on the movement towards inclusive education, the development of relevant policy within the South African context, as well as on the challenges of the development of inclusive schools. As attitudes and actions of teachers are crucial to maintaining learners with special needs in regular education, this module also focuses on the development of positive attitudes towards persons with disabilities.

**Assessment:** The work in the assessment modules focuses on making assessment on a continuous basis more integral with learning tasks, so that skills such as problem-solving and critical thinking can be assessed.

**Learning Support:** The modules on Learning Support are based on the definition of Learning Support as preventative interventions which incorporate all aspects of the teaching-learning process in the classroom. It includes both systemic and individual needs, providing support for teachers, parents, learners and the social community at large.

The modules on **Learners with special educational needs** are based on the fact that basic knowledge of different disabilities is important. Specific educational needs that arise from these disabilities are addressed.

**Learning problems** have as point of departure a critical analysis of theories of learning problems and specific learning problems.

**Hearing impairment** consists of two modules which is optional for students interested in specialising in educating the hard of hearing and Deaf.

**Teaching practice** focuses not only on teaching experiences within real classroom contexts, but also on the development of various skills within a workshop-setting. Workshops focus for example on cooperative learning, communication skills, facilitation skills, conflict resolution, establishment of teacher support teams and parent guidance. This module also provided us with the opportunity to develop positive relationships between local schools, the Western Cape Education Department and our own department at the university.

**Reflections On The Process Of Growth And Change**

Our experiences and the informative feedback we received from our students and other colleagues over a period of two years, enabled us to reflect on the programme. What also emanated was the discovery that the challenges we face are mainly in two areas:

- **our own role as educators** and what we bring to the teacher education experience;
- **planning and organisation** of the programme in order to reflect our core philosophies in combination with an ever changing educational scene.

*Our own role as educators*

In our effort to meet the demands of a changing educational scenario, as well as our own and students' expectations of relevance and applicability, we often found ourselves facing the most difficult challenge of all: confronting and overcoming our own perceptions, expectations and perspectives that come from years of immersion into the culture of separate educational provision for special needs. On many levels we consciously had to examine what we do, how it affects our students and ourselves and what the options for the future might be.

We were also confronted on many levels by barriers to implement change, and we continually had to choose which challenges to address. The question of assessment serves as a good example: while we provide our students with procedures in formative continuous assessments which emphasise the individual's potential to become an effective learner, we are still constrained within our institutional regulations to assess students according to grades within formal examination settings (Walker; Tedick, 1996). We have compromised by providing opportunity for discussion, debate, challenge and reflection within the structure of the programme, thus incorporating qualitative and formative assessment within the quantitative approach.

*Planning and organisation of the programme*

Regarding the planning and organisation of the programme, the following aspects needed rethinking.

- **Teaching practice**

Our early attempts to expose students to the realities of inclusive schooling in rural areas met with some difficulties. We initially abandoned many of the predictable structures expected in practice teaching in schools, encouraging students to develop their teaching skills based on a real disadvantaged classroom context. As the very nature of the programme is one in which dialogue, discussion, exploration, feedback and practice combine to create an atmosphere where process, not product, is the watchword, we discouraged students from seeking simple answers to complex questions, but rather to develop knowledge to pose questions and make choices (Walker; Tedick, 1996).

This process was not as successful as we hoped for, and students were frequently

caught between the *ideal* of teaching and the *reality* of teaching. At the end of the first year we consequently decided to restructure this approach with the support of in-service teachers in clinics, mainstream schools and special schools. The result has been that students have been exposed not only to real classroom contexts, but in addition have also worked with personnel at special schools and school clinics. As the watchword is still the development of process and not product, great care is being taken in monitoring this teaching practice component in order to ensure a true relationship of collaboration through shared dialogue and reflective practice.

- **Attitudes towards disabilities**

During and at the end of the first year, a survey was undertaken to gauge the attitudes of students towards persons with disabilities. The students' high levels of discomfort when coming into contact with disabilities, forced us to reorganise this aspect of the course. Opportunities for extended interaction with learners with disabilities in multiple classroom settings, and the freedom to examine beliefs and attitudes were incorporated in the programme. We also changed the name of the module Mainstream Education to Inclusive Education.

- **Programme content in general**

New policies on assessment and curriculum also provided interesting challenges for those involved in the Assessment and Learning Support course.

There is also a natural movement towards including the modules on Hearing Impairment as an integral part of the whole course.

### **Conclusion**

Reviewing our efforts of the past two years, we found that essentially we were not only communicating, but have also become part of a dramatic change process in education in South Africa about which we are energised and enthusiastic, but which is proving difficult to implement in practice. We found that some students were excited by this departure from traditional expectations while others at first wondered where this training programme would lead them. As critical and reflective practitioners, it has been exciting to observe the development of interest, commitment and personal growth in both our students and ourselves.

The logical next step would be to explore ways to acknowledge and serve diversity within general undergraduate teacher education so that the next generation of general teachers will be well-prepared to work effectively in inclusive schools.

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