The Journal of the International Association of Special Education

The Journal of the International Association of Special Education

Spring 2006
Vol. 7, No. 1

Call for Papers
Tenth Biennial International Conference
University of Hong Kong

June 10 -14, 2007

Official Journal
of the
International Association of Special Education

Spring 2006 Vol. 7, No. 1

Editorial Staff

ISSN 1555-6913

Editor: *Greg Prater,* Northern Arizona University, Flagstaff, Arizona, USA

Associate Editor:

Malgorzata (Gosia) Sekulowicz, University of Lower Silesia, Wroclaw, Poland

Managing Editor:

Jamie Timmerman, Northern Arizona University, Flagstaff, Arizona, USA

Assistant to the Editor:

Chizuko Yamada, Northern Arizona University, Flagstaff, Arizona, USA

Consulting Editors:

Eunice Alade, Kenyatta University, Nairobi, Kenya
Panayiotis Angelides, Intercollege, Nicosia, Cyprus
Lynn Aylward, Acadia University, Wolfville, Nova Scotia, Canada
Meng Deng, Central China Normal University, Wuhan, Hubei Province, China
Richard M. Gargiulo, University of Alabama at Birmingham, Alabama, USA
Paula Leitz, Pacific Lutheran University, Tacoma, Washington, USA
Brenda Myles, University of Kansas, Lawrence, Kansas, USA
Zandile P. Nkabinde, University of Maine at Farmington, Maine, USA
Karen Philomena Nonis, Nanyang Technological University, Singapore
Young Kyoon Park, K.I.Y.D./Research Fellow, Seoul, Korea
Filiz Polat, University of Bristol, UK
Karen Schulte, School District of Janesville, Janesville, Wisconsin, USA
Karen Sealander, Northern Arizona University, Flagstaff, Arizona, USA
Bernadeta Szczupal, Academy of Special Education, Warsaw, Poland

Layout and Design: Jamie Timmerman

Printed by: Northern Arizona University Printing Services

P.O. Box 6014, Flagstaff, Arizona 86011-6014
(928) 523-1941 printing.services@nau.edu

Copyright 2006, International Association of Special Education

No part of this publication may be stored in a retrieval system, transmitted, or reproduced in any way, including, but not limited to, photocopy, photograph, magnetic or other record, without prior permission of the publisher.

The Journal of the International Association of Special Education

Volume 7 / Number 1 *Spring 2006*

CONTENTS

Note from the Editors
Greg Prater and Jamie Timmerman 3

Integrating Children with Special Needs: Singapore Preschool Teachers Share Their Feelings: A Preliminary Investigation
Karen P. Nonis 4

China's Challenge for the Future: Family-Centeredness in Early Childhood Special Education
Yanhui Pang
Dean Richey 11

Special Education in Zimbabwe: Issues and Trends
Morgan Chitiyo 22

An Investigation of Variables Relevant to the Stereotyped Behavior in Students with Developmental Disabilities in Taiwan
Jung-Chang Tang
Li-Ting Wu
Chiu-Hua Chiang 28

Precision Reading: New hope for struggling readers
Rick Freeze 36

Some Features and Differences between Parents of Students with Special Needs and Typical Children in Croatia
Ana Wagner Jakab
Daniela Cvitković 47

Teaching Mental Abacus Calculation to Students with Mental Retardation
Hong Shen 56

A Snapshot of Teacher Perceptions on Full Inclusion in an International Urban Community: Miami-Dade County, Florida
Beryl Watnick
Arlene Sacks 67

PRAXIS Articles

Teaching Students to Organize and Synthesize Information
Karen Sue Bradley
Jack A. Bradley 75

Travelling Skills: Specific Training of Adding Value to the Ezlink Card in Singapore
Karen P. Nonis
Yvette V. Pereira
Lynette Gomez
Bernadette Gomez
Ti-Na Tan 80

PRAXIS Guidelines 84
Conference Information 85
Submission Guidelines 87
Membership Information 88

Note from the Editors

Welcome to this edition of *The Journal of the International Association of Special Education*. This is the second issue of the journal that is being supported in part for publication by Northern Arizona University.

We would like to thank the Editorial Board and our Consulting Editors for making this issue possible. Also, we would like to thank the Associate Editor, Malgorzata (Gosia) Sekulowicz for her editorial contributions. In addition Chizuko Yamada, Assistant to the Editor, has made valuable contributions to this publication.

Currently, we are seeking individuals that are interested in becoming consulting editors for the journal. If you would like to be considered as a consulting editor, please apply by submitting a letter of interest and a current vita to: Greg.Prater@nau.edu. We will be selecting approximately seven new consulting editors beginning with the 2007 edition of the journal. Preference will be given to individuals from countries that are not currently represented within our directory of consulting editors. You must be a member of the IASE in order to be considered.

The 2005 issue introduced a new section of the journal. The PRAXIS section of the journal is supposed to have immediate practical application for those providing direct services to individuals with disabilities. This issue contains two PRAXIS articles. We hope readers find these articles useful and encourage you to consider submitting your ideas in manuscript form to this section of the journal.

We look forward to working with all of the members of IASE and we encourage you to submit your manuscripts to the journal. We look forward to seeing old friends and meeting new ones in Hong Kong in the summer 2007.

Sincerely,

Greg Prater, Editor

Jamie Timmerman, Managing Editor

Integrating Children with Special Needs: Singapore Preschool Teachers Share Their Feelings: A Preliminary Investigation

Karen P. Nonis, Ph.D., Asst. Professor
Early Childhood & Special Needs Education
Nanyang Technological University
The National Institute of Education
kpnonis@nie.edu.sg

Abstract

There has been a marked change in the Singapore Educational System where general and special education schools will receive extra funding for special needs children. While this financial support is encouraging, it is uncertain if preschool teachers and their respective kindergartens are ready for integration. This study investigated how teachers feel about the impending integration of children with special needs into their classrooms. Seventy-five preschool teachers completed a survey comprised of 3 sub-sections. Teachers were asked about their feelings toward including children with special needs into their classroom. The survey questions related to (a) Teacher's attitudes towards integrating/including children with special needs (b) Professional Development and (c) Resources. The survey required teachers to respond with a yes or no and in some cases there were open-ended questions for their responses. Percentage responses were calculated for each response to a question. The majority of teachers welcomed integration. Teacher's concerns for the lack of professional training, knowledge of special needs and existing government agencies supporting individuals with disabilities were also revealed.

Introduction

In Singapore, although there have been many pockets of support for integration into general education, the bulk of educating children with special needs, however, lies with Special schools who receive full support from the Ministry of Education, Singapore (MOE) and the National Council of Social Services, Singapore (NCSS). A recent change in leadership has brought about a government policy in support of children with special needs. The MOE has pledged greater financial support to special and general education schools. With increased support for special needs integration into regular classrooms, teachers will need the necessary skills in special needs education. This study investigated how preschool teachers feel about the impending integration of preschool children with special needs into their classrooms.

Facilitators for successful Inclusive Preschool Programmes

The need to identify learning difficulties and establish early intervention programmes highlighted by many researchers (Clark & Sharpe, 2004; Ee & Soh, 2000; Heward, 2003). Clarke and Sharpe (2004) stressed the importance of developing high quality preschool programmes to help children with developmental delays and/or social and emotional behavioural problems adjust to general education. Supporting this argument, Ee and Soh (2000) recommended that a successful integration programme for the Intellectually Disabled would mean that general education schools should include: (1) relevant training for mainstream teachers (2) flexible scheduling to allow time for inclusion facilitation for student conferencing and (3) resources, personnel and consultants to general education teachers. In addition to a change in policy, training is another important factor for successful

integration (McLaughlin, 1990; Nutbrown & Clough, 2004). Liber, Hanson, Beckman, Odom, Sandall, Schwartz, Horn, & Wolery (2000) identified three key influencing factors that facilitated the initiation and implementation of inclusion in preschool settings which included : (1) key personnel and particularly teachers and principals; (2) a shared vision – when teachers had common philosophies or integrated approaches to instruction and (3) the impact of national and state policies.

In 2004, the MOE increased it's support for children with special needs. Special schools will receive an extra 12 million a year on top of the already existing 30 million the schools receive for their annual operations from the MOE (The Sunday Times, September 2004). Special schools waiting for their new schools will receive support to vacate to their new facilities by 2008 instead of the original plan of 2012 and the MOE will increase the specials schools development costs by 5% (from 90% to 95%). General education schools will also receive a boost with 20 primary and 30 secondary schools identified as catering to children with dyslexia and autistic spectrum disorder. The MOE aims to have 10% of teaching staff in primary and secondary schools (known as Special Needs Officers) trained to help teach children with learning disabilities in general education classrooms.

What does this increase in financial and human resource support mean? This is a clear signal that it is time to support integration of children with special needs into general education classrooms and kindergartens. Preschool integration through training and support for the inclusion of children with special needs is readily available for kindergarten teachers. However, the needs of each kindergarten may vary. Over the years, the support for integration has been present with many programmes made available for special needs support in general education. For example, the TEACH ME programme (Therapy and Educational Assistance for Children in Mainstream Education, Normanbhoy & Nonis, 2004) caters to physically disabled children, PRiEP (Preschool Integration Enhancement combined for all three kindergartens and percentages were calculated for each response to a question. Programme, Clarke & Sharpe, 2004) established in 2002 caters to children with Austism Spectrum Disorder (ASD) and other special needs. The Down Syndrome Association of Singapore (DSA) started a preschool integration programme to integrate a number of children with Down Syndrome into regular kindergartens (Clarke & Sharpe, 2004). The Ministry of Community Development and Sports (MCDS) launched the Integrated Childcare Programme (ICCP) to support children with special needs in childcare centres (Clarke & Sharpe, 2004). While kindergartens and childcare centres are keen to integrate children with special needs, it is uncertain if preschool teachers and their respective kindergartens are ready in terms of professional training in special needs.

Method

Participants

Seventy-five trained female preschool teachers from 3 kindergartens and childcare centers participated in this study. The mean age of the participants was 29 years. Sixty percent of teachers had a General Ordinary Certificate in Education (GCE "O" Level) and 12% had an Advanced Certificate in Education (GCE "A" Level) while 6% had a degree.

Survey Instrument

A survey was used to ask teachers about their feelings towards including children with special needs into their classrooms (See Appendix A). The survey comprised two sections. Section one comprised of general information about the participants. Section two had 3 sub-sections of questions related to (a) Teacher's attitudes towards integrating/including children with special needs (comprised of 6 questions); (b) Professional Development (comprised of 4 questions) and (c) Resources (comprised of 4 questions).The survey required teachers to respond with a yes or no and in some questions provide reasons for

their responses. Teachers were given a week to complete the survey form. The data were combined for all three kindergartens and percentages were calculated for each response to a question.

*Survey Form of Preschool Teacher's Attitudes about Integrating Children with Special Needs into their class. Instructions: Please answer all the questions with a **YES** or **NO** and explanations where necessary.*

	Teacher's Attitude towards Integrating Children with Special Needs
1.	Are you supportive of integrating/including children with special needs in your class?
2.	Do you think that your kindergarten is supportive of integrating children with special needs into the kindergarten?
3.	Do you think that children with special needs can benefit/learn from being in your class? ***If YES,** in what ways do you think children with special needs can benefit from being in your class? *If No, why do you think that children with special needs will not benefit from being in your class?
4.	Do you think that normal children can learn from interacting with children with special needs in your class? ***If YES**, Explain how normal children could benefit from interacting with children with special needs in your class? *If NO, Explain why do you think that normal children would not benefit from interacting with children with special needs in your class?
5.	Do you think that normal children enrolled in your class programme alongside children with special needs will have detrimental effects on the normal child? **If YES**, What effects do you think this will be?
6.	If given the opportunity, would you include a child with special needs in your class?
7.	What is your biggest worry/concern about having a special child included in your class?
	Professional Development
8.	Do you think that you have sufficient knowledge to teach a child/ren with special needs?
9.	Do you think that you are able to manage the behaviour of children with special needs? What kinds of behaviour do you think you may experience with children with special needs?
10	Would you be willing to go for additional workshops or training to learn about special needs?
11	Do you think that your confidence to teach children with special needs will improve as you have more experience with children with special needs?
	Resources
12	Do you think that you have sufficient instructional materials in your class to teach children with special needs?
13	Do you think that your kindergarten will provide support to purchase the necessary resources for teaching children with special needs? If YES, What evidence do you have now that says that your kindergarten will support with the necessary resources? If NO, What evidence do you have to say that your kindergarten will not support with the necessary resources?
14	Do you know of any external support service that you could tap on for information, or support for the children with special needs in your class? If YES, Please state.
15	Do you know of any government agency responsible for the overall welfare of persons with special needs? If YES, Please state.

Limitations of the Study

While this study served as a preliminary basis for understanding preschool teacher's views on integrating special needs children into regular classrooms, several factors limit the interpretation of the study. Firstly, to make the questionnaire simple and quick for teacher's to

respond, only yes and no responses were required. The questionnaire format was designed with specific questions targeted towards obtaining information about teacher's feelings about the topic of integration in regular kindergartens and childcare centres. Future studies could include a likert-type format. Secondly, the small sample of 75 kindergarten teachers could include a larger cohort of teachers. Finally, 70 of the participants were from a single ethnic group and future studies could include a more representative sample of the three main ethic groups in Singapore.

Results and Discussion

Teacher's attitude toward integration of children with special education needs into regular classrooms

The results showed that the majority of teachers welcomed the idea of integration (Yes = 60%, n = 45), (No = 39%, n = 27) and also felt that their centers were supportive of including children with special needs [(Yes =77%, n = 58), (No = 19%, n = 14), (see Table 1)]. They also felt that children with special needs would benefit from integration into their classrooms [(Yes = 57%, n = 43), (No = 33%, n = 25), (see Table 1)]. Teachers wrote that the special needs child could benefit mainly from social interaction, learning 'normal' language, learning 'normal' behaviours and developing independence. Pre-school teachers anticipated that children with special needs would learn to speak and communicate better and change behaviours they may exhibit as a result of their disability with integration. These comments suggest that teacher's lacked the knowledge of children with special needs and indicates the necessity for special needs training for preschool teachers. The 33% who disagreed that the special needs child would not benefit from integration highlighted the problems of teacher to pupil ratio and the need for a smaller class size, the problem of professional training and the availability of resources. The results showed that a large percentage of teachers felt that normal children could learn from interacting with special needs children [(Yes = 81%, n = 61), (No = 15%, n = 11), (see Table 1)]. Character building, developing empathy, awareness of disability and communication skills with the special needs child were common benefits identified by teachers. In contrast, the 15% of teachers who disagreed highlighted reasons relating to learning "bad" behaviours and normal children not being able to "pay attention" during lessons.

Table 1 - *Percentage Teacher's Responses to Integration (N = 75).*

Item	Responses		
	% Yes (n)	% No (n)	% Neutral (n)
1. Are you supportive of integrating/including children with special needs in your class?	60(45)	36(27)	4(3)
2. Do you think that your kindergarten is supportive of integrating children with special needs into the kindergarten?	77(58)	19(14)	4(3)
3. Do you think that children with special needs can benefit/learn from being in your class?	57(43)	33(25)	9(7)
4. Do you think that normal children can learn from interacting with children with special needs in your class?	81(61)	15(11)	4(3)
5. Do you think that normal children enrolled in your class programme alongside children with special needs will have detrimental effects on the normal child?	31(23)	60(45)	9(7)
6. If given the opportunity, would you include a child with special needs in your class?	63(47)	27 (20)	10(8)

What teacher's considered as "paying attention" in a kindergarten is not clearly understood but they felt that having a special needs child in their class would affect the other children. Sixty per cent [(n = 45), (Yes = 31%, n = 23), (see Table 1)] of teachers did not feel that normal children enrolled alongside children with special needs would have detrimental effects on the normal children. The results also showed that 63 % (n = 47) of teachers agreed, if given the opportunity, to include a child with special needs into their class while 27% (n = 20) disagreed. The overall response of teacher's feelings about integration is encouragingly supportive of including children with special needs into their classrooms which could be interpreted as a 'shared vision' (Liber et al., 2000). In the Singapore context, the shared vision encompasses the new government drive of an inclusive society, the kindergarten's and the teacher's support of integration. This 'shared vision' is especially important when teachers are at the forefront of the implementation process of integrating special needs into kindergartens.

Professional Development and Training

The results showed that 92 % (n = 69) of teachers did not think that they had sufficient knowledge in special needs education and 82% [(n = 43), (see Table 2)] did not feel confident that they could manage the behaviours of the special needs child. It was interesting to note that teachers responded this way even without clear identification of what special needs or behaviours were (see Table 1). When teachers were asked to list the types of behaviours they would anticipate experiencing with a special needs child, tantrums and hyperactivity were most popular responses, followed by needing attention and lacking interaction. Few teachers indicated that this was dependent on the type of disability. Teachers were, however, willing to go for additional workshops to learn about special needs (Yes = 84%, n = 63). This response is indeed encouraging especially when research has highlighted training as the key facilitator for integration (Ee & Soh, 2000). The results also showed that 75% [(n = 56) vs 15% (n = 11)] of teachers felt that their confidence in teaching children with special needs would improve with more experience over time. This finding is supported by other studies (Nutbrown & Clough, 2004). Nutbrown and Clough (2004) reported that 87% (98 out of the 113) of teachers in their study gained confidence in teaching children with special needs through their direct contact with the children.

Table 2 *- Percentage Teacher's Responses to Professional Development (N = 75).*

Item	Responses		
	% Yes (n)	% No (n)	% Neutral (n)
1. Do you think that you have sufficient knowledge to teach a child/ren with special needs?	4(3)	92(69)	4(3)
2. Would you be willing to go for additional workshops or training to learn about special needs?	84(63)	9(7)	7(5)
3. Do you think that you are able to manage the behaviour of children with special needs?	25(19)	57(43)	17(13)
4. Do you think that your confidence to teach children with special needs will improve as you have more experience with children with special needs?	75(56)	15(11)	10(8)

Table 3- *Percentage Teacher's Responses to Availability and Knowledge of Resources (N = 75).*

Item	Responses		
	% Yes (n)	% No (n)	% Neutral (n)
1. Do you think that you have sufficient instructional materials in your class to teach children with special needs?	55(41)	40(30)	5(4)
2. Do you think that your kindergarten will provide support to purchase the necessary resources for teaching children with special needs?	45(34)	37(28)	17(13)
3. Do you know of any external support service that you could tap on for information, or support for the children with special needs in your class?	37(28)	60(45)	3(2)
4. Do you know of any government agency responsible for the overall welfare of persons with special needs?	32(24)	64(48)	4(3)

The knowledge of and the availability of resources

In terms of resources, 55% (n = 41) agreed that there was sufficient instructional materials available in the classrooms to teach special needs children while 40% (n = 30) disagreed. The results showed 60% (n = 45) compared with 37% (n = 28) of teachers were not aware of external support for special needs beyond their kindergarten. Further, 64 % (n = 48) were not aware [(compared with 32 %, n = 24), (see Table 3)] of any government agency responsible for the welfare of persons with special needs. This result has important bearing on the development of content of course modules for special needs integration. For example, institutes responsible for training in special needs should complement theory with direct services in special needs.

Conclusion and Implications

This study revealed that while pre-school teachers support the integration of children with special needs into their classrooms, they expressed some concern about handling behaviors and the effect that these behaviours would have on the other children in their class. The knowledge about purchasing appropriate assistive devices, developing conducive learning environments (with small class size and the need for assistance) and training was also highlighted by the teachers. Importantly, while teachers were concerned about their training, they were keen to go for training in special needs. Therefore, it is recommended that educational institutions should offer accredited courses in special education to pre-school teachers.

Teachers also shared their concerns about class size before they were willing to accept children with special needs. Class size should be taken into consideration when including a child with special needs into regular classrooms. In addition, the number of children with special needs included in a regular classroom should be taken into consideration especially when the teacher is inexperienced.

It is indeed very encouraging to see that Singapore, in her effort to include children with special needs into regular classrooms has approached it with the right strategies. These include a new government policy, sound financial backing for special needs and a keen group of teachers ready for professional training.

References

Clarke, C. & Sharpe, P. (2004). Learning and Diversity. In L. Lim & M. M. Quah (Eds.), *Early Intervention* (pp. 63-88). Singapore: McGraw Hill.

Ee, J. & Soh, K. C. (2000). Perceptions of Singaporean Teachers and Parents about Inclusive Educational Placements of Students with Intellectual Disabilities. *Saudi Journal of Disability and Rehabilitation, 6* (4), 271-275.

Heward, W.L. (2003). *Exceptional children: An Introduction to Special Education* (7th ed.). NJ: Prentice Hall.

Liber, J., Hanson, M. J., Beckman, P. J., Odom, S. L., Sandall, S. R., Schwartz, I. S., Horn, E., & Wolery, R. (2000). Key Influences on the Initiation and Implementation of Inclusive Preschool Programs. *Exceptional Children*, *67* (1), 83-98.

Lim, L. & Tan, J (2004). Learning and Diversity. In L. Lim & M. M. Quah (Eds.), *Educating Learners with Diverse Abilitie*s (pp. 1-28). Singapore: McGraw Hill.

McLaughlin, M. W. (1990). The Rand change agent study revisited: Macro perspectives and micro realities. *Educational Researcher, 19* (9), 11-16.

Nomanbhoy, D. M., & Nonis, K. P. (2004). Learners with Physical Disabilities. In L. Lim & M. M. Quah (Eds.), *Educating Learners with Diverse Abilitie*s (pp. 261-282). Singapore: McGraw Hill.

Nutbrown, C., & Clough, P. (2004). Inclusion and exclusion in the early years: conversations with European educators. *European Journal of Special Needs Education, 19* (3), 301-315.

Teo, L. (2004, 19 September). $220m school aid for disabled kids. *The Sunday Times*, 8.

Quah, M. M. & Jones, K. (2004). Learning and Diversity. In L. Lim & M. M. Quah (Eds.), *Supporting Learners with Special Educational Needs in Mainstream Classrooms* (pp. 89-109). Singapore: McGraw Hill.

China's Challenge for the Future: Family-Centeredness in Early Childhood Special Education

Yanhui Pang
Tennessee Technological University
ypang21@tntech.edu

Dean Richey
Tennessee Technological University
drichey@tntech.edu

Abstract

Chinese traditional and contemporary families are introduced specific to their structure, cultural background, and socioeconomic status and gender roles, followed by an introduction to the relationship between family-centered practices in early childhood special education (ECSE) and current practices in China. Given the specific characteristics of Chinese families and the current practices of family-centeredness in China's ECSE, there are several challenges that are worthy of special consideration. Recommendations are made in order to successfully implement family-centeredness in China's ECSE and for it to be a cultural "fit" with Chinese tradition and culture.

Introduction to Chinese Families

Traditional Chinese Families

Many of the institutions, beliefs, and values held in China's traditional families are still present in China. The traditional Chinese family, or jiā 家 (colloquial: jiātíng 家庭), called a "chia" by a few English writers, was a patrilineal, patriarchal, prescriptively virilocal kinship group sharing a common household budget and normatively extended in form (Jordan, 2003). Influenced by the Confucianism, in traditional Chinese families women were taught be submissive to their husbands, obedient to parents and parents-in-law, diligent at womanly work (cooking, cleaning and sewing), and never meddlesome in public affairs. And usually women did not have legal rights (Zhan, 2002). Due to the unequal role of male and female in Chinese traditional families, male children were preferred to female. Male children were considered as connection of family line while female children as the gift of their future-to-be husbands. Also, due to the Confucians' doctrines, female children were deprived of educational opportunities, but male children were put high expectation on academic achievements as the academic achievements was regarded as a family glory (Jordan, 2003).

Contemporary Chinese Families

According to Sheng (2004), "industrialization and modernization and China's One-Child Policy are two major contributory factors to the downsizing of the Chinese family, the major innovation to Chinese family. In the past century, industrialization has changed the Chinese demographic structure dramatically" (p.100). E.g., at the beginning of the 20th century, the rural population accounted for more than 90% of the total Chinese population. Yet, since China's Open Policy and Reform in 1978, an increasing number of people have moved from the country to the cities, resulting in a decline of rural population and reduction of family size, and an increase of temporary inhabitants in industry sectors. "In addition to the processes of industrialization and modernization, the population control campaign launched in the 1980s has also been responsible for the rapid shrinking of Chinese families. As China's population policy requires that couples have only one child, the national birth rate declined rapidly from 22.28 in 1982 to 15.23 in

1999" (National Bureau of Statistics, 2001, p.91). Thereby, the nuclear families consisting of a father, a mother, and an only-child occur as the major family pattern in China's urban areas and some part of the rural areas. According to Ma, Wang, Sheng and Shinozaki (1994), the Fourth National Census reported that the three-person families accounted for 23% of total Chinese families, 30% of urban families, and 20% of rural families.

In contemporary Chinese families, the gender roles are also changing. Women, by law, have the same rights as men in political, economic, educational, and social and family life. Sheng (2004) stated,

> In terms of family life, for example, women have gained freedom to choose a marriage, use their own surname, and inherit family properties, which could ensure them equality with their husbands at home. With universal full-time employment in urban areas, wives are able to be independent economically from their husbands and to become important contributors to family income. So, wives have gained more equality in decision making of family affairs. (p.106)

Although it is an increasing trend that women gain as equal position in family as well as social life as their husbands, it does not mean that marriage is not without stresses. In fact, modern family life encounters more stresses than traditional families. According to the study on women's status in contemporary China (Institute of Population Studies, 1994), slightly less than one-third of Chinese couples reported no stresses, and the others reported three main conflicts between wives and husbands in their family lives: children, housework, and family economy. Family violence may be seen as an extreme solution to family stresses. Besides marital violence, child abuse is another widespread problem in China (Sheng, 2004).

In brief, the Chinese family is interdependent and interactive with other social institutions such as social politics, economics, and education. "China is one of the countries in the world in which families were heavily influenced by the dynamics of social politics in the 20th century" (Sheng, 2004, p.119). For instance, the household (hukou) has been used for centuries in China since imperial times (Duttom, 1992). Sheng and Selden (2004) stated,

> It has been institutionalized since the middle of the last century by the development of a series of household registration-based measures that catered to the demands of socialist social control and the planned economy through regulating population mobility, employment, education, and food and goods supplies. (p.120)

This system greatly restricts social mobility in China. According to the study of Zhang (1988), Chan & Zhang (1988), and Stockman (2000),

> Under this system, families were identified as either "agricultural" or "nonagricultural," and the approved resident locations were classified as either "urban" or "rural" in specific cities, towns, or villages. And the urban or rural registration became hereditary, inherited from the mother, and could only be changed under limited and specific conditions. (p.120)

Traditional beliefs, economic, social and educational factors influence the characteristics of Chinese families, all of which combine together to determine Chinese families' roles in Early Childhood Special Education (ECSE). This point will be discussed later.

Early Childhood Special Education Provision and Families' Roles

With the establishment of the People's Republic of China, the Chinese government has all along attached great importance to special education. The state has issued a whole set of laws and regulations which make explicit stipulations on safeguarding the rights to education of the disabled, and formulated a series of both general and specific policies for reforming and developing special education especially after the 1978 Economy Reform and Open Policy, e.g., the passage of the 1986 Compulsory Education Law, which was the first official call for equal education for children with special needs. Local governments were to set up special schools or classes for students who were blind, deaf, or had cognitive

disabilities (National People's Congress, 1986). Furthermore, the most comprehensive disability laws, the Law of the People's Republic of China on the Protection of Persons with Disabilities (National People's Congress, 1990) and the 1994 Regulations on Education for Persons with Disabilities (State Council, 1994), call for compulsory 9 years of education to be provided to children with disabilities (this responsibility is given to schools, social groups, families, and all fields of society).

Based on this legislation, there has been growth in early childhood special education (ECSE)/special education (SE) in contemporary China after 1978. By 1990, more than 600 preschool classes were being operated for children with disabilities (Carter, Chen, Hwang, & Yu, 1996). By 1998, there are 1,440 special preschools/kindergartens/schools for children with special needs and the enrollment had reached 4.53% for children with visual and hearing impairments and mental retardation, and 2% for those with special needs such as learning impairments, behavior problems, autism, health problems as well as psychosocial problems (Qian, 2005). Among these ECSE programs, a small number are publicly operated, but many are set up and managed by parents of children with disabilities. There are two types of ECSE programs, special preschool/kindergarten (there is no distinction between preschool and kindergarten) and inclusive preschool programs.

According to Hsia, McCabe, & Li (2003), among these educational establishments, there are only a very limited number of schools and programs aimed at educating young children with cognitive disabilities and autism, while a large proportion of China's ECSE serve children with visual and hearing impairments. From the perspective of one of the authors, China has more experience and more history of working with young children with visual and hearing impairments. For example, the first special school founded by U.S. and European missionaries in the late 19th century was for students with visual impairments. These missionaries introduced Western concepts of Braille and sign language to China and drew social attention to the educational and

Table 1 *- Published law and established organizations, foundations, and committees; People's Republic of China (PRC)*

Name	Start date	Nature
China fund for the disabled	3/15/1984	A national foundation that manages benefits of people with disabilities
Chinese disabled persons' federation	8/11/1988	Represents the common needs of Chinese with disabilities; advocates for the human rights of people with disabilities; educates, servers, and collaborates with the government in the development and management of the disability field.
China Rehabilitation Research Center	10/28/1988	A state-owned institution that provides rehabilitation and social services to people with disabilities, carries out scientific research, offers training, conducts information exchange and serves as a technical resource.
The People's Republic of China protection of the disabled persons' law	12/28/1990	The first law in P.R.C. to protect and safeguard the rights of people with disabilities.
National Help the Disabled Day	5/19/1991	The first official "National Help the Disabled Day" was written into The People's Republic of China Disabled Protection Law to launch comprehensive activities that help people with disabilities.
National Help the Disabled Day	5/19/1991	The first official "National Help the Disabled Day" was written into The People's Republic of China Disabled Protection Law to launch comprehensive activities that help people with disabilities.

Note. Table contents were translated & summarized from Shanghai Books Publisher (1994, pp.90-100) (Zhang & Liu, 2001). Additionally, there are also update legislations that support the rights of people with disabilities in China.
The governmental 1991-1995 Eighth Five-Year National Development plan Another is The 1990 Law of the People's Republic of China on the Protection of Disabled Persons (National People's Congress, 1990) China passed Special Education Act and Compulsory Education Act for children with disabilities (1996)

humanitarian rights of children with disabilities (Piao, 1996). In 1887, another school for blind and deaf students, Qi ying xue guan ("Enlightening School"), was set up in Dengzhou, Shandong by U.S. missionaries Charles and Annetta Mills, who taught sign language and wrote the first textbook for deaf students in China. In early 20th century, the Chinese people also began to establish special schools for children with visual and hearing impairments. In 1912 Zhang Jian established a training school for teachers of the blind and deaf and in 1996 he helped set up a special school for blind and deaf students in Nantong, Jiangsu (Yu & Zhang, 1994).

Although cities and larger towns in China have special education schools and classrooms, rural and remote areas do not have finances or the infrastructure to make separate schools feasible. Beginning with the Compulsory Education Law of 1986, the right of children (including those specifically identified with mental retardation, or hearing or visual impairments) to 9 years of education was promoted (but not mandated) by the government and educators, leading to suiban jiudu as a solution for children in areas that did not have, or could not afford, special schools or programs (Chen, 1996, 1997). Also, according to Chen, the call for special classes attached to regular schools and suiban jiudu for students with disabilities was first mentioned in 1988 at the First International Work Conference on Special Education. Since 1988, the China National Institute of Educational Research Special Education Center has led nationwide experimental projects focused on including children with disabilities in regular classes. In 1994, after these projects had been implemented for 5 years, a national meeting was held to summarize the experiences of the experimental sites. Delegates to this meeting published State Education Commission Number 16, "Methods of Launching the Work of suiban jiudu for Children and Youth," a document calling for suiban jiudu to be the main mode of education for children with disabilities. This document was later sent to each province and city as a special education guideline (Chen, 1996, 1997). So, the suiban jiudu, first beginning in rural and remote areas as a function of providing compulsory education, has been adopted as the main mode of educating children with disabilities in economically poor areas where neither special schools nor other educational services for children with disabilities were available.

Besides the legislative support for the expansion of suiban jiudu, people's especially parents' increasing concern of children's with disabilities education is another contributory factor that promotes the development of suiban jiudu in China. Recently, there are also an increasing number of studies in China on the importance of parents' roles in assisting and educating young children with disabilities. However, unlike the part C of IDEA 97' which mandates the vital role of family in the early intervention and the importance of family-centeredness in EI services, there is no direct support of family's involvement in ECSE in China. Thus, family's roles in ECSE differs in different ECSE programs depending on family's characteristics (educational background, socioeconomic status (SES), geographic location) as mentioned in the first section. In case the families stay in urban and developed areas, parents have a good educational background so that they are aware of the importance of quality services and have healthy attitudes towards the disability, and parents have good SES to afford good services for their children, families usually have much more opportunities to participate in the activities in the educational/service establishment than those families in rural areas, with low educational background and SES.

The quality of service and the financial support also matter. For programs with insufficient funding, low professional quality, and limited facilities/resources, usually in rural areas, parents are seldom involved in the children's activities or only stand by and observe the children's activities, and there are only occasional meetings between parents and professionals. While in programs with rich funding, quality personnel, and medical, psychological as well as social support, mostly

in urban and developed areas, families are encouraged to participate in discussions on goal setting and individual program content (Hsia, et. al., 2003). Beijing Xingxingyu Education Institute for Children with Autism (2003 Stars and Rain) is one of such programs. There will be a detailed discussion about the program later.

In addition, families' roles in the ECSE in China are partially determined by their attitudes towards disabilities. Mostly, in the vast remote areas, traditional biases against disabilities still exist and are influential due to the poor medical conditions, fewer rehabilitation centers or educational services that propagate the basic knowledge about disability and its treatment; and it is still true sometimes in some conservative, traditional people with lower educational background and lower SES in urban and developed areas. The conservative attitudes towards disabilities are from the traditional understanding about disabilities. E.g., the traditional terms for a disability in Chinese include "canfei," meaning "handicap" and "useless," or "canji," meaning "handicap" and "illness" (Zhang & Liu, 2001). This demonstrates how some Chinese people view disabilities. The term "canji ren," meaning "handicapped" and "sick people," is also common, while the term "gong neng zhang ai zhe," meaning "individuals with disabilities" is rarely used. Also, in many areas of China disabilities are viewed as punishment for the disabled person's parental or past life sins, which is influenced from the Buddhism. Thus, the Shame and the stigma attached to the disability may generate the family's fear of exposure to criticism and disgrace. This may be a factor that impedes families from accepting the disabilities in their children. And these feelings often create conflicts and barriers to children with disabilities among family members (Lam, 1992).

Family-Centeredness in the Provision of Early Childhood Special Education in China

According to Richey and Wheeler (2000),

> In U.S., the approach of the family-centeredness to the delivery of early intervention is rooted in federal legislation (PL 99-457, Part H) and its subsequent implementation (Part C of 1997 IDEA (Individuals with Disabilities Education Act). The fundamental idea behind family-centered services is that services to infants and toddlers with disabilities must not be delivered in a way that fails to consider the child as a part of the family unit, and that the family's participation—in ways that take advantage of their strengths, needs, and wishes—is essential. (p. 8)

From my personal opinion, families play a key role in ECSE and the future development of their children. In fact, the ECSE cannot separate the child from the family in planning and delivering services. The family is the hub of the child's life. Without the involvement of families, the implementation of ECSE is not effective. Only by adopting Family-centeredness approach can professionals hold the belief and implement it in practices that treat families with dignity and respect; facilitate individualized, flexible, and responsive practices; share information with families so that families can make informed decisions; promote family choice regarding any number of aspects of program practices and intervention options; establish parent-professional collaboration and partnerships as a context for family-program relations; provide and mobilize resources and supports necessary for families to care for and rear their children in ways that produce optimal child, parent, and family outcomes (Dunst, 1995; Shelton & Stepanak, 1994).

There are a variety of studies that support and address the importance of family-centeredness approach. Studies (Bailey, McWilliam, Winton, & Simeonsson, 1991; Dunst, Johnson, Trivette, & Hamby, 1991) have shown that family-centered services include viewing the child in the context of the family, responding to family concerns and priorities, working in partnership with families, and enabling families to use resources to meet their needs. The IFSP (Individualized Family Service Plan) fully reveals the family-centeredness in the early childhood special education and early

intervention in the US. The IFSP theoretically (a) shows that early intervention is concerned with the whole family and (b) results from a family-centered process of identifying child and family strengths and needs and deciding on intervention priorities (Gallagher & Desimone, 1995). Research suggests that when parents are involved in their children's early intervention, early childhood, and elementary and secondary school programs, better outcomes are realized (Ryan, 1995). Evidence has further indicated that when practices are family-centered in their orientation, or show a presumption toward family-centeredness, the outcomes are broader based with respect to parent and family as well as child benefits (Davies, 1995; Dunst & Trivette, 1996).

Given the legislative support for the family-centeredness approach in the US as well as the support from research studies and theoretical framework about the importance of the approach, the implementation of family-centeredness may also be worthy of consideration in China's ECSE provision. Actually, it has already proved in some of China's programs that family-centeredness is practical and feasible in China. For example, Beijing Xingxingyu Education Institute for Children with Autism (2003 Stars and Rain) is one of these facilities that successfully implemented family-centeredness approach. It provides parent-training programs for parents with children with autism in Beijing and outreach training for parents in 32 provinces all around China. The time span and content of training for parents is different depending on children's age and on whether the parents have previously received training or not.

The training is characterized as helping parents learn that appropriate training and education can help their children, and help them understand training is helpful and life long process, achieving successful training is closely linked with parents involvement; helping parents to understand that teaching children with autism requires specific techniques and they can master the techniques (Applied Behavior Analysis (ABA)), which is the most effective way to help their children make progress; and convincing parents that it is possible to teach children with autism, if they learn how to communicate with their children, as well as develop a relationship of trust with their children. Individual Home Program (IHP) is used to design appropriate and individual plan for child and its family environment so that parents can help children at home since family is the most important and almost the only available source of care and education. Parents need to be educators. Besides the training provided to parents, parents are invited to participate in classes, to attend the activities, teach the classes, and work as a special teacher assistant. Parents' Diary is set up and parents record the daily routines of their children at home, and their priorities and needs. A Parent/Teacher meeting is held biweekly where all parents are required to attend. There, parents and teachers talk about the educational planning for each and every child and make revisions according to the development of the child. It has shown that if the successful family-centeredness approaches applied in western countries can be revised to adjust to the cultural, social environment of China, it can make great contributions and promote the development of ECSE in China. Yet, there are some substantial challenges existing in China's ECSE that inhibit the implementation of family-centeredness. Those challenges are introduced below.

Challenges to Implementation of Family-Centered Practice in China

Low-Educational Background

As previously noted, challenges encountered in China's ECSE may sometimes be associated with the limitations of parents, the low educational background, low SES, parents' attitudes towards a disability and the families' geographic location (it is inconvenient in terms of time and expense for families of children with disabilities in remote areas to go to big cities for special services). These factors all combine together to impede the implementation of family-centeredness. Because of these limitations as well as Chinese traditions,

Chinese families prefer to seek help from immediate and extended family first, before turning to neighbors, communities and professionals. Seeking help, such as social welfare and benefits from the government, can be very intimidating (Zhang & Liu, 2001).

Table 2 - *Stars and Rain Parents Training Program* (2003)

Program	Time span	Content	Remark
Preschool class for parents with children ages 3-7	11 weeks	Training course in ABA approaches	There are currently 5 preschool classes. Each class enrolls a maximum of 9 students/families
Returning class for families who have completed an 11-week training course.	3 weeks	Evaluation and reassessment of the children after they have followed an Individual Home Program for a few months.	A chance for parents to get more advanced training
Outreach training workshop through sending teaching staff to different provinces	10 or 20 days	Introduction of ABA training for children with autism	For those families who cannot join the program due to the long waiting list.
Youth-class for students aged 7-12	5 weeks	The curriculum is expanding the child's learning into academic, communication, domestic and social skills.	To help parents in dealing with new issues they face as their child gets older, and increase the schooling abilities of student

Note. Retrieved November 4, 2005, from http://www.guduzh.org.cn/chinese/en/

Relationships between Parents and Special Educators and Professionals

Challenges for implementing family-centeredness are also from the relationship between parents and special professionals and educators. Since respect for the elders and filial piety are so important, families deem special professionals and educators as "learned" and authorities so that the equal relationship is hard to be set up between them. For example, the Chinese families are afraid to express the family concerns and needs in front of the special educators and professionals and usually would not express their opinions against the special educators and professionals, the authorities.

"Quality" Special Educators/Professionals

Challenges arise also from the lack of quality special educators/professionals and service facilities. Basically, some of teachers working with children with special needs are graduates from secondary vocational schools aimed for training special educators, some are graduates from normal secondary vocational schools or two-year colleges and transfer to work with children with disabilities, and a small number of teachers are graduates from four-year universities and institutes and graduate schools. Due to the few higher education institutes that educate special educators, the number of graduates every year is still limited. By 2004, the professionals with associate professor or higher rank in special education had been fewer than 30 all over the Mainland China (Yu, 2004). Also, the services for young children are far from enough. For the early childhood special education, although there are some early childhood special education programs like suiban jiudu for 0-6 yrs old children that began and have been increasing since the early 1980s, they are still far from meeting the national needs. A 1997 report (Zhao, Guo, & Zhou, 1997) indicated that more than 85% of young children with disabilities still had no opportunity for early education. The low quality of special educators and lack of special educators make it impossible for special educators to cooperate fully with family members in terms of respecting parents' opinions, meeting their needs, providing services in natural environments, and holding regular meetings with parents' participation.

Lack of Legislative and Financial Support

From legislative and financial perspective, there are also challenges. Although China has issued several legislations since 1984 such as China Fund for the Disabled 1984 (Zhang & Liu, 2001) and the passage of the 1986 Compulsory Education Law was the first official call for the compulsory education for

children with disabilities, so far there is only one law that mentions the ECSE, the 1990 Law of the People's Republic of China on the Protection of Disabled Persons, which gives priority to compulsory education for school-age children with a disability, and also encourages efforts for early childhood special educational opportunities (National People's Congress, 1990). And none of these legislations mentions family-centeredness as the Part C of IDEA (IDEA 97'). Still, challenges are from insufficient funding. Although there is no direct data about the lack of funding for China's early childhood special education, the poor working places, low social positions of special educators and their transfer from special services to normal school, and low payment indicate the lack of financial support for early childhood special education. This also can be found in Beijing Xingxingyu Education Institute for Children with Autism (2003 Stars and Rain), which points the lack of governmental funding and weak social philanthropy system in China. For example, there is no legal guarantee for social services. Families have to self-pay for their children's education, including remedial services. Parents' limited pay means that Stars and Rain cannot charge high tuition fees, which is its main source of revenue.

Conclusion and Recommendations

The authors suggest that China has substantial challenges in practicing family-centeredness in the provision of ECSE. In order to guarantee family involvement and family-centeredness, the family beliefs, values, and priorities should be respected and honored. Each family has a culture of its own, aside from its ethnicity, race, and religion, and that the same sensitivity apply—openness, flexibility, and the ability to be a good listener and respect differences in childbearing. There are some recommendations for the successful application of family-centeredness in China. First, it is very important to popularize the basic knowledge of disabilities (Chung, 1996). The misunderstanding of or lack of knowledge about a specific disability or illness always causes a tremendous amount of fear, hostility, alienation and blame. It is, therefore, essential to educate the Chinese consumer and family about the nature and/or cause of the disability as well as about treatment methods and available services." Popularize the knowledge of disability and thus relieve people especially parents from neglect of and bias against children with disabilities. Second, appropriate parenting programs can be provided to parents in remote areas. Parent workshops are possible ways for parents with common needs and situations to help each other and thus have parents strengthened especially when there is lack of legal support for parents in ECSE. Also, parental outreach programs are recommended. The parental outreach program practiced by Beijing Rain and Star Education Institution for Children with Autism (2003 Stars and Rain) has already shown the success of implementation family-centeredness approach in rural areas. Third, in order to establish rapport with families by honoring family differences, recognizing family's strengths, utilizing family's resources, avoiding family's weaknesses, and helping the family deal with challenges, it is necessary to improve the quality of the special educators. In-service training is critically important as it provides a good opportunity for the communication between and among these special educators and provides them training to improve the ability, update knowledge, and make them more informed of the legislation of special education. Still, the normal secondary vocational schools and two-year normal colleges can offer some special education courses and make the graduates prepared to some extent in case they are transferred to work with children with disabilities. Last but not least, to avoid the loss of special educators to general education, salaries and compensation for special educators should be improved as well as their social recognition (from one of the authors' personal view, the public still deems the special educators' work as second-class compared to those of other educators). Therefore, it seems important that the valuing, both within the professional education community as well as in the broader society and culture, of special educators must be elevated.

References

Bailey, D. B., McWilliams, P. J., Winton, P. J., & Simeonsson, R. J. (1991). Implementing family-centered services in early intervention: A team-based model for change. Chapel Hill: Frank Porter Graham Child Development Center, University of North Carolina at Chapel Hill.

Carter, D., Chen, G., Hwang, T.Y., & Yu, X. (1996). Special education in the People's Republic of China: History, trends and challenges. *B.C. Journal of Special Education, 20*(3), 25-35.

Chan, K.W., & Zhang, L. (1998). The Hukou system and rural-urban migration in China. Retrieved October 31, 2003. Retrieved November 4, 2005, from http://csde.washington.edu/pubs/wps/98-12.pdf.

Chen, Y. Y. (1996). Making special education compulsory and inclusive in China. Cambridge Journal of Education, 26(1), 47-57.

Chen, Y. Y. (1997). Mianxiang weilai, mianxiang shijie de Zhongguo yitihua jiaoyu [China's integrated education, facing the future and facing the world]. In Y. Y. Chen (Ed.), Zhongguo yitihua jiaoyu gaige de lilun yu shijian [Theory and practice in China's integrated education reform] (pp. 3-17). Beijing: Huaxia.

Cheng, T., & Selden, M. (1994). The origins and social consequences of China's Hukou system. *China Quarterly, 193,* 644-668.

Chung, E.L. (1996). Asian Americans. In Julia, M.C. (Ed.), *Multicultural Awareness in the Health Care Professionals (*pp. 77-110). Needham Heights, MA: Allyn & Bacon.

Davies, D. (1995). Collaboration and family empowerment as strategies to achieve comprehensive services. In L. Rigsby, M. Reynolds, & M. Wang (Eds.), *School-community connections: Exploring issues for research and practice* (pp. 267-280). San Francisco: Jossey-Bass.

Dunst, C. J. (1995). Key characteristics and features of community-based family support programs. Chicago: Family Resource Coalition.

Dunst, C. J., Johnson, D., Trivette, C. M., & Hamby, D. (1991). Family-oriented early intervention policies and practices: Family-centered or not?. *Exceptional Children, 58*, 115–126.

Dunst, C.J. & Trivette, C.M. (1996). Empowerment, effective helpgiving practices and family-centered care. *Pediatric Nursing, 22*, 334-337, 343.

Duttom, M. (1992). *Policing and punishment in China: From parriarchy to "the people"*. Cambridge, UK: Cambridge University Press.

Gallagher, J., & Desimone, L. (1995). Lessons learned from implementation of the IEP: Applications to the IFSP. *Topics in Early Childhood Special Education 15*, 353-377.

Hsia, S.T.H., McCabe, H., & Li, B.J. (2003). Cultural issues and service provision in rural areas. In S.L. Odom et al. (Ed.), *Early intervention around the world* (pp. 28-47). Baltimore, ML: Paul H. Brookes Publishing Co.

Hornby, S.J. Y., Xiao, C. E., Gilbert, A., Foster, X., Wang, X., Liang, H., Jing, L.; Wang, W., Min, Y., Shi, Y.L. (1999). Causes of childhood blindness in the People's Republic of China: results from 1131 blind school students in 18 provinces. *Br J Ophthalmol 83*, 929-932. Retrieved November 4, 2005, from http://bjo.bmjjournals.com/cgi/content/full/83/8/929.

Institute of Population Studies. (1994). *Sampling survey data of women's status in contemporary China.* Beijing: International Academic Publishers.

Jordan, D.K. (2003). *The Traditional Chinese Family & Lineage*. Retrieved November 4, 2005, From http://weber.ucsd.edu/~dkjordan/chin/hbfamilism-u.html#tzwu

Lam, C. (1992). *Vocational rehabilitation development in Hong Kong: A cross-cultural perspective.* Stillwater, OK: National Clearing House of Rehabilitation Training Materials.

Ma, Y., Wang, Z., Sheng, X., & Shinozaki, M. (1994). *A study on life and consciousness of contemporary urban families in China: A research in Beijing with comparison among Bangkok, Seoul, and Fukuoka.* Kitakyushu: Kitakyushu Forum on Asian Women.

Model of Parent-Training Program. Retrieved November 4, 2005, from http://www.guduzh.org.cn/english/service/004.htm

National Bureau of Statistics (2001). *China statistical yearbook: 2001.* Beijing: China Statistics Press.

National People's Congress (1986). *Zhonghua renmin gongheguo yiwu jiaoyu fa* [Compulsory Education Law of People's Republic of China]. Beijing: People's Republic of China: Law Publishers.

National People's Congress (1990). *Zhonghua renmin gongheguo canji ren baozhang fa* [Law of the People's Repulic of China on the Protection of Disabled Persons]. Beijing, People's Republic of China: Legal System Publishers.

Piao, Y. X. (1996). Teshu jiaoyu cidian [Dictionary of special education]. Beijing: Huaxia Press.

Qian, Z.L. (2005). Zhongguo teshu jiaoyu ertongde xianzhuang. *Sichuan Jiaoyu Wang.* Retrieved November 4, 2005, from http://www.edu.cn/20011112/3009417.shtml

Richey, D.D., & Wheeler, J.J. (2000). *Inclusive early childhood education: Merging positive behavioral supports, activity-based intervention and developmentally appropriate practices.* Albany, NY: Delmar Thomas Learning.

Ryan, B. (1995). The family-school connection: A research bibliography. In B. Ryan, G. Adams, T. Gullotta, R. Weissberg, & R. Hampton (Eds.), *The family-school connection: Theory, research, and practice* (pp. 341360). Thousand Oaks, CA: Sage.

Shanghai Books Publisher. (1994). *Encyclopedia of practical help for individuals with disabilities-the dedication of love*. Shanghai, China: Shanghai Books Publisher.

Shelton, T. L., & Stepanak, J. S. (1994). *Family-centered care for children needing specialized health and developmental services (2nd ed.)*. Bethesda, MD: Association for the Care of Children's Health.

Sheng, X. (1992). Population aging and the traditional pattern of supporting the aged. *In Proceedings of Asia-Pacific regional conference on future of the family (pp. 66-71).* Beijing: China Social Science Documentation Publishing House.

Sheng, X.W. (2004). *Chinese families*. In B. N. Adams & J. Trost (Eds.), Handbook of world families (chap. 5). Thousand Oaks, CA: Sage.

2003 Stars and Rain. Retrieved November 4, 2005, from http://www.guduzh.org.cn/english/index.htm

State Council 1994. Retrieved November 4, 2005, from http://www.china.org.cn/e-white/phumanrights19/p-9.htm

Stockman, N. (2000). *Understanding Chinese society*. Cambridge, UK: Policy Press.

Tan, S. (1995). Funu yanjiu de sinjinzhan [Recent developments in women's studies'] *Sociological Studies, 5,* 66-74.

UNICEF. *The state of the world's children*. New York: Oxford University Press, 1998.

Wang, R., Li, X., & Shao, L. (1993). Zhongguo gudai de jiagui [family rules in ancient China]. *Journal of Liaoning Normal University* (*Social Science Edition*), *6*, 1993.

Yu, C.S. (2004). Tejiao huhuan gaocengci zhuanye rencai. *Zhongguo Jiaoshi Rencai Wang*. Retrieved November 4, 2005, from http://www.jiaoshi.com.cn/show/jyzl/tsjy/20050307008.htm

Yu, L., & Zhang, D. (1994). Shi lun zhangjian te shu jiaoyu sixiang tixi zhong de zhiye jiaoyu guan [An analysis of Zhang Jian's vocational education ideology in developing special education]. Xiandai Te Shu Jiao Yu, 2, 9-11.

Zhao, L., Guo, C.F., & Zhou, M. (1997). Jiankang youer yu long youer de duikou jiaoyu huodong shijian (The implementation of counterpart activities for healthy young children and young children who are deaf). *Zhongguo yitihua jiaoyu gaige de lilun yu shijian* (Theory and practice of the reform of China's integrated education). Beijing, People's Republic of China: Xinhua Chubanshe.

Zhan, H.Y.J. (2002). Chinese family and the state: Gender-role socialization and social control. *Social Health Exchange, 4*. Retrieved November 4, 2005, from http://www.kit.nl/frameset.asp?/ils/exchange_content/html/2002-4_chinese_family.asp&frnr=1&

Zhang, Q. (1998). Basic facts on the household registration system. *Chinese Economics Studies, 22*(1).

Zhang, G., & Liu, M.S. (2001). *Chinese culture and disability: Information for U.S. service providers.* Retrieved from Center for International Rehabilitation Research Information and Exchange Chinese Culture (CIRRIE).

Zhu, G. (1992, December 16). QIanquan yu niai: Shoer chengzhang de tiandi [Forcing and spoiling: The natural enemies of child development]. *Chinese Women's Dailiy,* p.3.

Special education in Zimbabwe: Issues and Trends

Morgan Chitiyo
Southern Illinois University-Carbondale
chitiyoms@yahoo.com

Abstract

Following a massive educational expansion initiative by the government of Zimbabwe since 1980, the country has achieved one of the highest literacy rates in Africa. There is legislation in Zimbabwe which makes education a right for every child. In spite of this legislation, special education in Zimbabwe still lags behind the entire educational system. This paper identifies some factors that could be hindering the progress of special education in this southern African country. The paper also examines the implications of these factors on the future of special education in the country.

Introduction

Zimbabwe is a Southern African country with a population of about 12.7 million people (Population Reference Bureau, 2004). Zimbabwe has a literacy rate of more than 90%, the highest in sub-Saharan Africa (EarthTrends, 2003). Upon gaining independence from Great Britain in 1980, and as part of its Growth With Equity (GWE) program, Zimbabwe embarked on a massive expansion of the education system which had hitherto sidelined the majority of native Zimbabweans. Consequently, the country has made phenomenal progress in the development of her education system. However, special education in Zimbabwe has not developed at a level commensurate with the rest of the education system. This paper examines the issues and factors influencing Zimbabwe's education system. The paper looks at the history as well as current and future trends in the development of special education services in Zimbabwe.

A historical overview

Until 1980, native Zimbabweans could only access education mostly through the efforts of churches, missionaries and other humanitarian organizations because they could not afford the cost (Chitiyo & Wheeler, 2004). The colonial government spent very little money towards the education of the majority black population from the fiscus. The difference in per capita expenditure on education for the minority whites and the majority black population, for example, during the colonial period was tremendous. According to Csapo (1986) the colonial government spent Zim$197.30 per white pupil and Zim$18.90 per black pupil during the 1964/65 school year. Not surprisingly, there were hardly any formal special education services available during this period. The only special schools that existed during this time were meant for white students because blacks could not afford them (Chitiyo & Wheeler, 2004). Chitiyo and Wheeler (2004) observed that although the education system did not cater for people with disabilities, several other factors complemented this, further precluding children with disabilities from having an education.

Notably, traditional attitudes among some African societies prevented children with disabilities from accessing education. According to Chitiyo and Wheeler (2004) in some African societies people with certain disabilities were shunned as outcasts. Because of this, families could not lobby for the rights, education included, of their children with disabilities. Instead, these children would be cloistered from the rest of the world. However, it is important to note that these attitudes seem to be fading (Zindi, 1996). This is likely to be due to the fact that most parents of children with disabilities are getting educated.

Zimbabwe's education system

Two ministries run Zimbabwe's education system. The Ministry of Education (MOE) runs the early childhood education and care, and primary and secondary education, while the Ministry of Higher Education (MHE) runs tertiary education and training (Chitiyo & Wheeler, 2004). These ministries are governed by two pieces of legislation namely, the Education Act of 1987, as amended in 1991 (Education Amendment Act, No. 26/1991), which sets out general policies on education and makes education mandatory for every child of school-going age (6 to 18 years), and the manpower Planning and Development Act of 1984, as amended in 1994, which governs the MHE as it provides, regulates and facilitates tertiary education and training. The latter also provides for the promotion of vocational, technical, teachers, and university education and training (Ministry of Education, 1996).

Legislation governing special education

Special education in Zimbabwe is governed by the same regulations that cover general education (UNESCO, (1995). The 1987 Education Act is the basic framework which states that every child has a right to a school education. Under this law no children are formally excluded from the public education system. In addition to this legislation, the National Disability Act of 1992 was designed to govern the provision of special education. This policy made provision for the welfare and rehabilitation of people with disabilities in all spheres including education (Peresuh & Barcham, 1998). Also, the Zimbabwe's Special Education Policy Statement, which is a guidance document used when formulating policy and making policy decisions provides several objectives. These objectives include the early detection, intervention and prevention of handicaps, the integration, where possible, of children with handicaps into ordinary schools, the development of resource centers to localize integration (Peresuh & Barcham, 1998). Although Zimbabwe is the only country in sub-Saharan Africa with a disability legislation (Mpofu, 2002), the policies that govern special education in Zimbabwe are fragmented and not comprehensive. Lack of resources (financial and personnel) also inhibit comprehensive implementation of these policies.

Table 1 - *Number of children receiving special education*

Area of disability	Female	Male	Total
Hearing impairment	759	773	1532
Mental handicap	758	1206	1964
Physical handicap	609	615	1224
Visual impairment	526	851	1377
Total	2652	3445	6097

Source: Ministry of Education, 1996.

Special Education

Zimbabwe did not have a national policy on special education until 1980 (Chitiyo & Wheeler, 2004). As such, children with disabilities relied on humanitarian assistance from charitable organizations and churches who felt a moral obligation to help (Peresuh & Barcham, 1998). Churches provided rural boarding schools or institutions where the children were taught practical skills such as basketry, woodwork, leatherwork, sewing and cookery (Chitiyo & Wheeler, 2004). Other humanitarian organizations, like the Jairos Jiri Association and the Council for the Blind bolstered the efforts of these churches. Unfortunately, all these services were not coordinated thereby affecting the quality of services rendered to these children.

Despite all the efforts by different organizations to assist children with special needs, the extent of the need overwhelmed the available services. Csapo (1986) refers to the Zimbabwe National Disability Survey carried out in 1981, a year after a protracted war of liberation. Results of that survey showed that

there were about 54,900 children with different types of disabilities in Zimbabwe. These results demonstrated the need for the development of comprehensive special education services in this country. However, the Ministry of Education (1996) reported that a total of 6,097 were receiving special education services across the country by 1996. This report is summarized in Table 1.

The government responded to the need for special education by making some provisions for children with disabilities. In 1996 the MOE also reported the special education services available in Zimbabwe. These services are shown in Table 2. However, as shown in Table 2, special education services in Zimbabwe have been mainly designed to address the needs of those children with four major types of disabilities (hearing, visual, cognitive and physical) (Chitiyo & Wheeler, 2004). Children with other types of disability like learning disabilities and emotional and behavioral disorders are not catered for. This is perhaps because children with these types of disabilities are less noticeable (Heward, 2006). Another reason could be the lack of professionals trained in the assessment and identification of and intervention for these children. Serpell, Mariga and Harvey (1993) suggested an even more compelling reason why learning disabilities and emotional and behavioral disorders are not catered for. They suggested that mild disabilities (e.g. mild mental retardation and learning disabilities) are less disabling to community participation among subsistence agricultural farmers in rural sub-Saharan Africa than they would be in more developed and industrialized countries like the USA and thus these less complex societies tend to focus on severe disabilities which are easily noticeable.

Children with physical disabilities also have problems accessing most educational facilities in Zimbabwe. Unlike in most developed countries like the USA, in Zimbabwe there is more integration than inclusion for children with physical disabilities (Chitiyo & Wheeler, 2004). In integration, according to Mushoriwa (2001), it is the child who must make adjustments to the requirements of the school whereas in inclusion, it is the school that must make adjustments to accommodate or include the child. Resource rooms, special classes and integration units are also available forms through which special education is provided in Zimbabwe.

Table 2 *- Special education services available in Zimbabwe*

Area of Disability	No. of Special Schools	No. of Resource Units	No. of Individual Integrated Units	No. of Multiple disability Facilities
Hearing impairment	3	63	21	
Cognitive disabilities	15	44		
Physical disabilities	3			4
Visual Impairment	3	47	140	4
Total	24	154	161	8

Source: Ministry of Education Report, 1996.

Preparation of teachers

Special education teachers and specialists were trained outside the country until 1980 (Peresuh and Barcham, 1998). Thenceforth, Zimbabwe started training teachers in different areas of disabilities. In 1983 the government established a department of special education at the United College of Education in Bulawayo followed by the introduction of a bachelors degree in special education at the University of Zimbabwe in 1994 (Chitiyo & Wheeler, 2004). These programs prepare teachers to work with children with cognitive disabilities, hearing impairments, and visual impairments to the exclusion of other types of disabilities (UNESCO, 1995). Although this is a positive development, the enormity of the problem requires the training of more personnel in all the areas of disabilities.

Role of parent and professional organizations

Chitiyo and Wheeler (2004) observed that most families of children with disabilities do not participate much in the education of their children in Zimbabwe. They suggested that poverty could be one of the reasons precluding

families from participating in the education of their children with disabilities. Another possible reason could be that families and parents of children with disabilities have low expectations for these children and thus see no benefit in spending their otherwise meager resources on their education.

A number of organizations exist to promote the education and rehabilitation of children with disabilities in this southern African country. Some of these organizations as noted by Mpofu (2002) are disability specific (e.g. Epilepsy Support Foundation of Zimbabwe (ESFZ), Quadriplegic and Paraplegics Association (QPA)). Others are for people with disabilities in general (e.g. National Council for the Disabled Persons of Zimbabwe). Some of the organizations mainly provide vocational skills to people with disabilities (e.g. Jairosi Jiri Association) while others are support organizations (e.g. Zimbabwe Parents of Handicapped Children Association (ZPHCA)). In total, Zimbabwe has 56 organizations for and of people with disabilities (Mpofu, 2002).

Challenges faced in the provision of special education

Undoubtedly, the above efforts are significant in addressing the need of special education for children with disabilities. However, Zimbabwe is facing significant challenges in its efforts to provide special education to all children with disabilities. Some of the factors impeding progress in special education have been well documented (Csapo, 1986; Chitiyo & Wheeler, 2004). Csapo (1986) identified some reasons why special education is not well developed in Zimbabwe. These include the MOE's limited involvement, limited governmental support with inadequate funding, and limited number of trained special education teachers. Further, Chitiyo and Wheeler (2004) observed that there was no coordination of services provided by different organizations.

According to Chitiyo and Wheeler (2004), Zimbabwe's Economic Structural Adjustment Program (ESAP), targeted at reducing government expenditure in most services, also dealt a heavy blow to special education and the entire education system. The removal of subsidies immediately sparked a deterioration of already limited services. Children with disabilities were hit the hardest because they would be the first to be removed from school if a parent could no longer afford sending all his/her children to school (Chitiyo & Wheeler, 2004).

Furthermore, the government of Zimbabwe recently embarked on a land reform program whose integrity has sparked controversy around the globe (United Nations Development Program, 2002). Because of the apparent instability created by this program, Zimbabwe has been dogged by many economic misfortunes. Many Non-Governmental Organizations (NGOs) and charitable organizations/countries have reduced assistance to the country and in the worst cases pulled out leaving Zimbabwe's vulnerable even more so. Special education which heretofore had relied mainly on donor funding is certainly one of the victims of these economic problems since the main source of funding (NGOs and other donor agents) is no longer available.

Zimbabwe, like many other countries in sub-Saharan Africa, is also struggling to cope with the impact of HIV and AIDS. The latter scourge has caused many deaths, especially of youthful parents, and inevitably it is leaving many children either as orphans or at least vulnerable. This situation has created almost a vicious cycle of poverty. Poverty is implicated among the causes of some disabilities for example, mild mental retardation and other forms of physical deformities (Heward, 2006). This is because families in poverty are unable to provide adequate nutrition, health care, housing, and child care which are major risk factors for children (Turnbull & Turnbull, 2001). Also, disadvantaged environments are linked to emotional and behavioral disorders. As such, Zimbabwe's policies have negatively impacted whatever progress special education was making. Because of the escalating number of orphans and the increasing levels of poverty, Zimbabwe faces an unprecedented risk of a

variety of disabilities that are associated with deprived environments, poverty and stress. These disabilities include mental retardation, emotional and behavioral disorders, physical disabilities caused by malnutrition, and learning disabilities.

Conclusion and recommendations

Zimbabwe's education system has developed quite rapidly since 1980. Significant gains have also been scored in special education. To date, Zimbabwe is the only country in sub-Saharan Africa with disability legislation. A few special schools and resource units have been established around the country. Special education teacher training programs have also been introduced at the United College of Education and the University of Zimbabwe respectively. However, despite these notable achievements, special education has not developed at a level commensurate with the rest of the education system. Inadequate funding, limited number of professionals trained in special education, limited governmental involvement in terms of policy implementation, and lack of coordination of services provided by different organizations are some of the possible reasons derailing the development of special education in Zimbabwe.

The future of special education in Zimbabwe is not very promising in spite of the gains in education that have been made so far since 1980. For a variety of reasons, some of them herein discussed, there is likely to be a rise in the number of children with different disabilities. Unfortunately, this trend is coinciding with a deterioration of services due to severe economic woes that the country is currently experiencing. Unless the economic situation in Zimbabwe improves and unless donor countries and donor agencies resume operations, children with disabilities will continue to face deprivation of their basic right to education which is so encapsulated in the Education Act of 1987.

The government of Zimbabwe can resolve this impending crisis by training more special education teachers and introducing special education programs that target all the different categories of disabilities. There is need to invest in early intervention and childhood care programs to ameliorate the impact of disabilities among children. The government can also establish comprehensive special education policy which will synchronize the delivery of special education services by different organizations across the country. Finally, the government of Zimbabwe can start maternal screening programs to promote primary prevention of disabilities. Evidently, Zimbabwe can do a number of things to help her children affected by and also those at risk of disabilities.

References

Chitiyo, M. & Wheeler, J. (2004). The development of special education services in Zimbabwe. *International Journal of Special Education*, 19(2), 46-52.

Csapo, M. (1986). Zimbabwe: emerging problems of education and special education. *International Journal of Special Education*, 1(2), 140-160.

EarthTrends. (2003). *Population, health, and human well-being: Zimbabwe*. Retrieved October 1, 2005, from http://earthtrends.wri.org/

Heward, W.L. (2006). *Exceptional children: an introduction to special education.* (8th ed.). New Jersey: Merrill Prentice Hall.

Ministry of Education. (1996). Development of education: national report of Zimbabwe, *Presented to the International Conference on Education, Geneva*

Mpofu, E. (2002). Disability and rehabilitation in Zimbabwe: lessons and implications for rehabilitation practice in the U.S. *Journal of Rehabilitation,* 68(4), 26-33.

Mushoriwa, T. (2001). A study of the attitudes of primary school teachers in Harare towards the inclusion of blind children in regular classes. *British Journal of Education,* 28(3), 142-147.

Peresuh, M., & Barcham, L. (1998). Special education provision in Zimbabwe. *British Journal of Special Education,* 25(2), 75-80.

Population Reference Bureau. (2004). *2004 world population data sheet*. Retrieved October 1, 2005, from http://www.prb.org/pdf04/04WorldDataSheet_Eng.pdf

Serpell, R., Mariga, L., & Harvey, K. (1993). Mental retardation in African countries: conceptualization, services and research. *International Review of Research in Mental Retardation,* 19, 1-34.

Turnbull, A.P., & Turnbull, H.R. III. (2001). *Families, Professionals, and Exceptionality: Collaborating for Empowerment* (4th ed.). New Jersey: Merrill Prentice Hall. http://unesdoc.unesco.org/images/0010/001026/102688e.pdf

UNESCO, (2005). Review of the present situation in special needs education. Retrieved October 26, 2005, from

United Nations Development Program, (2002). *Zimbabwe land reform and resettlement: assessment and suggested framework for the future.* Interim Mission Report. Retrieved October 21, 2005, from http://www.undp.org/rba/pubs/landreform.pdf

Zindi, F. (1996). Mainstream children's attitudes towards integration with the disabled in Zimbabwe's secondary schools. *African Journal of Special Needs Education,* 1(1), 1-7.

An Investigation of Variables Relevant to the Stereotyped Behavior in Students with Developmental Disabilities in Taiwan

Jung-Chang Tang
Department of Special Education
National Chiayi University, Taiwan
j52a@yahoo.com.tw

Li-Ting Wu
Department of Special Education
National Chiayi University, Taiwan

Chiu-Hua Chiang
Department of Special Education
National Chiayi University, Taiwan

Abstract

The purposes of this study were to examine the variables related to the special education students' stereotyped behavior in Taiwan, to understand types and functions of these students' stereotyped behavior, and to investigate the impact of such stereotypy on teaching in special educational classrooms. Questionnaires were sent to 308 classroom teachers and 3224 students with developmental disabilities were surveyed. The data were analyzed by descriptive and inferential statistics. Results indicated that the most common topographies of stereotypy were head shaking, body rocking, hand-biting, and hand-mouthing, and stereotypy often functioned to obtain sensory reinforcement and positive social reinforcement in both statistical analyses. Additionally, people with mental retardation emitted the highest rates of stereotypy in all students with developmental disabilities, and the peak of such aberrant behaviors appeared at the elementary school level.

Stereotypy is often defined as rhythmic, repetitive, and nonfunctional body movements, which usually occur in the form of body rocking, mouthing, head-nodding/shaking, tapping objects, repetitive vocalizations, spinning objects, and complex hand or finger movement (Berkson, Mor, & Tarnovsky, 1999; LaGrow & Repp, 1984; Schultz & Berkson, 1995). This behavior is often viewed as meaningless, repetitive activity that does not appear to be goal-directed. This observation was supported by research that documented that children with mental retardation and autism frequently exhibit stereotypic behaviors in the absence of environmental stimulation (Durand & Merges, 2001).

Many studies below examined the relationship between age, disability types and degrees, functions, and stereotypy. Most studies showed that there was a strong relationship between stereotypy and these associated variables.

Age

In a study that assessed the relation between stereotypy and related environmental variables in 101 children with developmental disabilities, Thompson and Berkson (1985) found that 12% of children exhibited stereotypic behaviors. This percentage increased with chronological age through adolescence. Similar findings were obtained by Berkson, McQuiston, Jacobson, Eyman, and Borthwick (1985) who reported that abnormal stereotyped behaviors increased with age until the teenage period, and that the

relation between age and stereotypy was more marked in persons with severe mental retardation.

Disability Types and Degrees

Previous studies showed that children with mental retardation frequently exhibited stereotypic behaviors (Schroeder, 1991). Excessive stereotypy has been estimated to occur in 33% to 67% of individuals with severe mental retardation (Hill & Bruininks, 1984; Dura, Mulick, & Rasnake, 1987). As for specific types of disabilities, people with autism might exhibit higher incidences of stereotypy than those without autism (controlling for level of disability). For example, Koegel & Koegel (1990) demonstrated that, children with autism exhibited more stereotypies than children with mental retardation. This study suggests that stereotypical behavior is a primary feature of autism. As far as the degree of disabilities is concerned, individuals with severe or profound mental retardation are more likely to engage in stereotypical behavior than those with mild or moderate retardation (Fallon & Whitaker, 1996; Rojahn, Matson, Lott, Esbensen, & Smalls, 2001).

In addition, there is evidence that persons with different disabilities might emit different topographies of stereotypy. Sakuma (1975) investigated stereotypic behaviors of 29 individuals with autism, 46 subjects with visual impairments, 85 subjects with auditory impairments, 29 subjects with infantile autism, and 240 subjects with mental retardation and found that each group had its own topography of stereotypy. Similarly, Short and Simeonsson (1990) reported that infants with disabilities may engage in different forms of stereotypic behaviors, and those differences may depend on the nature of their disabilities. In a study that examined the relation between stereotypy and disability in 351 infants and children, they found that children with orthopedic impairments had limited voluntary motor control demonstrated by hand/finger-sucking and foot-kicking that was significantly less frequent than most of the other subgroup. Tongue-thrusting was observed more frequently in persons with Down syndrome than in any other subgroup. In addition, body-arching was primarily a characteristic of children with profound, multiple disabilities.

Functions

Some researchers have found that stereotypy might be maintained by sensory reinforcement (Sturmey, Carlsen, Crisp, & Newton, 1988; Wehmeyer, Bourland, & Ingram, 1993). They pointed out that high levels of stereotypy associated with alone conditions would suggest that such aberrant behavior was maintained through sensory reinforcement. In contrast, individuals might exhibit high rates of stereotypy to escape from demands or noxious settings (social mediate negative reinforcement). For example, Durand and Carr (1987) manipulated experimenter attention and task difficulty and demonstrated that some stereotypic behavior was increased when difficult task materials were presented to 4 children with developmental disabilities.

On the other hand, stereotypic behavior might serve as social mediated positive reinforcement. For instance, Bihm, Poindexter, Kienlen, and Smith (1992) studied the perceptions of staff about the classes of reinforcers and stereotypic behaviors of 470 people with severe or profound mental retardation, and found that social attentions were related to stereotypy. Despite considerable research mentioned above posited a number of hypotheses, such as sensory reinforcement, positive social reinforcement, and negative social reinforcement, no conclusions apply to all individuals who emit stereotypy. The control sources of stereotypy might be multiple as well in some individuals with developmental disabilities (Kennedy, Meyer, Knowles, & Shukla, 2000; Sprague, Holland, & Thomas, 1997).

The Impacts of Stereotypy

Although stereotypic behaviors do not typically result in physical harm to people, they

interfere with learning. Studies have shown that stereotypic behavior interferes with some children with autism when they are trying to learn a new task (Koegel & Covert, 1972). Further support for this negative effect on learning comes from Runco, Charlop, and Schreibmen (1986) who investigated the effects of task, setting and therapist on rates of stereotypic responding and found that stereotypy was inversely related to correct responding. As stereotypic behavior increased, frequencies of correct responding decreased. Excessive stereotypy is often resistant to efforts at replacement with more socially valued behaviors (McEntee & Saunders, 1997). When a student engages in stereotypic behavior, the individual may become stigmatized (Berkson, 1983; Jones, Wint, & Ellis, 1990) and disrupt social interactions (Baumeister, MacLean, Kelly, & Kasari, 1980; Mason & Newsom, 1990). For example, in a survey of typical peers of children with autism, 95% of their peers reported that stereotypy bothered them and would be necessary to change (Gunter, Brady, Shores, Fox, Owen, & Goldzweig, 1984). Because of the negative consequences from people's stereotypy, it is becoming an important issue to explore variables associated with stereotypy in order to come up with possible solutions. Understanding the factors relevant to persons' stereotypic behaviors could help teachers and parents in their goal of responsive to children different needs. Therefore, the purpose of this present study was to examine such demographic and environmental factors relevant to the stereotyped behavior in students with developmental disabilities. The specific questions this study sought to address were as follows:

1. What topographies and prevalence of stereotypic responses occurred in students with developmental disabilities?
2. Were there any differences in percentages of stereotypy among the students with developmental disabilities who had different type of disabilities, school level, or sex variables?
3. What kind and what proportion of functions maintained by stereotypic responses occurred in students with developmental disabilities?
4. What effects stereotypic behaviors executed their impacts on teachers' teaching and students' learning?

Method

Participants

Three hundred and eight classroom teachers in 12 special educational schools selected by purposeful sampling were investigated in this study. These schools located in suburban school districts distributed from northern to southern counties in Taiwan. Investigated teachers were qualified special education teachers and have licenses for several years. Three thousand and two hundred twenty four students with developmental disabilities derived from these 308 classrooms located in these special education schools were surveyed. Thirty percent of participant students at these schools came from low-income households, based on the number of students who received free lunch and transportation.

Measures

The Questionnaires of Special Students' Stereotyped Behavior (QSSSB) made by our research team according to literature reviews were sent to these participant teachers. The independent variables in this study were special educational students' demographic and environmental variables. The demographic factors included student's gender, age (rudimentarily represented by school level), and disability type. The environmental factors assessed via questionnaires were related to different functions stereotypy served in naturalistic environments. The Functional Rating Scale (FRC) modified by Motivation Assessment Scale (Durand & Crimmins, 1988) was used to assess four specific functions of students' stereotyped responses. The FRC is part of QSSSB which includes 16 rating items with Likert-type. The range of rating score for each specific function is from 4 up to 20. The more

rating high score the more confirmed stereotyped function. In contrast, the dependent variables were special educational students' stereotypic responses. Finally, we further examine the impact of stereotypy on teaching and learning in classrooms, and investigate percentage of topographies and prevalence of stereotypy in this population as well.

Procedure

First of all, pilot QSSSB was made by our research team according to literature reviews. Secondly, pilot QSSSB questionnaires were sent to 87 special educational classroom teachers located in regular schools by purposeful sampling in order to avoid overlapping target populations while conducted in special education school settings in formal surveys. After questionnaires were returned back, items analyses, reliability check (Cronbachα testing), and validity analyses (experts' examination and feedbacks) were conducted in order to build a formal QSSSB version. Thirdly, every special educational teacher took part in this study was investigated by formal QSSSB version to determine his/her students' background variables related to stereotyped behaviors.

Data analysis

To determine whether there were significant differences in demographic and environmental factors in stereotypic responses of students with developmental disabilities, a one-way analysis of variance (ANOVA) and descriptive statistic were conducted, respectively.

Results

Before conducting inference statistics, frequency distribution of demographic and environmental variables in these 3224 students was described first. The prevalence of stereotyped behavior occurred in the special education students' populations was 14.07%, and the most common topographies of stereotyped behaviors we found were body rocking (23.29%), head shaking (22.60%), hand-mouthing (16.44%), and hand-biting (7.19%). The levels of male's stereotypical behaviors (67.47%) were higher than the female's (32.53%). Stereotyped behavior occurred commonly in students with mental retardation (43.49%), multiple disabilities (21.23%), autism (19.18%), visual impairment (7.88%), and hearing impairment (3.77%) (see Table1). Students with mental retardation emitted the highest rates of stereotypy in all students with developmental disabilities. Compared to the lowest levels of stereotypy emitted at junior high school (15.36%), the peak of such aberrant behaviors appeared at the elementary school level (21.46%) (see Table1). As for exhibition of stereotypy influencing learning and teaching in classrooms, we investigated the opinions from teachers and found that percentage of disturbing rate stereotyped behavior executed its impact on students' learning, their teachers' teaching, and their peers' learning were 51.03%, 32.19%, and 20.89%, respectively.

Table 1- *Students with Developmental Disabilities*

Variables	STB number	total number	STB percentage
Age (School Levels)			
Preschool	22	176	12.50%
Elementary	87	407	21.46%
Junior high	91	597	15.36%
High school	254	2044	12.37%
Disability Groups			
MR	314	723	43.49%
MD	61	285	21.23%
Autism	30	156	19.18%
VI	33	422	7.88%
HI	16	415	3.77%
EBD	0	512	0%
LD	0	654	0%
Others	0	57	0%

Note. STB = stereotypic; MR = mental retardation; MD = multiple disabilities;VI = visual impairment; HI = hearing impairment; EBD = emotional behavior disorders; LD = learning disabilities

On the other hand, the perceived functions of the stereotyped behavior could be attributed to several resources: multiply determined reinforcement (53.42%), sensory reinforcement (28.77%), social mediated positive reinforcement (5.82%), and social mediated

Table 2- *Mean Scores for Functions of Stereotypy Based on Teachers' Ratings*

Source	M	SD
Sensory reinforcement	11.99	2.25
Positive social reinforcement (draw attention)	11.14	3.27
Positive social reinforcement (obtain tangible)	9.77	2.54
Negative social reinforcement	8.95	3.21

negative reinforcement (1.37%). Furthermore, mean scores and standard deviation for each different function from FRC modified by Motivation Assessment Scale (Durand & Crimmins, 1988) was conducted (see Table 2). A one way ANOVA was further conducted for the mean score of per function perceived by raters. Results indicated that significant differences occurred between different perceived functions emitted by these students (see Table 3). Follow-up analyses of stereotypical functions conducted using LSD test revealed that there were significant differences between sensory reinforcement and positive social reinforcement (obtain tangible), between sensory reinforcement and negative social reinforcement, and between positive social reinforcement (draw attention) and negative social reinforcement group. There were no significant differences between sensory reinforcement and positive social reinforcement (draw attention), and between two sources of positive social reinforcement group.

These results from FRC investigation suggested that most of the time students with developmental disabilities usually exhibited stereotyped responses for sensory self-stimulation or getting other's attention.

Table 3 - *Analysis of Variance for Functions of Stereotypy Based on Teachers' Ratings*

Source	*SS*	*df*	*MS*	*F*	*p*
Between groups	1627.33	3	542.44	88.93**	0.0001
Within-group error	5324.92	873	6.1		

**p < .01.

Discussion

Results of the present study showed that students with mental retardation emitted the highest rates of stereotypy (43.49%) in all students with developmental disabilities. Contrary to our findings, Koegel and Koegel (1990) demonstrated that children with autism exhibited more stereotypies than children with mental retardation. The existed discrepancies in studies between us and Koegel and Koegel (1990) may be attributed to fail to take control of mental age in our study. However, the number of students with mental retardation was far more than that of autism in our target population, thus out of proportion between these two disability groups may account for lower percentage of stereotypy occurred in students with autism. Another reason why students with mental retardation emitted the highest rates of stereotypy might be that our investigated subjects all came from separately special education schools which included large proportion of severe and profound mental retardation. Studies have shown that high percentage of stereotypy occurred in individuals with severe mental retardation (Hill & Bruininks, 1984; Dura, et al., 1987).

Additionally, the results of our study showed that compared to the lowest levels of stereotypy emitted at junior high school (15.36%), the peak of stereotyped behaviors appeared at the elementary school level (21.46%). This is inconsistent with Berkson et al.'s (1985) findings. Berkson et al. found that stereotyped behaviors increased with age until the teenage period. It could be that subjects in Berkson et al.'s study came from a variety of disabilities across all levels of replacements whereas our investigated subjects all with severe or profound disabilities solely came from special educational school settings, thus such differences between these two studies might contribute to different distribute proportion of stereotypy among students with developmental disabilities in several school levels.

With respect to the functions of stereotypy, the results from descriptive analysis showed that multiple reinforcement and sensory

reinforcement served the main reasons to maintain stereotypy of students with developmental disabilities. In contrast, inferential statistical analysis from FRC scores demonstrated that sensory reinforcement and positive social reinforcement contribute to higher frequencies of stereotypy occurred in students with developmental disabilities. It is uncertain whether multiple sources of reinforcement influence occurrence of stereotypy or not due to a lack of rating items designed to detect such functions in FRC. Further refinement of the rating scale of FRC to include multiple function items is needed. Nevertheless, sensory reinforcement and positive social reinforcement (especially for getting attention) still control higher levels or percentages of stereotypy occurred in students with developmental disabilities in both descriptive and inferential analyses. These analyses indicated that most of the time students with developmental disabilities exhibited stereotyped responses for sensory self-stimulation. This finding is consistent with several studies which have shown that stereotyped behaviors were maintained by sensory reinforcement (Sturmey, et al., 1988; Wehmeyer, et al., 1993). Additionally, the results of both analyses also showed that drawing other's attention could contribute to emit stereotypy in students with developmental disabilities. Such perspective is supported by Bihm et al. (1992) who studied the perceptions of staff about the functions of stereotypic behaviors of 470 people with severe or profound mental retardation, and found that attained social attentions were related to stereotypy. Although our data seemed not to come up with strong evidence to demonstrate positive social reinforcement (obtain tangible) and negative social reinforcement served to display stereotypy in most students with developmental disabilities, it could be that no specific function would apply to all individuals who emitted stereotyped responses.

Finally, results of our study showed that stereotyped behaviors executed their impacts on students' and peer's learning. This viewpoint is supported by Koegel and Covert (1972) who point out that stereotypic behavior interferes with some children with autism while they are trying to learn a new task. Further support for this negative effect on learning comes from Gunter et al. (1984) who investigated typical peers of children with autism and found that 95% of their peers reported that stereotypy bothered them and would be necessary to change.

Educational Implications and Limitations

The functions of stereotypical behaviors appear to be complex and multiple across individuals and settings. Stereotypy might serve different functions in some persons with developmental disabilities despite the same or similar topographies. Repp, Felce, and Barton (1988) suggested that no single treatment procedure is universally effective. Changing a behavior may require an understanding of its controlling functions. If a function can be detected, a more appropriate way of obtaining the desired consequence could be programmed (e.g., functional communication training). Therefore, only by finding out the functions behind stereotypy, can successful interventions be designed and developed.

The results of the present study should be viewed with caution owing to a number of limitations in sample characteristics and sampling methodologies. Due to purposefully sampling, our results may not be inferred to students with developmental disabilities in integrated settings. Additionally, our pilot QSSSB questionnaires were made from teachers in self-contained classes. However, these instruments were sent to teachers to survey in self-contained special schools. To some extent, such procedures could not totally exclude factors threatened to internal validity in the study. There was also a failure to control piloted instruments.

References

Baumeister, A. A., MacLean, W. E., Kelly, J., & Kasari, C. (1980). Observational studies of retarded children with multiple stereotyped movements. Journal of Abnormal Child Psychology, 8, 501-521.

Berkson, G. (1983). Repetitive stereotyped behaviors. American Journal of Mental Deficiency, 88, 239-246.

Berkson, G., McQuiston, S., Jacobson, J. W., Eyman, R., & Borthwick, S. (1985). The relationship between age and stereotyped behaviors. Mental Retardation, 23, 31-33.

Berkson, G., Mor, N. R., & Tarnovsky, S. (1999). Body-rocking and other habits of college students and persons with mental retardation. American Journal on Mental Retardation, 104(2), 107-116.

Bihm, E. M., Poindexter, A. R., Kienlen, T. L., & Smith, B. L. (1992). Staff perceptions of reinforcer responsiveness and aberrant behaviors in people with mental retardation. Journal of Autism and Developmental Disorders, 22(1), 83-93.

Dura, J. R., Mulick, J. A., & Rasnake, L. K. (1987). Prevalence of stereotypy among institutionalized nonambulatory profoundly mentally retarded people. American Journal of Mental Deficiency, 91(5), 548-549.

Durand, V. M., & Carr, E. G. (1987). Social influences on self-stimulatory behavior: Analysis and treatment application. Journal of Applied Behavior Analysis, 20, 119-132.

Durand, V. M., & Crimmins, D. B. (1988). Identifying the variables maintaining self-injurious behavior. Journal of Autism and Developmental Disorders, 18 (1), 99-117.

Durand, V. M. & Merges, E. (2001). Functional communication training: A comtemporary behavior analystic intervention for problem behavior. Focus on Autism and Other Developmental Disabilities, 16(2), 110-120.

Gunter, P., Brady, M. P., Shores, R. E., Fox, J. J., Owen, S., & Goldzweig, I. (1984). The reduction of aberrant vocalizations with auditory feedback and resulting collateral behavior change of two autistic boys. Behavioral Disorders, 9, 254-263.

Hill, B. K., & Bruininks, R. H. (1984). Maladaptive behavior of mentally retarded people in residential facilities. American Journal of Mental Deficiency, 91, 72-77.

Fallon, J., & Whitaker, S. (1996). The effect of stimulation on stereotyped behaviour of a woman with a profound learning disability. Behavioural and Cognitive Psychotherapy, 24, 323-329.

Jones, R. S., Wint, D, & Ellis, N. C. (1990). The social effects of stereotyped behavior. Journal of Mental Deficiency Research, 34, 261-268.

Kennedy, C. H., Meyer, K. A., Knowles, T., & Shukla, S. (2000). Analyzing the multiple functions of stereotypical behavior for students with autism: Implications for assessment and treatment. Journal of Applied Behavior Analysis, 33, 559-571.

Koegel, R. L., & Covert, A. (1972). The relationship of self-stimulation to learning in autistic children. Journal of Applied Behavior Analysis, 5, 381-387.

Koegel, R. L., & Koegel, L. K. (1990). Extended reductions in stereotypic behavior of students with autism through a self-management treatment package. Journal of Applied Behavior Analysis, 23(1), 119-127.

LaGrow, S. J., & Repp, A. C. (1984). Stereotypic responding: A review of intervention research. American Journal of Mental Deficiency, 88, 595-609.

Mason, S. A. & Newsom, C. D. (1990). The application of sensory change to reduce stereotyped behavior. Research in Developmental Disabilities, 11, 257-271.

McEntee, J. E., & Saunders, R. R. (1997). A response-restriction analysis of stereotypy in adolescents with mental retardation: Implication for applied behavior analysis. Journal of Applied Behavior Analysis, 30, 485-506.

Repp, A. C., Felce, D., & Barton, L. E. (1988). Basing the treatment of stereotypic and self-injurious behaviors on hypotheses of their causes. Journal of Applied Behavior Analysis, 21, 281-289.

Rojahn, J., Matson, J. L., Lott, D., Esbensen, A. J., & Smalls, Y. (2001). The behavior problems inventory: An instrument for the assessment of self-injury, stereotyped behavior, and aggression/destruction in individuals with developmental disabilities. Journal of Autism and Developmental Disorders, 31(6), 577-588.

Runco, M. A., Charlop, M. H., & Schreibman, L. (1986). The occurrence of autistic children's self-stimulation as a function of familiar versus unfamiliar stimulus conditions. Journal of Autism and Developmental Disorders, 16(1), 31-44.

Sakuma, M. (1975). A comparative study by the behavioral observation for stereotypy in the exceptional children. Folia Psychiatrica et Neurologica Japonica, 29(4), 371-391.

Schroeder, S. R. (1991). Self-injury and stereotypy. In J. L. Matson & J. A. Mulick (Eds.), Handbook of mental retardation (2nd. ed.) (pp.382-396). New York: Pergamon Press.

Schultz, T. M., & Berkson, G. (1995). Definition of abnormal focused affections and exploration of their relation to abnormal stereotyped behaviors. American Journal on Mental Retardation, 99(4), 376-390.

Short, R. J., & Simeonsson, R. J. (1990). Stereotyped behaviors and handicapping conditions in infant and children. Topic in Early Childhood Special Education, 10(3), 122-130.

Sprague, J., Holland, K., & Thomas, K. (1997). The effect of noncontingent sensory reinforcement, contingent sensory reinforcement, and response interruption on stereotypical and self-injurious behavior. Research in Developmental Disabilities, 18(1), 61-77.

Sturmey, P., Carlsen, A., Crisp, A. G., & Newton, J. T. (1988). A functional analysis of multiple aberrant responses: A refinement and extension of Iwata et al.'s (1982) methodology. Journal of Mental Deficiency Research, 32, 31-46.

Thompson T. J., & Berkson, G. (1985). Stereotyped behavior of severely disabled children in classroom and free-play settings. American Journal of Mental Deficiency, 89(6) 580-586.

Wehmeyer, M. L., Bourland, G., & Ingram, D. (1993). An analogue assessment of hand stereotypies in two cases of Rett syndrome. Journal of Intellectual Disabilities Research, 37, 95-102.

Precision Reading: New hope for struggling readers

Dr. Rick Freeze, Professor
Faculty of Education, University of Manitoba
Winnipeg, MB, Canada
rfreeze@ms.umanitoba.ca

Abstract

A rationale for a novel approach to remedial reading for struggling readers, including students labeled with intellectual disabilities, learning disabilities, attention deficit and behavior disorders, below average language development, and those described as reluctant or resistant readers is presented. It is suggested that struggling readers find Precision Reading, a new approach to remedial reading emphasizing fluency, whole word knowledge, and guided passage comprehension instruction in meaningful curriculum-based materials drawn from classroom reading tasks; easier, more relevant, and more motivating than traditional approaches. It is argued that traditional approaches often distance students from the classroom and curriculum and emphasize decoding, in an ineffectual attempt to teach them to simultaneously construct meaning and deconstruct text. The method of Precision Reading is then described and explained and research into its efficacy with struggling readers and practicality for educators is reviewed.

Rationale

In twenty years of work with classroom teachers and special educators, primarily in professional development courses leading to special education certification and in school-based research and development projects, a number of recurring themes related to remedial reading have emerged, at least in my mind, as significant obstacles to success. In this paper, I discuss some of those obstacles and how they led to the development of an alternative approach called Precision Reading (Freeze, 2002a). The Precision Reading method is described and lessons and limitations learned from research into its use are discussed. But first, the obstacles…

Distance and Devaluation

First, as Ebeling, Deschenes, and Sprague (1994) also have noted, traditional remedial reading interventions may locate struggling readers in materials that are deemed to be "at their level," of "high interest," and with "low vocabulary" (Cheney, 1989; Schumm & Strickler, 1991). This may result in remedial reading activities that are very distant from the materials, skill demands, and curricular content of the regular classroom. In addition, as Giangreco, Baumgart and Doyle (1995) have reported, students with academic deficits in reading often are excluded from full participation in the reading activities of regular classrooms. This is especially true for those labeled with intellectual disabilities, learning disabilities, attention deficit and behavior disorders, below average language development, and those described as reluctant or resistant readers. For example, they may be placed on individualized reading programs, involving separate computer assisted instruction or tutoring by an educational assistant. Unfortunately, such provisions routinely involve reduced academic demands and lowered expectations and standards for achievement (Cosden & Abernathy, 1990; Giangreco, Baumgart & Doyle, 1995). Alternatively, they may be taught in small groups, in pull out settings, by resource teachers or reading specialists (McLesky, Henry & Hodges, 1998; Schwean, Saklofske, Shatz & Falk, 1996). In some instances, students may receive remedial reading interventions while in learning

assistance, behavior adjustment, or special education classes, on a part-time or full-time basis (Fuchs & Fuchs, 1994-5).

Yet, both classroom and resource teachers have told me that struggling readers, especially those in the latter elementary and early secondary grades, resist interventions that distance them from classroom reading activities and their peers. As reading is so important in all subject areas at school, it may be valued far above other skills by children and youth. Consequently, struggling readers may feel devalued in their own eyes or imagine they have been devalued in the eyes of their teachers and peers when they are found wanting and segregated for instruction in reading (Wolfensberger, 1998, 2000).

Apathy

Second, such an approach provides little motivation for the key players in the remedial reading effort. The students may feel unmotivated because remedy often does not constitute recovery (Lyon, 1995). In many cases, all they can be told honestly, to motivate their future efforts, is that they have not fallen further behind or that their recovery has been only partial. Resource teachers have told me that they receive referrals for reading assistance for the same students year after year. How motivated can these students be, when they are constantly behind and their extra efforts never seem to pay off? In a nutshell, many struggling readers lose faith in their ability to learn to read and our ability to teach them.

Classroom teachers also may feel disenchanted. They may perceive remedial reading as important; yet see it as having little value in relation to classroom learning. Consequently, resource teachers may complain that classroom teachers lack commitment to their remedial programs, while classroom teachers may complain that the reading skills taught outside the classroom never transfer back. Of even greater concern, students may be sent for remedial reading outside the classroom primarily to alleviate behavioral problems in the regular classroom. For example, students' reading deficits may lead to frustration with academic work, low achievement, low motivation, negative attitudes towards school, and rebellious behaviors (Buchanan & Wolf, 1986; deBettencourt, Zigmond & Thornton, 1989; Hoffman, Shelson, Minskoff, Sautter, Stiedle, Baker, Bailey & Echols, 1987). If misbehaviors are seen as the problem, rather than as evidence of frustration with reading, then remedial reading interventions that favor removal from the classroom may be favored. When removal, not remedy, becomes the tacit goal, a remedial program unrelated to classroom reading may sustain the removal longer, thus achieving a subversive goal (removal) in the guise of a noble one (reading improvement).

Finally, remedial educators, whether clinician, reading specialist, resource teacher, or trained teaching assistant, often feel frustrated because interventions are too expensive (i.e., in terms of personnel and time commitment per student), too restricted (i.e., only available at some schools, or to some grades, or to some students), too little (i.e., insufficient for recovery to grade level within a reasonable time period), or too late (i.e., only initiated after the students have fallen far behind their peers). Have many educators come to accept perpetual low reading achievement by significant numbers of students as an inevitable and unameliorable certainty of contemporary education?

Reading as a Sum of Skills

A third theme that has emerged from my work with educators relates to our understanding of what reading is. Some educators see reading merely as a combination of pattern awareness and technical skills. For example, while most educators agree that graphic and phonemic awareness, word knowledge, fluency, and passage comprehension characterize good reading (Block, 1997; Howell & Nolet, 2000; Stanovich, 2000), fewer place equal emphasis on reading habits and a positive attitude - big factors in the minds of teachers working with struggling readers. As one teacher said to me, "I'd rather have a student reading below grade level, with a

positive attitude toward learning to read, who tries every day; than a student who scored well on a standardized test but avoids reading like the plague."

When remedial reading is seen only as a sum of skills, students may be locked into highly functionalist reading skills activities devoid of meaning or the possibility of enjoyment. In general, research into both memory and reading suggests that learning in meaningful reading contexts is preferable to contrived reading contexts (Howell & Nolet, 2000). For example, phonemic awareness may be taught using formulaic passages designed to offer sequenced exposure to phonemic patterns, but hardly to tell a story or to excite the interest of the reader. In addition, such patterned and leveled books typically are unrelated to curricular topics and were designed with restricted vocabularies that better reflect phonic pattern consistency than subject area vocabulary and concepts. In addition, word card drills and lists to teach high frequency sight words or word families that exemplify graphic and phonemic patterns (e.g., out, loud, cloud, proud, doubt, mouth, etc.) or word forms (e.g., part, partly, partition, apart, depart, department, etc.) may be used independently of any meaningful context. In some programs, students are even taught patterns in non-words: maximizing the discrepancy between remedial and classroom reading vocabulary. Finally, remedial comprehension exercises often train students to recognize patterns of meaning in text (e.g., sequence of events, features of settings, physical and personality traits of characters, steps in a process, phases in a cycle, etc.) but the events are not those being studied in history, the settings are not those studied in geography, the characters are not drawn from classroom literature, nor are the processes and phases related to classroom science. In effect, reading is abstracted from the meaningful context of the curriculum and the classroom, not just in terms of what is read and where it is read, but in terms of an emphasis on "learning to read skills" rather than the "reading to learn skills" most struggling readers require once they are past the early years of schooling and, coincidentally, are most likely to be referred for remedial reading.

Underestimating the Importance of Automaticity

Fluency (i.e., reading speed, accuracy, and smoothness) is one expression of automaticity in reading (Rasinski, 1990; Samuels, 1994; Stanovich, 2000). When reading becomes automatic, the reader is able to concentrate on passage comprehension rather than word-by-word decoding (Levy, 1993; Levy, Nicholls & Kohen, 1993; Kuhn & Stahl, 2003; Wolf & Katzir-Cohen, 2001). Some theorists argue that automaticity in reading contributes significantly to: (a) fluency generalization (Weinstein & Cooke, 1992), (b) word acquisition, comprehension, and retention (Herman, 1985, Samuels, 1994, Stanovich, 2000), (c) passage comprehension (Howell & Nolet, 2000; O'Shea, Sindelar & O'Shea, 1987; Samuels, 1994, Stanovich, 2000), (d) reading enjoyment, engagement, and independence (Blau, 2001; Freeze, 2000, 2000c), and (e) phonological awareness (Catts, 1993). For students in the third grade and above, an oral reading rate of 140 words per minute or more (Carver, 1992; Carnine, Silbert & Kameenui, 1997) with an accuracy rate of 95% or more (Howell & Nolet, 2000) expresses automaticity and predicts both reading comprehension and enjoyment.

Additionally, word knowledge is closely linked to reading comprehension. Word knowledge accounts for up to 70% of the variability between students who comprehend well and those who do not (Carnine, Silbert & Kameenui, 1997; Rupley, Logan & Nichols, 1999). Word recognition within 1.5 seconds combined with an understanding of a word's meaning in a passage or other reading context defines word knowledge (Freeze, 2002a). It may seem obvious, but the "basic facts" in reading comprehension are words. They are the predominant meaningful units in text. Words that are recognized with automaticity (i.e., within 1.5 seconds) are stored in long term memory where they persist for years and have meanings associated with them (Rayner, Foorman, Perfetti, Pesetsky & Seidenberg,

2002). Automaticity in decoding frees the reader's short-term memory from the task of decoding the text and allows him or her to focus on the construction of the meaning of the text (Adams, 1991).

Finally, several researchers have lamented the lack of comprehension instruction in reading (Freppon & Dahl, 1998; Howell & Nolet, 2000; Vaughn, Moody & Schumm, 1998). Typically, guided practice in the use of strategies such as: (a) use of prior knowledge, (b) finding the topic sentence, (c) vocabulary clarification, (d) use of the teacher's questions, (e) self-questioning, (f) summarization, (g) discovering the author's purpose, (h) critical analysis of the author's arguments and conclusions, and (i) cognitive mapping are not taught explicitly or consistently, especially in remedial reading interventions. Many struggling readers have experienced reading automaticity only rarely, and almost never in grade and age appropriate materials relevant to their academic needs and personal interests. Without automaticity, they struggle to decode words at the expense of understanding and enjoyment. After years of disfluent reading, such students may need guided repetitive practice in reading comprehension strategies, until comprehension becomes automatic.

In conclusion, it may be that struggling readers will find an inclusive approach to remedial reading, using meaningful curriculum-based materials drawn from classroom reading tasks, and emphasizing guided repeated practice to obtain fluency, whole word knowledge, and passage comprehension easier, more relevant, and more motivating than traditional approaches.

Precision Reading

In an effort to overcome the limitations of traditional remedial reading interventions, as described in the preceding analysis, I began to work with in-service teachers, resource teachers, school administrators, and graduate students to develop an inexpensive, effective, and practical reading intervention for struggling readers. It was designed to avoid the problems I and other researchers had identified in traditional remedial reading. The outcome was Precision Reading (Freeze, 2002a; Freeze, 2002b); a new research-based approach to reading intervention grounded in automaticity theory (Kuhn & Stahl, 2003; Howell & Nolet, 2000; Stanovich, 2000; Samuels, 1997), authentic assessment in reading (Pike & Salend, 1995), and repeated practice techniques in building comprehension (Howell & Nolet, 2000; Freeze, 2002a; Palinscar & Brown, 1984).

Overview of Precision Reading

It includes the following five components: (a) the core strategy, a structured form of automaticity training through repeated readings and contextualized word practice - used at every session to increase fluency (i.e., speed, accuracy, and smoothness) and whole word knowledge (i.e., recognition, comprehension, and retention), (b) formatting procedures - to make grade level reading materials accessible to low achievers by changing the format and structure (i.e., font size, spacing, paragraphing, and sentence structure), but not the vocabulary, of the reading materials, (c) one or more support strategies, designed to place words and their meanings in long term memory - to enhance the effectiveness of the core strategy for students with learning and intellectual disabilities, small sight vocabularies, word comprehension and retention problems, and very low reading achievement, as well as students reading in a second language, (d) comprehension strategies, based on retelling, structured questioning, and reciprocal reading - to support understanding once students have obtained sufficient automaticity and word knowledge to attend to the construction of meaning, rather than the deconstruction of text, and (e) complementary strategies, based on differentiated instruction techniques - to enhance, extend, and generalize reading skills in the classroom. In Precision Reading, struggling readers use the same reading materials as their more capable peers in the regular classroom: enabling them to recover to grade level in reading, while at the same time covering concurrent curriculum topics.

Core strategy

The core precision reading strategy is a combination of the methods of repeated readings (O'Shea, Sindelar & O'Shea, 1987; Samuels & Farstrup, 1992; Weinstein & Cooke, 1992) and precision teaching (Lindsley, 1990; West, Young & Spooner, 1990). The method of repeated readings, originally developed by Samuels and Laberge (1983) is based on the teaching implications of automaticity theory in reading (Howell & Nolet, 2000; Rasinski, 1990; Samuels, 1994; Stanovich, 2000) and is modeled on the repetitive corrected practice used to train athletes and musicians. Applied to reading, it consists of rereading a short, meaningful passage until a satisfactory level of fluency is reached. The purpose of the repeated readings is to provide the practice necessary to make reading automatic, enabling the reader to concentrate on passage comprehension rather than word-by-word decoding. There is direct evidence that the method of repeated readings is effective in increasing word recognition, fluency, and comprehension (Blum & Koskinen, 1991; Dowhower, 1994; Levy, 1993; Levy, Nicholls & Kohen, 1993; Rasinski, 1990; Samuels & Farstrup, 1992; Weinstein & Cooke, 1992).

In Precision Reading, the student reads the same passage on successive school days for ten days, always starting at the beginning and always for only one minute. Students often double the number of words they can read in one minute, and reduce their errors to near zero. A new passage is started every ten school days. A stopwatch is used to time the readings. Instructors provided encouragement and verbal positive reinforcement for improvements in the reading speed, accuracy, and smoothness.

As each student reads aloud, his or her oral reading miscues are recorded by the instructor using a running record (Block, 1997). Miscues include: (a) word mispronunciations, (b) words inserted into the text, (c) word omissions, (d) word part omissions, (e) word repetitions, (f) word part repetitions, (g) word substitutions, (h) word part substitutions, (i) words read haltingly, and (j) words read with a hesitation of more than 2 seconds. After the first reading of a passage, whole word corrective practice for the student's error words occurs before and after each subsequent repeated reading of the same passage. During corrective word practice, the words were presented to the student on cards and practiced as whole words in the same order in which they occurred in the passage. The student is allowed 1.5 seconds to say a word correctly. If the student does not say the word correctly within 1.5 seconds, he or she is told the word and then asked to read it from the card. Two types of miscues receive a different treatment. When the reader inserts one or more words into the text, an arc or "bridge" is drawn in pencil linking the words on either side of the insertion, on the student's copy of the passage, to remind him or her to refrain from an insertion at that point. Additionally, words that are known by the student, but omitted nevertheless, are circled in pencil on the student's copy of the passage to remind him or her to read it. After correct reading at three consecutive sessions, these pencil lines are removed. Words are practiced until they are read correctly on three consecutive days. Once a word has been mastered for recognition, the instructor checks for understanding and teaches meaning on successive days, if necessary, until mastery for meaning is achieved. The word is then removed to a review pile, which is practiced at other times of the day, or placed in the student's personal dictionary, or incorporated into the class spelling or vocabulary development program (Freeze, 2002a).

Students' repeated readings are measured using a precise, authentic, direct, daily, measurement method derived from precision teaching (Pike & Salend, 1995; West, Young & Spooner, 1990). In a nutshell, the number of words read and the number of errors made in one minute of oral reading by a student are counted and graphed each day for ten days for each passage. The advantages of such precise measurement include the following: (a) authenticity, (b) completeness, (c) engagement, (d) corrective feedback, and (e) clarity. Authenticity is achieved by measuring students' performances directly, daily, and in detail

during real learning experiences using concurrent classroom reading materials. Completeness is obtained because the focus is on repeated practice designed to help students quickly increase reading rate, decrease errors, acquire and retain new words and their meanings, and construct passage meaning. In addition, students are motivated by their active engagement in the measurement process and rapid progress towards fluency and understanding. Through positive corrective feedback, their errors are specified, corrected immediately, and then practiced to mastery. Daily and long term records are easy to understand and communicate to students, parents, and other educators.

At the conclusion of each precision reading session, the instructor records the total number of words read by the student and his or her total number of miscues on a graph (Lindsley, 1990; Pike & Salend, 1995; West, Young & Spooner, 1990; White, 1986). The graph is intended to monitor the student's progress and to provide motivational feedback. It also is used to indicate when the student has achieved the requisite fluency rate for comprehension. When a student achieves a reading rate of 120 to 140 words per minute on a passage, with an error rate of 5% or less, he or she is asked to retell the story to check for passage comprehension.

Passage selection

The core strategy in Precision Reading involves students in the daily repeated reading of short passages drawn from age appropriate curriculum materials in core subject areas such as language arts, social studies, and science. The passages are selected by subject area teachers to represent important curriculum content linked to topics the students are studying at the time. It is important to understand that the passages selected must be at the level of each student's age appropriate grade placement; typically, far above their reading grade equivalency. However, the gain in relevance is offset by the increased difficulty of the text. This problem is overcome by reformatting the text.

Reformatting

The passages are put into precision reading format to help make them accessible to students with low reading skills. Reformatting may involve one or more of the following, depending on individual needs: (a) increased font size, (b) increased spacing between lines, (c) increased spacing between letters within words, (d) wider margins, headers, and footers, (e) increased paragraphing (to break longer paragraphs into shorter ones with the addition of paragraph subtitles), (f) restructured sentences (such as splitting compound and complex sentences into two or more simple sentences), or
(g) chunking text (splitting sentences up onto separate lines of text, with each line representing a chunk defined by natural pauses in oral reading, punctuation, or meaningful collections of words within the sentence). The idea of the reformatting is to make a passage drawn from age appropriate grade level materials more accessible to the student by making it look less intimidating and read more easily without removing content vocabulary or changing the substance of the original text.

Support strategies

While students' precision reading interventions always include the core strategy, a variety of strategies designed to support students with cognitive impairments and low initial reading skills are implemented on a student specific basis. The support strategies used in precision reading are derived from a variety of sources. They included methods such as: (a) silent pre-reading - to increase fluency and independence in reading, (b) the five second delay procedure - to ensure students with memorization problems transfer words into long term memory, (c) the precision reading of sight word lists - to increase subject area content vocabulary, (d) the sight word association procedure developed by Bradley (Bos & Vaughn, 1994) - to help students with cognitive deficits acquire and retain word knowledge, (e) echo pre-reading adapted from Heckelman's (1986) neurological impress method - to support

emergent readers with limited reading experience, (f) aspects of the language experience approach, based on the work of Stauffer (1970) - to support emergent readers and non-readers with cognitive deficits, and (g) an adaptation of the first stage of Fernald's (1988) multi-sensory visual, auditory, kinesthetic, and tactile training for students with intellectual impairments and very limited oral and reading vocabularies.

Comprehension strategies

When necessary, the students' programs include precision reading comprehension strategies designed to help them build a comprehensive set of reading skills. Retelling, as conceptualized by Howell and Nolet (2000), 3 repeat questioning developed by Freeze (2002a), and reciprocal reading (Palinscar & Brown 1984, 1986; Howell & Nolet, 2000) are the main strategies employed in Precision Reading.

Complementary strategies

Finally, the Precision Reading approach to constructive reading intervention includes a large number complementary strategies intended to promote the generalization of reading skills from the short, daily, one-on-one core strategy sessions to general classroom instruction. These include, but are not limited to: (a) independent reading in the form of DEAR (Drop Everything And Read), a form of uninterrupted, sustained, silent reading (Freeze, 2002a; Tierney, Readence, and Dishner, 1990), (b) choral reading (Tierney, Readence, and Dishner, 1990), (c) chapter book readings by the teacher to the students, (d) challenge reading (Freeze 2002a) in which students count the pages they had read to achieve a target number and win prizes, (e) home reading involving books, magazines, and newspapers from the classroom that engage both students and their parents, (f) buddy reading with an older peer or adult volunteer.

Research into Precision Reading

In a series of school-based studies of Precision Reading (Freeze & Cook, 2005; Freeze, 2000, 2002c, 2002d, 2003 2004; Updike & Freeze, 2001) at the elementary and secondary level, a number of patterns emerged. First, Precision Reading sessions, of five minutes per school day, must be sustained to be effective. For example, in a study (Freeze, 2000) of reluctant readers (n = 12) in Grades 1 to 3, the students who completed 130 or more sessions gained 2.5 grade levels in passage comprehension on a standardized test of reading, the Brigance diagnostic comprehensive inventory of basic skills (Revised) (Brigance, 1999), while those who completed 50 to 70 sessions gained only 1.7 grade levels, and those who completed less than 30 sessions gained only 1.2 grade levels.

Second, the use of the core strategy alone has an impact on reading comprehension that transfers to core subject classroom reading for struggling readers. For example, in a study (Freeze, 2002c) of 21 ninth grade students, reading below their grade placement, all of whom completed 70 to 90 Precision Reading sessions in French, gains of 1.8 grade levels were observed on the Test de Rendement pour Francophones (1995). At the end of the study, the students achieved a mean score of 96% on an informal assessment of grade nine core subject area content words and reasonably high mean scores on informal assessments of their reading comprehension, in grade level texts, in the areas of correctly identifying themes (81%), ordering sequences of events (83%), and recalling details (79%).

Third, Precision Reading has a strong impact on motivation to read and reading habits. Students in several of the studies (Freeze, 2000, 2002c, 2004), at both the elementary and secondary levels, reading in both English and French, consistently reported very positive feelings about the method and indicated it increased their self-confidence about reading, taught them to like reading, and motivated them to read more at other times during the day.

Fourth, Precision Reading can be used as a key component in reading instruction for students with extreme academic deficits, intellectual disabilities, and severe social, emotional, and psychiatric problems (Freeze & Cook, 2005). On average, a small group (n = 7) of such students gained between 0.9 to 1.1 years, in grade equivalency scores, on the Oral Reading Fluency, Word Recognition, and Passage Comprehension subtests of a standardized test of reading, the Brigance diagnostic comprehensive inventory of basic skills (Revised) (Brigance, 1999).

Fifth, in post-intervention interviews with teachers, resource teachers, and teaching assistants, the educators in all of the studies found Precision Reading to be a practical and effective tool for helping struggling readers. However, the teachers noted the following drawbacks: (a) preparing passages in Precision Reading format was time consuming, (b) successful implementation was difficult to achieve with students who were frequently absent, (c) students needed to have, at least, a small sight vocabulary prior to beginning the method, and (d) the method had to be used consistently to be effective.

Finally, the educators involved in these studies recommended that the Precision Reading method be extended to help more struggling readers. In fact, since the studies, all the research schools have continued with Precision Reading and have subsequently extended it to more students. It is important to caution that Precision Reading is not a reading program. It is a strategy that should be used in conjunction with other best practices in teaching reading.

In conclusion, since its inception in 2001 (Freeze, 2002a, 2002b), Precision Reading has become popular with students, teachers, and parents because it is effective, easily implemented, and inexpensive. In studies at collaborating research schools, it has been shown to assist a wide range of students with below average reading skills, including those with cognitive deficits, and students with long histories of remedial failure and negative attitudes towards reading. It has been shown to be useful with elementary and secondary students in English, French, French immersion, and English as a Second Language instruction, as well as with resource, learning assistance, and special education students.

References

Adams, M.J. (1991). Beginning to read: A critique by literary professionals and a response by Marilyn Jager Adams. *Reading Teacher,* 44(6), 370-395.

Blau, L. (2001). Give students the practice to read with ease and confidence, and watch accuracy and understanding soar. *Scholastic Instructor*, (April), 28-30.

Blum, I. & Koskinen, P. (1991). Repeated reading: A strategy for enhancing fluency and fostering expertise. *Theory into Practice, 30*, 195-200.

Block, C. C. (1997). *Literacy difficulties diagnosis and instruction*. Orlando, FL: Harcourt Brace.

Bos, C. S. & Vaughn, S. (1994). *Strategies for teaching students with learning and behavior problems*. Needham Heights, MA: Allyn & Bacon.

Brigance, A. H. (1999*). Brigance diagnostic comprehensive inventory of basic skills (Revised)*. North Billerica, MA: Curriculum Associates.

Buchanan, M. & Wolf, J. S. (1986). A comprehensive study of learning disabled adults. *Journal of Learning Disabilities, 19*, 34-38.

Carnine, D., Silbert, J. & Kameenui, E. (1997). *Direct Instruction Reading* (3rd Ed.). Upper Saddle River, NJ: Prentice-Hall.

Carver, R. P. (1992). What do standardized tests of reading comprehension measure in terms of efficiency, accuracy, and rate? *Reading Research Quarterly,* 27(4), 346-359.

Catts, H. W. (1993). The relationship between speech-language impairments and reading disabilities. *Journal of Speech and Hearing Research,* 36, 948-958.

Cheney, C. O. (1989). The systematic adaptation of instructional materials and techniques for problem learners. *Academic Therapy, 25*, 25-30.

Cosden, M. A. & Abernathy, T. V. (1990). Microcomputer use in the schools: Teachers roles and instructional options. *Remedial and Special Education, 11* (5), 31-38.

deBettencourt, L. U., Zigmond, N. & Thornton, H. (1989). Follow-up of postsecondary-age rural learning disabled graduates and dropouts. *Exceptional Children, 56*, 40-49.

Dowhower, S. L. (1994). Repeated reading revisited: Research into practice, *Reading and Writing, 10,* 343-358.

Ebeling, D. G., Deschenes, C. & Sprague, J. (1994*). Adapting curriculum and instruction in inclusive classrooms*. Bloomington, IL: The Center for School and Community Integration, Institute for the Study of Developmental Disabilities, Indiana University.

Fernald, G. M. (1988). *Remedial techniques in basic school subjects*. Austin, TX: Pro-Ed (republication of 1943 original edition).

Freeze, R. (2000). *Precision reading at an elementary school*. Unpublished research report. Available from the author, Faculty of Education, University of Manitoba.

Freeze, R. (2002a). *Precision Reading: Instructors' Handbook* (2nd Ed.). Winnipeg, MB: D. R. Freeze Educational Publications (www.precisionreading.com).

Freeze, R. (2002b). *Precision Reading: Instructors' Sourcebook* (2nd Ed.). Winnipeg, MB: D. R. Freeze Educational Publications (www.precisionreading.com).

Freeze, R. (2002c). *Precision Reading with below average readers in senior high school*. Unpublished research report. Available from the author, Faculty of Education, University of Manitoba.

Freeze, D. R. (2002d, October). *Precision reading*. Paper presented at Developing Skills for the New Economy: International Conference on Technical and Vocational Education and Training, Winnipeg, Manitoba, Canada.

Freeze, D. R. (2003, February). *Precision reading with students with academic deficits, cognitive impairments, and behavioral problems*. Paper presented at Celebrating Diversity: WestCAST, Winnipeg, Manitoba, Canada.

Freeze. R. (2004). *Precision Reading with reluctant readers in a French Immersion elementary school*. Unpublished research report. Available from the author, Faculty of Education, University of Manitoba.

Freeze, R., & Cook, P. (2005). Learning to read against all odds: Using Precision Reading to enhance literacy in students with cognitive impairments, extreme academic deficits, and severe social, emotional, and psychiatric problems. *Exceptionality Education Canada, 15(1), 79-109.*

Freppon, P. A. & Dahl, K. L. (1998). Balanced instruction: Insights and considerations (theory and research into practice). *Reading Research Quarterly,* 33(2), 240-257.

Fuchs, D. & Fuchs, L. S. (1994-5). Sometimes separate is better. *Educational Leadership, 52*, 22-24.

Giangreco, M. F., Baumgart, M. J., & Doyle, M. B. (1995). How inclusion can facilitate teaching and learning. *Intervention in School and Clinic*, *30*, 273-278.

Howell, K. W., & Nolet, V. (2000). *Curriculum-based evaluation: Teaching and decision-making*. Belmont, CA: Wadsworth Thompson Learning.

Heckelman, R. G. (1986). N.I.M. revisited. *Academic Therapy, 21*, 411-420.

Herman, P. A. (1985). The effect of repeated readings on reading rate, speech pauses, and word recognition memory. *Reading Research Quarterly*, 20, 553-574.

Hoffman, F. J., Shelson, K. L., Minskoff, E. M., Sautter, S. W., Stiedle, E. F., Baker, D. P., Bailey, M. B. & Echols, L. D. (1987). Needs of learning disabled students. *Journal of Learning Disabilities, 20*, 43-53.

Kuhn, M. R., & Stahl, S. A. (2003). Fluency: A review of developmental and remedial practices. *Journal of Educational Psychology*, *95*(1), 3-21.

Levy, B. A. (1993). Fluent rereading: An implicit indicator of reading skill development. In P. Graf and M. Masson (Eds.). *Implicit Memory: New directions in cognition, development and neuropsychology*. Hillsdale, NJ: Erlbaum Associates, pp. 49-73.

Levy, B. A., Nicholls, A. & Kohen, D. (1993). Repeated readings: Process benefits for good and poor readers. *Journal of Experimental Child Psychology,* 56, 303-327.

Lindsley, O. R. (1990). Precision teaching: By teachers for children. *Teaching Exceptional Children, 22*, 10-15.

Lyon, G. R. (1995). Research initiatives in learning disabilities: Contributions from scientists supported by the National Institute of Child Health and Human Development. *Journal of Child Neurology, 10*, S121-S126.

McLesky, J., Henry, D. & Hodges, D. (1998). Inclusion: What progress is being made across disability categories? *Teaching Exceptional Children, 31* (1), 4-10.

O'Shea, L. J., Sindelar, P. T. & O'Shea, D. J. (1987). The effects of repeated readings and attentional cues on the reading fluency and comprehension of learning disabled readers. *Learning Disabilities Research*, 2, 103-109.

Palinscar, A. S. & Brown, A. L. (1984). Reciprocal teaching of comprehension fostering and comprehension monitoring strategies. *Cognition and Instruction*, 1(2), 117-175.

Palinscar, A. S. & Brown, A. L. (1986). Interactive teaching to promote independent learning from text. *The Reading Teacher*, 39(8), 771-777.

Pike, K. & Salend, S. J. (1995). Authentic assessment strategies: Alternatives to norm-referenced testing. *Teaching Exceptional Children*, 27, 15-20.

Raichle, M. E. (1994). Visualizing the mind. *Scientific American*, April, 58-64.

Rasinski, T. V. (1990). Investigating measures of reading fluency. *Educational Research Quarterly,* 14(3), 37-44.

Rayner, K., Foorman, B. R., Perfetti, C. A., Pesetsky, D. & Seidenberg, M. S. (2002). How should reading be taught? *Scientific American*, March, 85-91.

Rupley, W. H., Logan, J. W. & Nichols, W. D. (1999). Vocabulary instruction in a balanced reading program. The Reading Teacher, 52(4), 336-342.

Samuels, S. J. (1994). Toward a theory of automatic information processing, revisited. In R. B. Samuels, S. J. (1997). The method of repeated readings. *The Reading Teacher*, *50*(5), 376-381.

Samuels, S. J. (1997). The method of repeated readings. *The Reading Teacher*, 50 (5), 376-381.

Samuels, S. J. & Farstrup, A. E. (1992). *What research has to say about reading instruction*. Newark, DE: International Reading Association.

Samuels, S. J. & Laberge (1983). Critique of a theory of automaticity in reading: Looking back, a retrospective analysis of the Laberge-Samuels reading model. In L. Gentle, M. Kamil & J Blanchard (Eds.). *Reading Research Revisited*. Columbus, OH: Merrill.

Schwean, V. L., Saklofske, D. H., Shatz, E. & Falk, L. K. (1996). Achieving supportive integration for children with behaviour disorders in Canada: Multiple paths to realization. *Canadian Journal of Special Education, 11*, 33-50.

Schumm, J. S. & Strickler, K. (1991). Guidelines for adapting content area textbooks: Keeping teachers and students content. *Intervention in School and Clinic, 27*, 79-84.

Stanovich, K. E. (2000*). Progress in understanding reading: Scientific foundations and new frontiers*. New York, NY: Guilford Press.

Test de Rendement pour Francophones (1995). Toronto, ON: Harcourt, Brace & Co.

Stauffer, R. G. (1970). *The language experience approach to teaching reading*. New York, NY: Harper & Row.

Tierney, R. J., Readence, J. E. & Dishner, E. K. (1990). *Reading strategies and practices* (3rd Ed.). Needham Heights, MA: Allyn & Bacon.

Updike, M. & Freeze, D. R. (2001). Precision reading: Improving reading for students with learning disabilities. *International Journal of Practical Approaches to Disability, 25(2)*, 15-21.

Vaughn, S., Moody, S.W. & Schumm, T.S. (1998). Broken promises: Reading instruction in the resource room. Exceptional Children, 64(2), 211-225.

Weinstein, G. & Cooke, N.L. (1992). The effects of two repeated reading interventions on generalizations of fluency. *Learning Disabilities Quarterly,* 15, 21-28.

West, R. P., Young, K. R. & Spooner, F. (1990). Precision teaching: An introduction. *Teaching Exceptional Children, 22*, 4-9.

White, O. R. (1986). Precision teaching - precision learning. *Exceptional Children, 52*, 522-534.

Wolf, M. & Katzir-Cohen, T. (2001). Reading fluency and its intervention. *Scientific Studies of Reading*, 5(3), 211-239.

Wolfensberger, W. (1998). *A brief introduction to social role valorization: A higher-order concept for addressing the plight of societally devalued people, and for structuring human services*. Syracuse, NY: Training Institute for Human Service Planning, Leadership and Change Agentry, Syracuse University.

Wolfensberger, W. (2000). A brief overview of social role valorization. *Mental Retardation,* 38(2), 105-123.

Some Features and Differences between Parents of Students with Special Needs and Typical Children in Croatia

Ana Wagner Jakab, Mr.sc.
Research Assistant, The Faculty of Special Education and Rehabilitation
University of Zagreb
Croatia
ana.wagner-jakab@zg.htnet.hr

Daniela Cvitković
Research Assistant, The Faculty of Special Education and Rehabilitation
University of Zagreb
Croatia
dcvitkovic8@yahoo.com

Abstract

Since 1980, children with mild learning disabilities in Croatia have a legal right to attend regular schools together with their typical peers. Today they are still facing a lot of troubles during their schooling that has had a strong impact on their whole family. In order to see more clearly the parent relationship toward their children this study investigated features and differences between parents of students with special needs and typical children. The sample consisted of parents of children with special needs integrated in regular schools (n = 81) and parents of their typical peers (n = 231). The study was focused on parents' attitudes toward their children, estimations of their child's behaviors at home, personal traits (competence for parental role, external locus of control, self-respect and anxiety) and social and economic status. Results suggested differences in attitudes, social background and some of the personal traits between the two groups of parents. It was found that personal traits could be a predictor of parents' attitudes and estimations of children. Results suggest the need for further investigations. Practical implications are considered.

Introduction

For more than 20 years, children with special needs in Croatia have had a legal right to educational integration. Their rights for education, however, are still not equal to the rights of their "typical" peers. Teachers' attitudes towards educational integration are still negative (Igrić, Kiš-Glavaš, & Sekušak-Galešev, 1999) and students with special needs are still not accepted by their classmates (Žic & Igrić, 2001). Even though there are still a lot of subjective obstacles (attitudes) and objective conditions for integration; they are not good enough; (too many students in classrooms, teachers are not educated for working with children with special needs, there are no teacher assistants in classrooms) the situation is better than in the beginning. Today there are different support services available for teachers, children and families in Croatia. Based on the literature but also on practical experience it is obvious how particularly important role of family for children with special needs is. Abrams, Kaslow (1976) and O'Hara, Levy (1984) stated that all those conditions would negatively influence family functioning. According to that it is very important to investigate relationships between family members and their needs and based on that knowledge check if those recent services (education, support groups, counseling, and

psychotherapy) are still satisfying the needs of families today in Croatia.

According to Darch, Miao & Shippen (2004) researchers have shown that there is not just one factor that influences student achievement, appropriate and constructive student behavior and satisfaction. In an ecological model, it is argued that behavior cannot be understood independently of the social context in which it occurs (Woolfson, 2004). Within the modern approach to rehabilitation of persons with learning disabilities, the strengthening of role of families of children and youth with learning disabilities is a very important issue.

Friedrich and Schaffer, as cited by Fulgosi-Masnjak, Gustović-Ercegovac, & Igrić (1998) stated that satisfying a child's emotional development depends to a greater extent on parental attitudes and behavior than on the child's developmental difficulties. Numerous studies in Croatian parent attitudes describe mostly negative attitudes, regardless of the nature of difficulty (Igrić, Bezuk & Morović, 1994). The common reactions include fear due to the child's disability, insecurity regarding its outcome, blaming others or themselves (Mavrin-Cavor, 1981). The question that occurred is in what ways are those reactions connected with self-perception of parents.

The way in which one feels and thinks about themselves determines the level of his adjustment to the outer world. Cognitive interpretation of the Self, their own abilities and achievements plays a significant role in determining the way people live and perceive theirselves. The way in which one perceives themselves to a great extent determines relations he has with other people. Feeling competent leads to feeling strong and persistent while feeling incompetent leads to helplessness, anxiousness, and self-blame. A personal, subjective perception of being competent is in some cases even more important for successful personal adaptation than objective competence. Good adaptation and complete fulfillment of the child's abilities depends on the home situation as well. If the situation is calm, efficient, full of self-belief, it will stimulate the child's development particularly if the child has special needs (Fulgosi-Masnjak et al., 1998).

Mercer and Winzer, as cited in Dyson (1966), pointed out that the position of children with learning disabilities with a variety of primary difficulties in academic subjects and secondary problems in social and emotional domains is especially significant. The discrepancy in their functioning often increases the conflict with society and its expectations.

Perhaps the most socially significant feature of a learning disability is its invisible and seemingly benign nature (Dyson, 1996). Reid and Feierstein stated that typically present in a child with normal intelligence, learning disabilities constitute an intellectual handicapped that is hidden (as cited in Dyson, 1996). Meanwhile the invisible disability may create intolerance toward to the child, by the family and the general public (O'Hara & Levy, 1984). Learning disabilities may also generate false hope in the parents (Berman, 1979) who may initially respond to the diagnosis with denial of and ambivalence about, the child's disability and then have unrealistic expectations for his or her academic performance (Abrams & Kaslow, 1976; Berman, 1979; Kaslow & Cooper, 1978; Dyson 1996). These conditions would heighten parental stress (Abrams & Kaslow, 1976; O'Hara & Levy, 1984; Dyson, 1996) and influence negative family functioning (Abrams & Kaslow, 1976; O'Hara & Levy, 1984; Dyson 1996). Learning-disabled children were found to be significantly more at risk on personal pain, family socioeconomic status, family instability, family tragedy, and academic risk (Lorsbach & Frymier, 1992). According to Munichin (1985) if one subscribes to the family system theory that family members interact in a transactional manner, it follows, as Pfeiffer, Gerber and Reiff (1985) pointed out, that the child's learning disabilities would have ramifications for parents, the family system, and siblings. In accordance with that is Bronfenbrenner's theory (Woolfson, 2004), the family is viewed as microsystem within the larger ecological framework of nested systems, including relatives, friends, and neighbors

which are, in turn, embedded in larger social units such as the school, parents' workplace, local community, and wider society. Bronfenbrenner's theory of ecological systems emphasizes the importance of the stability of the mesosystem (relationships between child's microsystem) and the child's closest microsystem (family, peers, school).

The purpose of this study was to determine parents' characteristics (personal traits and social background), their assessments, and their attitudes toward their children and to compare two groups of parents – those who have children with learning disabilities and those who are parents of "typical" children. Furthermore, this study sought to determine whether parents' personal traits were predictors of their assessments and attitudes toward their children.

This study is part of a scientific project that started in 2003 and is still on going. The whole project is conducted by the Faculty of Special Education and Rehabilitation, University of Zagreb and is financed by the Croatian Ministry of Science. The project is focused on children with special needs in an interactive system of family, school and peers. So the sample consists of children with special needs their peers, teachers, parents and siblings. The project is based on Bronfenbrenner's theory of ecological systems and researchers were interested to see the relations between child and their closest environment. The results presented in this paper will show just some aspects of intercorrelation between parents and their children. A clearer picture of children with special needs surrounded by their closest environment will appear after the whole project will be finished.

Method

Participants and Procedure

The research took place in Zagreb, the capital city of Croatia, and its surrounding areas in academic year 2004/05. All parents were asked to give written permission to participate in this study. Participants were examined in groups in their children schools where they fulfilled all questionnaires in approximately 60 minutes. This study was conducted using a sample of parents of children with special needs who attended the sixth grade in regular school (n=81) and parents of typical children (n=231) also sixth graders. In the group of parents of children with special needs were 67 female and 14 males. In the other group of parents of typical children there were 183 females and 48 males. The average age of sample was 40. The average age of their children was 12 and there were no significant difference in the age of two groups of students, half of them in both groups were girls and half were boys. The criterion for choosing children with special needs was based on the study of Mehan, Hertweck, and Meihls (1986). The authors indicated that the position of students in the school is determined more with the educational services rather than with diagnosis.

In this study "children with special needs" are those who have legal rights for individualized approaches in schools or adapted curriculum. The adaptation refers to the teaching approaches as well as the curriculum.

The majority of students with special needs had cognitive disabilities or specific learning disabilities such as dyslexia, dysgraphia, dyscalculia and children with Attention Deficit Hyper-Activity Disorder (ADHD). Children with these kinds of special needs could have above average, average and below average intellectual abilities.

Instruments

Parents' assessments of their children's behaviors at home were examined using the Behavior Rating Profile – 2nd Edition (Brown & Hammill, 1990). The Behavior Rating Profile (BRP-2) consists of 6 measuring scales including (a) three student-rating scales, (b) a teacher rating scale, (c) a student's sociogram, and (d) a parent rating scale. In this study only the parent scale was used. Through this scale, parents estimate some behavior of their children that occur at home. The parent scale consists of 30 items and it is a 4-point Likert type scale.

Personal traits were examined using The Battery for Estimation of Parental Role

(Bezinović, 1988; Gustović-Ercegovac, 1992). The Battery consists of 4 five level, Likert type scales that measure: 1. external locus of control (10 items like Bad things are happening to me because I do not have luck or Some people are born to be happy), 2 anxiety (20 items like I am in a good mood or I am worried because of possible troubles), 3 self-respect (10 items like In general I am satisfied with myself or Sometimes I feel completely useless), and 4 competence for parental role (20 items like I know what my child needs by instinct or I feel confident as a parent).

Parent attitudes were measured by the Parent Questionnaire UR-1 (Mavrin-Cavor, 1981) that consists of a 53-item Likert type scale. The questionnaire is focused on the following components of attitudes (a) child rejection, (b) overprotection, (c) guilt, (d) shame, (e) anxiety, (f) concern about future, (g) social isolation, (h) resignation with child's condition, and (i) parent activity. A higher score on this questionnaire indicates an unfavorable attitude towards the child.

A semantic differential - SD measure (Osgood, Suci & Tannenbaum, 1959) developed by Bujas (1967) was used measuring attitudes of parents toward their children. The semantic differential technique is method for quantifying the meaning that is attached to an identified phenomenon concept or individual through series of bipolar pairs of adjectives. Parents assessed term “My child" with 20 pairs of bipolar adjectives (cold-warm, sweet-bitter, nice-ugly...) on the scale of 7 levels. The respondent indicates the degree of agreement on 7-point linear scale where a marking in the middle indicates neutral opinion of the question. The score for each variable is calculated and high scores show high level of positive attitudes for each variable.

Information about social background was collected from parents through several questions about the level of education, marital status and residence conditions.

Results

As shown in Table 1 all scales have appropriate reliability.

Table 1 *- Reliability of the measurement instruments used in the study*

	UR-1	SD	BRP2	COMP	SE	RSS	ANX
Cronbach alpha	0.88	0.72	0.89	0.77	0.87	0.78	0.88

Legend:
COMP = competence
SE = locus of control
RSS = self-respect
ANX = anxiety

The results of Chi–square test showed significant differences in level of education, residence conditions, and marital status between two groups of parents (see Table 2).

Table 2 - *The differences in social and economic status among two groups of parents*

		SN (N=81)		P (N=231)		Chi-square
		f	%	f	%	
Education	elementary school	25.00	31.00	13.00	15.00	38.64 **
	high school	44.00	54.00	143.00	62.00	
	college	12.00	15.00	75.00	33.00	
Marital status	marriage	69.00	85.00	219.00	95.00	7.82 *
	divorced	6.00	7.50	6.00	2.50	
	single	6.00	7.50	6.00	2.50	
Residence	renting	11.00	13.00	12.00	5.00	6.46 *
	with parents	12.00	15.00	44.00	19.00	
	own appartment	58.00	52.00	175.00	76.00	

Legend:
SN = parents of children with special needs,
P = parents of typical peers,
f = frequency,
* = p< 0.05,
** = p<0.01

Group of parents of typical children have higher level of education (χ^2 = 38.64), better residence conditions (χ^2 = 6.46), and a larger number of married parents (χ^2=7.82).

T- tests showed significant differences in some of the personal traits of the parent groups. Parents of children with special needs estimated themselves as less competent for parental role then parents of typical children (t = 3.80, p<0.01). Furthermore they showed more external locus of control then the other group of parents (t = 2.83, p<0.01) (see table.3). There were no significant differences in self-respect (t

= 0.88, p>0.05) and anxiety between the two groups of parents (t = 1.44, p>0.05).

Table 3 *- The differences in personal traits among two groups of parents*

	SN (N=81)		P (N=231)		t-test
	M	sd	M	sd	
COMP	52.80	10.38	57.38	8.97	3.80**
SE	16.76	8.60	13.71	8.28	2.83**
RSS	32.02	5.21	32.67	5.80	0.88
ANX	60.98	7.34	62.50	8.48	1.44

Legend:
COMP = competence
SE = locus of control
RSS = self-respect
ANX = anxiety
SN = parents of children with special needs
P = parents of typical peers

In order to check for differences in attitudes toward children between two groups of parents' semantic differential (Bujas, 1967) and Parent Questionnaire UR-1 (Mavrin-Cavor, 1981) were used. T- test indicated that parents of typical children showed more positive attitudes toward their children on UR-1 scale (t = 2.64, p<0.05, see Table 4).

Table 4 *- The differences on meas.instruments among two groups of parents*

	SN (N=23)		P (N=71)		t-test
	M	sd	M	sd	
BRP2	87.39	9.55	89.02	10.08	1.26
UR-1	115.86	20.55	108.94	20.17	2.64**
SD	118.68	10.09	117.16	9.33	0.93

Legend:
SN= parents of children with special needs
P= parents of typical peers

There was no significant difference in attitudes measured with SD scale (t = 0.93 p>0.05).

There was also no difference in parents' estimation of their children's behavior, on BRP-2, between those two groups of parents (t = 1.26, p>0.05).

Regression analyses showed that the battery for estimation of parental role can be predictor of parents' attitudes toward their children and it can also be predictor of parents' estimations of their children behavior (see Table 5).

Table 5 *- Results of regression analyses for all parents (N=312)*

	Dependent variable					
	BRP		SD		UR-1	
Independent variable	Beta	t	Beta	t	Beta	t
Competence	0.40	6.62**	0.15	2.22*	-0.32	5.88**
Locus of control	0.02	0.31	0.05	0.77	0.15	2.82**
Self-respect	-0.02	-0.28	0.11	1.46	-0.15	2.43**
Anxiety	0.2	0.87	0.12	1.42	-0.16	2.61**
R	0.50		0.29		0.62	
R2	0.25		0.08		0.38	
F	26.14**		6.93**		48.06**	

Personal traits, competence, locus of control, self-respect and anxiety contributed significantly to the prediction of attitudes toward children measured by UR-1 (R = 0.62, R^2 = 0.38, F = 48.06, p<0.01).

When the criterion are attitudes measured with SD, the competence account for a significant proportion of the variance (Beta = 0.15, t = 2.22, p<0.05) while locus of control is not individually correlated with dependent variable (Beta = 0.05, t = 0.77. p>0.05) as well as self -respect (Beta = 0.11, t = 1.46, p>0.05) and anxiety (Beta = 0.12, t= 1.42, p>0.05). Battery of personal traits could also be predictor of parent's estimations of children's behavior measured by BRP-2 (R = 0.50, R^2 = 0.25, F = 26.14, p<0.01) but competence is also the only statistically significant predictor (Beta = 0.40, t= 6.62, p<0.01).

As shown in Tables 6, 7, 8, and 9, results of ANOVA indicated that there are some significant differences in some personal traits and attitudes toward their children between parents of different levels of education. The parents of both groups of children who finished only elementary school had significantly worse attitudes toward their children than parents with higher level of education and also greater external locus of control. The parents of typical children with an elementary school education estimated themselves as less competent than parents with high school education. There was no significant difference in estimations of competence between groups of parents of

children with special needs in regards of their level of education.

Table 6 *- Descriptive statistics for the group of parents with children with SD on measurement instruments, depending of the level of education*

	M			SD		
	1 (n = 25)	2 (n = 44)	3 (n = 12)	1	2	3
UR-1	129.08	110.64	107.42	24.990	15.097	15.318
COMP	50.28	54.21	52.88	10.721	10.120	10.484
SE	20.36	16.50	10.25	7.312	8.458	8.092

Legend:
1 = elementary school
2 = high school
3 = college
COMP = competence
SE = external locus of control

Table 7 *- Results of ANOVA for the three groups of parents with children with SD, depending of the level of education*

	F	Scheffe test-Mean difference		
		1-2	1-3	2-3
UR-1	9.15**	18.44**	21.66**	3.23
COMP	1.146			
SE	6.416**	3.86	10.11*	6.23

Legend:
1 = elementary school
2 = high school
3 = college
COMP = competence
SE = external locus of control

Table 8 *- Descriptive statistics for the group of parents with typical children on measurement instruments, depending of the level of education*

	M			SD		
	1 (n = 13)	2 (n = 143)	3 (n = 75)	1	2	3
UR-1	127.02	109.09	105.50	26.146	19.709	18.398
COMP	51.30	58.38	56.53	9.867	8.462	9.376
SE	19.15	14.23	11.77	9.173	8.627	6.866

Legend:
1 = elementary school
2 = high school
3 = college
COMP = competence
SE = external locus of control

Table 9 *- Results of ANOVA for the three groups of parents with typical children, depending of the level of education*

	F	Scheffe test-Mean difference		
		1-2	1-3	2-3
UR-1	6.63**	17.92**	21.52**	3.60
COMP	4.34**	-7.08*	-5.23	1.85
SE	6.416**	3.86	10.11*	6.23

Legend:
1 = elementary school,
2 = high school,
3 = college,
COMP = competence,
SE = external locus of control

Discussion and conclusion

Since several authors (Lorsbach & Frymier, 1992; Blair & Scott, 2002) found correlation between learning disabilities and social and economic status, one of the questions in this study was to investigate this connection on the sample in Croatia. It was found that a group of parents of typical children had a higher level of education, better residence conditions, and a larger number of married parents. It is obvious that there is a strong need for further studies on this subject. Easing the connection between social and economic background and appearance of learning disabilities might improve the ways of preventing some possible negative outcomes for children and families.

The other aim of this study was to compare some of the personal traits in parents of children with special needs and parents of typical children. Parents of children with special needs reported that they had significantly more external locus of control and perceived themselves as significantly less competent for parental role. There were no significant differences in self-respect and anxiety between those two groups of parents, which are in accordance with a study conducted by Fulgosi-Masnjak et al. (1998). Regression analyses showed that parents who perceived themselves as less competent, with low self-respect, higher external locus of control and more anxiety showed more negative attitudes towards their children and estimation of their behavior. Since competence for parental role, locus of control, self-respect and anxiety contributed significantly to the prediction of attitudes toward children those results show the need for further emotional support to parents such as strengthening their self-esteem.

As stated before, the way in which one feels and thinks about herself or himself determines the level of her/his adjustment to the outer world or in other words to her/his child. A calm and secure family atmosphere is very important for healthy development particularly for children with special needs. These results proved the importance of strengthening parents through different support services and education. There

are such services available in Croatia but there should be more opportunities provided for families of children with special needs. Parents in Croatia need more education and information about the nature of their children with special needs, children upbringing, their legal rights and the ways of achieving them, different services…etc. There is no continuous and sufficient way of informing parents of children with special needs about the issues related to them. They are struggling on their own to get information and help and stated that they often feel lonely and lost. That might be one of the reasons why they feel insecure in their parental role. In the last decade some parents NGOs were founded in Croatia. Besides non-governmental sector there is a need in Croatia on more services available to parents of children with special needs.

In order to check if there is a difference in attitudes toward children between two groups of parents' two measures of attitudes were used. On one scale of attitude (UR-1) there was significant difference in parents' attitudes towards their children. The difference was in favor of parents of typical children. This was in accordance with an earlier study in Croatia (Mavrin-Cavor, 1981; Igrić, Bezuk, & Morović, 1994).

There was no difference on the other attitude scale (SD). The possible reason for this result is that the two instruments probably measured different aspects of attitude. There was also no difference in parents' estimation of their children's behavior on BRP-2. These findings were inconsistent with the earlier study in Croatia conducted by Žic (2001). In this Žic's study there was a difference in favor of parents of typical children or in other words they showed more positive estimations towards their children than parents of children with special needs.

There are some significant differences in some personal traits and attitudes toward their children between parents of different levels of education. Parents' of both groups of children who finished only elementary school have significantly worse attitudes toward their children than parents with higher level of education and also greater external locus of control. It is interesting to see that 31% of parents of children with special needs had the lowest level of education, only elementary school. Parents of typical children with an elementary school education estimated themselves as less competent than parents with a high school education. There was no significant difference in perceiving their own competency between parents of children with special needs who were more educated and those who achieved lower levels of education. It could be assumed that the general feeling of low competency in parents of children with special needs is connected more to the nature and existence of disabilities in their children than to the level of their education. These results show the need for providing additional education to parents with the goal to help them understand the special needs of their children, develop more positive attitudes towards them and feel more competent in their parental role.

References

Abrams, J., Kaslow, F., W. (1976). Learning disability and family dynamics: A mutual interaction, Journal of Clinical Child Psychology, 5, 35-39.

Berman, A. (1979). Parenting learning -disabled children, Journal of Clinical Child Psychology, 8, 245-249.

Bezinović, P. (1988). The Battery for Perceived Competence for Parent Role: Self-perception of personal competence as validation of self. Unpublished Doctoral Dissertation. Croatia: Faculty of Philosophy, University of Zagreb.

Blair, C., Scott, K., G. (2002). Proportion of LD Placements Associated with Low Socioeconomic Status: Evidence for a Gradient?, Journal of Special Education, 36(1), 14-23.

Bujas, Z. (1967). Graphic form of Osgood's Semantic Differential. Acta lnstituti Psychologici Universitatis Zagrabienses; 50, 5-12.

Brown, L. Hammill, D. D. (1990). The Behavior Rating Profile BRP-2: Examiners Manual (2nd ed.) Austin, TX: Pro-ed. Adaptation by Žic, A. (2001).

Darch, C., Miao, Y., Shippen, P. (2004.). A Model for involving parents of children with learning and behavioral problems in the schools, Preventing School failure, Spring, 48 (3), in Database: Academic Search Premier.

Dyson, L. L. (1996). The experiences of families of children with learning disabilities: parental stress, family functioning and sibling self-concept. Journal of Learning Disabilities, 29, 281-288.

Fulgosi-Masnjak, R., Gustović-Ercegovac, A., Igrić,Lj. (1998). The relation of some dimension of perceived competency and permanent stress of low intensity in parents of children with delayed cognitive development. Review of Rehabilitation Research, 34(1), 47-60.

Gustović-Ercegovac, A. (1992). Review of the Scale of Perceived Competence for Parental Role, Defektologija 28, supplement 2, 51-57.

Igrić, Lj., Bezuk, J., Morović, J.(1994). Some effects of working with family of children with special needs, Our Family today Proceedings, Congress Our family today, Opatija, Croatia.

Igrić, Lj., Kiš-Glavaš, L., Sekušak-Galešev, S. (1999). Attitudes of teachers with respect of their perceived competence towards the integration of students with learning difficulties, Mental Health in Mental Retardation Proceedings, Second European Congress, Brunel University, Uxbridge, London.

Kaslow, F., W., Cooper, B. (1978). Family therapy with the learning disabled child and his/her family, Journal of Marriage and Family Counselling, 41-49.

Comparison of Learning Disabled and Nondisabled Students on five At-Risk Factors, Learning Disabilities Research and Practice, 7(3), 137-141.

Lorsbach, T., C., Frymier, J. (1992). A Comparison of Learning Disabled and Nondisabled Students on five At-Risk Factors, Learning Disabilities Research and Practice, 7(3), 137-141.

Mavrin-Cavor, Lj. (1981). Comparative analysis of parental attitudes toward pupils with mental retardation and typical children, Unpublished Doctoral Dissertation, The Faculty of Special Education and Rehabilitation, University of Zagreb.

Mehan, H., Hertweck, A., Meihls, J.L. (1986). Handicapping the handicapped, Stanford, Stanford University Press.

O'Hara, D.,M.,Levy, J.,M.(1984). Family adaptation to learning disability: A framework for understanding and treatment, Learning Disabilities, 3(6), 63-77.

Munichin, P. (1985). Families and individual development: provocation from the field of family therapy. Child development, 56, 289-302.

Osgood, C., E., Suci, G.J. & Tannenbaum, P.H. (1959). The measurement of meaning, University Illinois Press, Michigan.

Pfeiffer, S.I., Gerber, P.J.& Reiff, H.B. (1985). Family-oriented intervention with the learning disabled child. Journal of reading, writing, and learning disabilities International, 1 (4), 63-69.

Žic, A., (2001). Personal and social adaptation of children with delayed cognitive development in ecological system: family-school- peers, Unpublished Doctoral Dissertation, The Faculty of Special Education and Rehabilitation, University of Zagreb.

Žic, A., Igrić, Lj. (2001). Self-assessment of relationships with peers in children with intellectual disability, Journal of Intellectual disability Research, 45, 202- 211.

Woolfson, L. (2004). Family well-being and disabled children: A psychosocial model of disability related child behavior problems, British Journal of Health Psychology, 9, 1-13.

Teaching Mental Abacus Calculation to Students with Mental Retardation

Hong Shen, Ph.D.
Department of Counseling, Special Education, and Rehabilitation
California State University, Fresno
Fresno, CA USA
hshen@csufresno.edu

Abstract

The abacus is a calculating tool that has been used in Asia for thousands of years. Mental abacus calculation is a skill in which an abacus image in the mind is used without the actual physical manipulation of the abacus. Using this method, people can perform extremely rapid and accurate mental calculations. Research indicates that abacus training can help develop concepts of number, place value, operation sense, and mental computation. In this study, the effects of mental abacus training on the mathematics achievement of children with mild /moderate mental retardation were examined. Rather than being taught as an isolated subject, abacus operation and mental abacus calculation were imbedded into all aspects of a math curriculum. The broad domain of children's mathematical knowledge including number concepts, computational skills, application, and problem solving skills were investigated.

Computation and mental computation are basic skills in learning mathematics. In Asia, especially, in China and Japan, organized institutional efforts have been made to train children to do mental computation both in school and in extracurricular programs. The training revolves around a powerful piece of technology: the abacus. Persons skilled at abacus calculation are able to construct a mental image of an abacus. They are able to perform mental calculation by moving the "beads" on their mental abacus" as they would on a real one. Using this technique, people are capable of extremely rapid and accurate mental calculation (Miller & Stigler, 1991). Research indicates that abacus learning has a positive effect on children's learning. It can be used to develop number concepts, increase efficiency in mathematical calculations, enhance concentration skill, improve memory power, and boost self-confidence (Huang et al., 1994; Liu, Zhou, Yu, Sao, & Zhang, 1992; Sharma, 1995).

Instruction in mental abacus calculation can be divided into three stages: (a) through repeated practice the students perform calculations on a physical abacus until they become highly skilled, (b) students then perform operations by looking at an abacus without touching the beads, or using the abacus mentally, (c) finally, students draw an image of an abacus in their mind, and perform calculations on this "mental abacus" as if the beads were being moved. Students practice simple problems first, and then complex ones, until finally it is possible to do any problem with this mental image (Tang, 1993).

Figure 1 shows that a crossbar (center bar) divides the abacus into two parts. The upper part consists of one row of the five-value beads and the lower part consists of four rows of the one-value beads (Abacus Education Center, 1998). The columns towards the left always exhibit higher values than those towards the right. Which specific column of beads is defined as the "ones" is a matter of choice and convenience. The values of counting beads are determined by their positions. They obtain values when they are pushed towards the crossbar and lose them when pushed away from the bar. On the abacus, the zero is demonstrated by displaying no beads towards to the crossbar.

Despite the effectiveness of mental abacus training, there are some concerns expressed by educators: School children in most Asian countries receive abacus training as a subject separate from mathematics (Zhang, 1996). What counts are speed and accuracy. Application to problem solving has failed to become a part of abacus training. Another concern addresses the potential role the abacus plays in the computer age. It should be pointed out that abacus training by no means is intended to replace or downplay calculators and computers, nor do its proponents oppose the use of calculators or computers. In contrast, it is assumed that through abacus training, children are better prepared to learn to use those tools in that they have a better grasp of math concepts and are engaged in cognitive tasks in their learning process (Guo, 1994; Zhang, 1996).

The present study was intended to examine the effect of mental abacus training on the mathematics achievement of children with mild mental retardation. A mathematics curriculum designed for this purpose was employed the abacus as a tool to engage children in a series of cognitive activities in their mathematics learning. Rather being taught as an isolated subject, abacus operation and mental abacus calculation were imbedded into all aspects of the math curriculum. The broad domain of children's mathematical knowledge including number concepts, computational skills, application, and problem solving skills were investigated. The following three research questions are addressed in this study:

1. To what extent does a curriculum that includes mental abacus skill training increase basic knowledge of mathematics concepts in students with mental retardation?

2. To what extent does a curriculum that includes mental abacus skill training improve the computation abilities of students with mental retardation?

3. To what extent does a curriculum that includes mental abacus skill training improve the ability of students with mental retardation to apply math skills to real-life situations?

Method

Participants

The participants were 80 first grade students from four special education schools in an urban area of a large metropolitan city in China. These students had been diagnosed with mental retardation (IQ 54-78, M = 64.60, SD = 7.84) based on Wechsler Intelligence Scale for Children-Revised (Chinese Version) and were receiving special education and related services according to local standards in self-contained schools. Fifty-five participants were male (68.8%) and twenty-five were female (31.2%). Twenty-six percent of these students displayed other disabling conditions such as epilepsy, and cerebral palsy. The four participating public schools were located in the inner city, but fell within four different school districts.

Students at each school studied reading, mathematics, art and physical education. They received mathematics instruction on a daily basis (45 minutes a period, 5 days per week). Mathematics instruction was provided in self-contained classrooms with one teacher overseeing a class of 10 students. Subjects other than mathematics were taught by different teachers. Some students might have had prior exposure to the math teachers used in this study due to grade retention.

All recruited teachers were female with an average age of 34 years (ranging 29 to 41) and an average of 8 years of teaching experience (range 5 to 11). Teaching experience of students with disabilities was between three and eight years (M = 5.5). All participants were full-time special education teachers who had graduated from local institutes of education.

Materials

In this study, the experimental groups used a special mathematics curriculum that included preparation in using the mental abacus. This specialized curriculum consisted of the conventional curriculum with training in the use of mental abacus integrated throughout. The control groups used the same conventional mathematics curriculum without mental abacus training. Students in each group were given 5 lessons per week for 20 weeks. Each lesson lasted approximately 45 minutes.

Conventional Mathematics Curriculum. The conventional math curriculum was an existing curriculum that had been adopted and used by most school districts since 1993. The curriculum consisted of four units: Unit One--Recognition of numbers less than 9, and Addition and Subtraction less 9; Unit Two-Understanding 10s and 100, Addition and Subtraction of 10s; Unit Three: Recognition of numbers from 11 to 20; and Unit Four-Addition and Subtraction less 20 without regrouping. Within the scope of these four units, five major skill areas were included: readiness skills (classification, one-to-one correspondence, ordering or seriation, and conservation), number concepts (counting, concept of zero, place value, and ordinal numbers), computation (addition, subtraction and inequality), geometry (single dimension and multi-dimension), and measurement (length, weight, size and volume).

Curriculum that Included Mental Abacus Skill Training. The experimental curriculum retained all the mathematics content areas as listed above, and no changes were made to the sequence in which material was presented. However, the curriculum differed in four respects. First, it introduced the use of an abacus in the first chapter (Introduction), describing the structure of the abacus (i.e., the bead, rod and frame) and the fingering technique for operating the abacus. Second, abacus figures were used to illustrate Arabic numerals in all chapters. Each figure with beads in certain columns on an abacus represented a particular number. These figures assisted students in operating the abacus when performing calculations. Third, exercises designed for performing mental abacus calculations were provided in each lesson. Fourth, physical abacus operation and mental abacus calculation activities were incorporated into each lesson.

The conventional and experimental curricula were adapted for mathematics instruction for one semester (20 weeks). Instruction for both experimental and control groups was conducted according to the units contained within these two curricula. As the units differed in content, length and level of difficulty, the amount of instructional time spent on each unit varied (Unit One-- eight weeks, Unit Two-- five weeks, Unit Three-- two weeks, and Unit Four-- five weeks). However, precautions were taken to assure that each remained in a unit for the same amount of time.

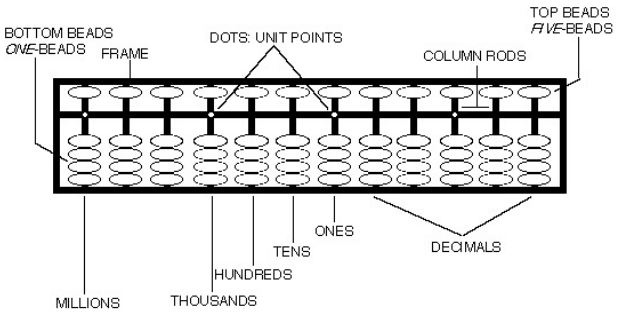
Assessment Instruments

Two curriculum-based assessment devices were developed to measure children's mathematical knowledge. The first was used as a pretest and posttest to measure students' gains of mathematical learning from this experiment. The second device--unit tests, which were administered at the completion of each unit of curriculum, were used to monitor student progress throughout the semester. All items on these two assessments were taken directly from the curriculum or were problems developed based on the curriculum.

In order to examine the effects of mental abacus training on students' ability to apply mathematics concepts and use computation skills in real world situations, an application mathematics subtest was developed. The fifteen items on this subtest were based on the skill areas presented in the curriculum. Simulated situations were created for in the following areas: setting a table at meal time, sorting laundry, counting fruit, money transactions during shopping, and time concepts. For example, in assessing students' ability to apply the concept of classification in sorting objects, a laundry basket with socks, shorts and shirts was

prepared. Students were required to sort clothes by color. In assessing computation skills, students were asked to locate grocery items, read price tags, calculate the cost, and use money to pay for their grocery items in a mock grocery store.

Figure 1. *Structure of An Abacus*



Procedures

Before beginning mathematics instruction, students were randomly assigned to the experimental or control groups at each school. The experimental group (n = 10) used a mathematics curriculum that included mental abacus training and the control group (n = 10) used a conventional mathematics curriculum without mental abacus skill training. The study therefore consisted of 4 experimental groups and 4 control groups with one experimental and one control group at each school.

Instruction for both groups was presented in a 20- week semester. The pre and posttests were administered by the researchers and unit tests were administered by the participating teachers. The pretests and posttests were administrated across three sessions in three consecutive days on the first and last week of the semester.

Teacher Training

The four mathematics teachers who taught the experimental groups attended a 3-day instructional program (15 hours of class instruction and 30 hours of home practice). The content included (a) format of lesson, (b) basic knowledge of abacus, (c) basic abacus computational skills (addition, subtraction, multiplication, and division), (d) methods of mental abacus calculation and (e) methods of abacus instruction. A master abacus teacher (a professor in Curriculum and Instruction), and a researcher conducted the training program.

The format for teaching a lesson focusing on mental abacus training was identical to the format using the conventional curriculum with exception of two changes. First, during presentation, an abacus was used in combination with other manipulatives (i.e., counting sticks, cubes, picture cards, paper and pencil, etc.) to explain number concepts and model for the students how to perform calculation or problem solving. Second, mental abacus training was added. As students with disabilities are a heterogeneous population with many different learning styles and preferences (e.g., auditory, visual, kinesthetic/tactile), the procedures of mental abacus calculation took advantage of these modality preferences to meet each student's needs.

The activities used in mental abacus training included:

1. Look at the beads of an abacus, and write down the equivalent Arabic numbers on the paper.

2. Look at numbers, and draw the corresponding beads on a picture of an abacus.

3. Look at the numbers, and visualize the corresponding beads in your head.

4. Listen to the teacher read aloud the numbers on the paper, and visualize the corresponding beads in your head.

5. Perform a calculation by operating an abacus physically, and describing the process aloud.

6. Perform a calculation by operating an abacus physically and thinking through the process.

7. Perform a calculation by operating an abacus mentally (moving fingers in the air), and describing the process aloud.

8. Perform a calculation by operating an abacus mentally, and thinking through the process.

9. Listen to the problem then (a) do the calculation by physically operating an abacus, (b) do the calculation by looking at a picture of an abacus, and (c) do the calculation using a mental abacus image.

10. Look at a mathematics problem then (a) do the calculation by physically operating the abacus, (b) do the calculation by looking at a picture of an abacus, and (c) do the calculation using a mental abacus image.

11. Listen to a mathematics problem then do mental abacus calculation.

12. Look at a problem then do mental abacus calculation.

While the above list includes a variety of activities that were used to teach students to perform mental abacus calculation, not every activity was used in each lesson. The selection of these activities and time spent on each activity in one lesson depended on the stages of learning in mental abacus calculation, the instructional goals or objectives of each lesson, and students' individual needs. For a given group of students, one or several of the activities were implemented in a single lesson. These activities are not hierarchical. However, with extended practice, the students' expertise in manipulating their mental abacus image was expected to increase.

Results

T-Tests were performed to determine whether there were statistically significant differences between the experimental groups and the control groups in readiness skills, number concepts and application skills (See Table 1 for comparisons means of the posttest and application test).

Discussion

The most important finding of the study was that the experimental group outperformed the control group in most skill areas. Overall, the results of this study indicate that the curriculum including mental abacus training enhances students' performance not only in computation skills, but also in understanding mathematics concepts and in the application of skills. This is evidenced by the fact that the overall mean score of the posttest ($M = 48.0$, $n = 39$) for the experimental group was almost 10 points higher than that of the control group ($M = 30.7$, $n = 39$). A significant difference existed between the two groups ($t = 9.08$, $p = < .01$), however, there were no significant differences across the four participating schools. The implication gleamed from this investigation indicates that mental abacus training, when fully imbedded into a mathematics curriculum paired with proper instruction, can provide students with mental retardation a more successful experience in learning mathematics. In the following section, the impact of mental abacus training on each skill assessed will be discussed along with implications for future investigation.

Readiness Skill

Results show that in general the performance of the experimental group was superior in readiness skills. The experimental group outscored the control group in classification, one-to-one correspondence and ordering, but not in conservation. Conservation means that the quantity of an object or the number of objects in a set remains constant regardless of spatial arrangement (Mercer and Mercer, 2004). In this study the familiar Piagetian experiment of pouring identical amounts of water into a tall, thin glass and a low, wide glass was used in the assessment. However, due to limited number of items, it is difficult to interpret the scores of subskills in relation to the practical importance.

Table 1 *- Results of T-Tests on Posttest Scores for Experimental and Control Groups*

Skill Area (Number of Test Items)	Experimental Group M	SD	Control Group M	SD	t
Readiness skill (4)	2.8	1.0	1.7	0.7	5.62*
Number concept (22)	11.4	3.6	7.1	2.3	6.25*
Measurement (2)	1.9	0.3	1.8	0.4	0.32
Geometry (2)	1.7	0.4	1.7	0.5	0.47
Computation (37)	23.6	5.4	14.2	3.6	9.05*
Application (15)	6.7	1.5	3.8	1.4	8.66*
Overall (82)	48.0	9.8	31.7	6.8	9.80*

Notes. N = 78.
*p < .01.

Number Concepts

The findings with regard to number concept understanding are probably the most salient feature of this study. Statistical analyses reveal significant differences between the experimental group and control group in number concepts ($t = 6.25$, $p < .01$). The experimental group excelled in all four subskills (i.e., counting, concept of zero, place value, and ordinal number) suggesting that mental abacus training facilitates mathematical concept understanding. This result is not surprising when learning how to count, students in the experimental group were taught in three steps: (a) counting concrete objects, (b) moving bead on the abacus, and (c) writing down a number. This is a concrete, semiconcrete and abstract process. Many authorities believe that the use of the concrete-semiconcrete-abstract sequence is an effective way to help students with learning problems understand math concepts, operations and applications. Although this concrete-semiconcrete-abstract sequence is advocated in mathematical learning, it rarely is used systematically during math instruction (Mercer & Mercer, 2004). For example, in the conventional method, the second step (semiconcrete) is often skipped. This step may cause difficulties for young children whose abstract thinking skills are still underdeveloped as it facilitates formation of number concepts in young children. The second instructional strategy (moving beads on the abacus) was important to bridge the gap between concrete and abstract. Operating an abacus in math instruction helps children to become aware that concrete objects can be represented by something semiconcrete before they finally begin to understand that all objects, regardless of their physical features, can be represented by numerals.

It should be noted that in teaching students in the control group to count, teachers used a variety of concrete objects. Researchers noticed that the teachers tended to use them frequently in the early stages of instruction. Teachers also used semiconcrete manipulatives such as tallies, dots, stars, blocks, and circles to explain number concepts during their instruction. However, teachers tended to use manipulatives less often or even stopped using them before their students fully mastered number concepts. Shama (1987) pointed out that many teachers have the tendency to progress quickly from the concrete to the abstract level. A teacher may provide a few concrete experiences related to a particular concept and then assume the child does not need additional concrete experience. In contrast, using an abacus has fewer of the aforementioned problems. Beads easily can be used to represent any concrete objects and numbers. In abacus or mental abacus instruction, teachers typically used a model abacus (80" x 20 ") in combination with other manipulatives such as counting sticks, cubes, picture cards, chalkboard to explain number concepts or walk through calculation procedures.

Computational Skills

The extent to which a curriculum that includes mental abacus skill training improves the computational abilities of students with mental retardation also was investigated in the study. Results show that the experimental group outperformed the control group in all four computational skills (i.e., addition, subtraction, combination of addition and subtraction, and inequality). These results suggest that having

mental abacus calculation fully embedded into the existing conventional math curriculum, it had a positive impact on computation. Results of this study are consistent with previous research in which mental abacus calculation was found to be a powerful technique in teaching students computational skills (Amaiwa & Hatano, 1989; Ayako, 1995; Du & Shi, 1996; Hatano & Osawa, 1983; Hishitani, 1990; Huang et al., 1994; Tang, 1996; Yu & Lu, 1996).

Application

The final research question examined the extent to which a curriculum that included mental abacus skill training improves the ability of students with mental retardation to apply math skills to real-life situations. Result shows that there was a significant difference in application skills between the experimental and control groups. However, further analysis reveals that of the four subskills of application, three subskills (i.e., readiness skills, whole number concepts, and money transaction) were statistically significant while the skill of time concept was not. It should be noted that the application skills assessed in this study were not exhaustive. Also these skills were not assessed in application to an actual rather than contrived situation. Regardless of these issues, results again focus on whether mental abacus calculation is domain-specific or domain-general. That is, whether mental abacus is limited to calculation itself or can be transferable to other skill areas. Analysis of the data reveals that number concept understanding, computational and application skills are related. For example, within the experimental group, scores on basic number concepts were found to be positively correlated with their computation scores ($r = .61$), and basic number concept scores ($r = .59$) and computation scores correlated with their application scores ($r = .69$).

Observations from Informal Interviews with Teachers and Parents

A post hoc analysis of informal interviews were also conducted. It should be pointed out that in this experiment, speed of computation was not emphasized and the time devoted to mental abacus training in a lesson was very limited (less than 20 minutes in each period). Competitions for speed were not encouraged in the experimental group and the teachers were not required to report speed of mental calculation of the students. Teachers and parents of children in the experimental group were told that the intent of this study was to develop overall mathematics abilities rather than computational ability alone. However, many parents of the students in the experimental group were curious about the results of mental abacus calculation and became enthusiastic when they learned that their children were able to do simple calculations with speed and accuracy. One parent reported that she had never expected that her son would be able to count from 1 to 20 and then count backwards from 20 to 1 since he had great difficulties in learning math and had repeated first grade twice. Another parent said: "I couldn't believe my eyes when I saw my son could do addition with three numbers in two seconds without using a calculator. I myself can't do that ". Some parents even requested auditing their child's math class to learn how to do mental abacus calculation.

It was also found from observations that both the teachers and the students in the experimental group enjoyed using abaci. Operating an abacus was considered to be fun, more like a toy than a computational instrument. Although no formal data were collected to corroborate this claim, the teachers noted that using abaci minimized much of the reticence associated with other manipulatives such as tallies, stars, sticks or blocks. When asked why they liked using an abacus, most teachers responded that it was easy to handle compared to other manipulatives, and effective for explaining number concepts and demonstrating the steps needed to perform a calculation.

Although self-confidence was not directly assessed, researchers found that students in the experimental group had a tendency to attempt problems even though they were unsure about an answer, whereas students in the control group

often gave up without trying. Teachers in the experimental group reported that they did not need to spend much effort motivating their students to learn math because when students realized that they had correct answers over and over again they became self-motivated.

Future Research

The present study has great significance for the current math curriculum reform movement in China. Results indicate that the value of abacus training extends beyond the limits of computation. When abacus training is incorporated as an essential part of the curriculum, it facilitates mathematics learning on a broader scale. It can be used to develop number concepts, increase efficiency in mathematical calculations, and improve the ability of applying mathematical skills to real-life situations. Although this study demonstrated some positive effects of mental abacus training on learning mathematics, it represents preliminary investigation into this area, particularly in relation to students with disabilities. Several issues are worthy of further exploration.

First, further investigation is needed to investigate how mental calculation affects domains of mathematics learning beyond computation. Positive effects for some area such as number concepts and application, expansion and validation of these results are needed. Further research should clarify the mechanisms underlying the functional relationship between mental abacus calculation and other domains of mathematics learning.

Second, additional research is needed on how the abacus mental abacus training might be applied to curricula in other countries. Although abacus training has been considered a culturally unique experience for children in China and Japan (Stigler et al., 1986), the benefits could be realized by children with a range of backgrounds. Results of a comparison of the skills in the curriculum employed in this study with a typical American curriculum for the first graders showed a significant overlap. Differences existed predominantly in terms of presentation. American mathematics textbooks differed in that they typically are larger in size with larger fonts and more color illustrations. Metallo (1988) pointed out: "Using the abacus enhances the learning situation. The students not only see math concepts concretely, they also see the development and the study of math in another country, thus developing necessary skills and broadening their intercultural awareness" (p.12).

Since the present study indicates that students with mental retardation can be taught to perform mental abacus calculation, research also should be conducted to investigate the effects of mental abacus training on students with other types of disabilities. It is reported that mental abacus calculation has been taught with success to students with hearing impairments (Abacus Research Team of Chong Ming County, 1996). Research into the effects of mental abacus calculation on the visually impaired is being conducted at the Shanghai School for the Blind (Gao, 2002) using a specially designed abacus adapted for the visually impaired. Preliminary data show positive effects. Future research also could investigate the effects of mental abacus training on memory and attention skills of children with learning disabilities or attention deficit disorders.

Although this study demonstrates some of the considerable potential of abacus operation and mental abacus instruction to improve mathematical skills for students with mental retardation, difficulties were observed in learning abacus calculation. One problem with mental abacus instruction is the cognitive aspect of the skill. Since students internally visualize the abacus image, teachers are not able to monitor the process of visualization during calculation. For this reason, verbalization was frequently used. After teacher modeling, students were required to describe aloud each step taken then repeat the procedure in their internalized language. The teachers involved in the mental abacus instruction reported this was an effective measure. This finding is consistent with previous research in which internalized language was used as a type of self-instruction procedure for mathematics. Lovitt and Curtis

(1968) found that when students verbalize the answer before writing it, they make fewer computational errors. Parsons (1972) reported that when verbalizations are added to the arithmetic process, either by naming the sign before proceeding or verbalizing the steps in the arithmetic process while solving the problem, there was a significant improvement in performance. Additional research into the effects of verbalizations is needed.

In addition, students with mental retardation exhibit cognitive delays and many have memory problems. These students need to over learn skills before they can master a particular skill. This study demonstrates that a curriculum including mental abacus training offers significant potential for the development of math skills for students with mental retardation. However, the extent to which mental abacus training needs to be included in the curriculum and the effects overtime should be further investigated. Mental abacus training is an extended practice. As described above, it takes usually three years for a student to master mental abacus calculation. Longitudinal studies need to be designed to understand the long term benefits of abacus training.

Finally, students with mental retardation tend to have poor motor abilities (i.e., poor coordination and spatial problems) as evidenced by their difficulties in moving beads to the correct positions and reading numbers represented by beads on an abacus. Future studies need to explore ways to adapt instructional materials and instruction itself. One possible strategy is to use an enlarged abacus (20" x 8"). The abacus used in the present study, though portable (8" x 3"), was too small for those who had fine-motor problems. Another proposed solution is to design an abacus with beads of different color and shape. Some teachers involved in this study suggested including a warm-up activity at the beginning of each lesson. The warm-up activity used for years in traditional abacus instruction requires the learner to add numbers cumulatively one to one hundred (1 + 2 +3 + 4 + 5…100) to a sum of 5050, and subtract in the same manner. In addition, Zhang (1996) designed a finger exercise (using thumb, index finger and middle finger to move beads upward and downward on an abacus repeatedly) for students who have perceptual and motor problems in learning to operate an abacus. These exercises may prove effective for these students.

Limitations of Study

This study was an initial attempt to investigate the effects of mental abacus calculation when it was imbedded into all aspects of a curriculum for first graders with mental retardation. The study was conducted in China therefore validity may be restricted to this population in the same country. An additional issue deserving further consideration relates to the self-confidence of the students in the experimental groups. In this study the effect of mental abacus training on students' self-confidence was not investigated. However, teachers suggested that students' self-confidence on mathematics performance was boosted by mental abacus calculation. It was suggested that students in the experimental group may have spent more time doing math homework than those on the control group. This was a confounding variable in this study. Though the instructional time for the experimental and control groups were strictly controlled and the teachers was instructed to assign less than 30 minutes of math homework per day, it was not possible to control the time students spent on their homework. It was found that the students liked to demonstrate their calculation skills when they had positive experiences in learning mathematics.

Conclusion

Overall, the results of this study support the contention that mental abacus calculation skill training has positive effects on students' learning. It can be used to develop number concepts, increase efficiency in mathematical calculations, and improve students' ability to apply mathematical skills to real-life situations. Imbedding abacus operation and mental abacus training into all aspects of a math curriculum is

an innovative strategy in the current math curriculum reform. Abacus calculation permits children to find different ways to perform arithmetic and can meet the needs of students with special disabilities (Richards, 1994). Using the abacus as an instructional manipulative to teach students with disabilities can provide a successful experience in learning mathematics.

The implications of these preliminary findings to mathematics education for students with disabilities in China could be quite significant, but additional research is needed for validation. Implications also can be made to mathematics education at schools in other countries. Even in this age of technological advances, a tool such as the abacus can make important contributions to mathematics education.

References

Abacus Education Center (1998). History of abacus. Retrieved in December 12, 1998 form the World Wide Web: http://www.soroban.com.

Abacus Research Team of Chong Ming Country (1996). Abacus calculation has entered the world of Silence. In Shanghai abacus Association (Ed.). *Future of the abacus* (pp. 127-32). Shanghai, China: Shanghai Abacus Association.

Amaiwa, S., & Hatano (1989). Transfer of subtraction procedures from abacus to paper and pencil computation. *Japanese Journal of Educational Psychology, 35,* 41-48.

Ayako, K. (1995). Digit and shape memory function in soroban learners: Are soroban learners superior in general? *Perceptual and Motor Skills, 81,* 75-80.

Du, Q., & Shi, Z. (1996). Teaching kindergartners mental abacus calculation. In Shanghai Abacus Association (Eds.), *Future of the abacus* (pp. 108-115). Shanghai, China: Shanghai Abacus Association.

Gao, M. (2002). Research on mental abacus calculation. *Journal of Educational Psychology, 5,* 95-110

Guo, Q. (1994). *Zhu-mathematics: theory and practice.* Hunan, China: Mid-South University Publishing Co.

Hatano, G., & Osawa, K. (1983). Digit memory of grand experts in abacus-derived mental calculation. *Cognition, 5,* 95-110.

Hishitani, S. (1990). Imagery experts: How do expert abacus operators process imagery? *Applied Cognitive Psychology, 4,* 47-59.

Huang, J., Hsu, L & Wei, W. (1994). *Changing intelligence.* Paper presented at the International Symposium on Abacus Theory. Huang Shan, China.

Lovitt, T. C., & Curtis, K. A. (1968). Effects of manipulating antecedent events on mathematics response rate. *Journal of Learning Disabilities, 12,* 420- 422.

Liu, L. Zhou, G., Yu, Y., Sao, W., & Zhang, G. (1992). Theoretical verification of the effects of mental abacus calculation instruction. *Education Research, 3,* 16-27.

Mercer, D., & Mercer, C. (2004). *Teaching students with learning problems* (4 th ed.), New York: Merrill.

Metallo, F. R. (1988). The Japanese soroban: A tool that enhances instruction through concrete learning. *Math notebook.* (ERIC Documentation Reproduction Service No. ED 395776).

Miller, K., & Stigler, J. (1991). Meanings of skill: Effects of abacus expertise on number representation. *Cognition and Instruction, 8,* 29-67.

Parsons, J. A. (1972). The reciprocal modification of arithmetic behavior and program development. In G. Semb (Ed.), *Behavior analysis and education.* Lawrence, KS: University of Kansas, Department of Human Development.

Richards, L. (1994). *The Value of abacus.* Paper presented at the International Symposium on Abacus Theory. Huang Shan, China.

Sharma, M. (1987). How to take a child from concrete to abstract. *Math notebook.* ERIC Documentation Reproduction Service No. ED 342600.

Sharma, Y. (1995). Rediscovering the abacus. *World Press Review, 42,* 42.

Stigler, J. W., Chalip, L., & Miller, K. F. (1986). Consequences of skill: Abacus training in Taiwan. American Journal of Education, 94, 447-479.

Tang, D. (1993). *A survey of doing sums on a mental abacus.* Paper presented at the China-Japan-U.S. Seminar on Mathematical Education. (ED 395776).

Yu, G., & Lu, P. (1996). Introducing mental calculation to the classroom. In Shanghai Abacus Association (Eds.), *Future of the abacus* (pp. 94-101). Shanghai, China: Shanghai Abacus Association.

Zhang, D. (1996). History and future of the abacus. In Shanghai abacus Association (Ed.). *Future of the abacus* (pp. 20-28). Shanghai, China: Shanghai Abacus Association.

A Snapshot of Teacher Perceptions on Full Inclusion in an International Urban Community: Miami-Dade County, Florida

Dr. Beryl Watnick
Director, Florida Master of Education Program
Union Institute & University
North Miami Beach, Florida
beryl.watnick@tui.edu

Dr. Arlene Sacks
Director, Florida Graduate Programs
Union Institute & University
North Miami Beach, Florida
arlene.sacks@tui.edu

Abstract

Miami Dade County Public Schools serves an international community with the highest poverty rate of any large U.S. city as well as the highest percentage of immigrants calling it "home" of any large city throughout the world. This article examines: (a) how Miami-Dade County Public Schools (M-DCPS), the fifth largest school district in the United States, is implementing a full inclusion policy while concurrently challenged to absorb an influx of non-English speaking students from diverse educational backgrounds, and (b) through a pilot study, teacher's perceptions regarding current inclusion practices and the effects of such programs and practices on special education students and students who are identified as English language learners (ELL).

Inclusion – A Hotly Debated Topic

Inclusion is hotly debated and is fast becoming the new educational wave in service delivery for special education students in Miami-Dade County, Florida. The intention of inclusive practice is the modification of the classroom environment so that all students receive maximum educational services. Advocates profess that a successful inclusive service delivery model exposes special education students to age-appropriate curricula as well as provides more natural social interaction with general education peers. Inclusion not only provides special education students with positive peer role models, but also helps these students make gains in language development, appropriate behavior, as well as building self-esteem (Staub, Schwartz, Galluci, & Peck 1994; Helmstetter, Peck, & Giangreco, 1994; National Association of School Psychologist, 2002). It is also believed that inclusion contributes to the creation of a more caring school community within the general education population. Rice (2003) emphasizes the importance of learning and growing together. "Today's students will someday have a say in social policies that profoundly influence the lives of individuals with those differences called disabilities. It is not unreasonable to expect that in the long run inclusive classrooms will foster a greater willingness to support 'disability friendly' policies" (p. 460).

Others view the practice of inclusion less favorably. Several researchers have conducted studies that explored the academic achievement of students with disabilities in a variety of inclusive settings. The findings from these studies found that inclusion programs meet the educational needs of only some special education students. These researchers found nonsignificant differences on measures of academic achievement for these students (Salend & Garrick-Duhaney, 1999; Waldron &

McLesky, 1998). Zigmond, Jenkins, Fuchs, Deno, Fuchs, Baker, Jenkins, & Couthino (1995) studied the effectiveness of three different classroom inclusion models and found that after one year, achievement outcomes for learning disabled students were not satisfactory. There appears to be viable research on both sides of the inclusion debate.

Putting Inclusion into Practice in the "Real World" of the International Community of Miami-Dade County

While the idealized concept of inclusive schools seems to mirror the fundamental democratic principles of the United States, putting inclusion into successful practice poses a significant challenge to school districts that are already overburdened by overcrowding, language barriers, under achievement of students, and limited resources. This is particularly true in the case of Miami-Dade County Public Schools (M-DCPS), the fifth largest school system in the country. In order to understand the challenges posed to this public school district, one needs to understand the nature of the municipality of Miami and the larger county of Miami-Dade. Miami is considered to be "The Gateway to Latin America" because of its highly diverse and international profile. It is a hub for international commerce and serves as home base to many foreign businesses. City Manager Carlos Gimenez was quoted in the Miami Herald as saying "This is a city of extremes. You have rich and very rich and you have a lot of poor people. What we don't have is the middle class" (as cited in Grotto & Yardley, 2001).

The U.S. Census (2000) has identified the city of Miami as having one of the highest poverty rates of any large city in the U.S. Nearly one-third of the city's population lives in poverty. As a whole, the county of Miami-Dade has a poverty rate of 20 % and ranks 16th among large counties. "The city of Miami has the highest percentage of immigrants calling it home of any large city worldwide" (Pinzur, 2004, p. 2B). The city's immigrant population makes up 60% of the total population as of 2003 and the most recent U.S. Census estimates that 50,000 people enter Miami-Dade County from other countries annually (U.S. Census, 2000).

Miami-Dade County Public Schools – The Fifth Largest School System in the U.S

M-DCPS is a countywide school system. As one of the nation's largest school systems, M-DCPS served 369,578 students from 348 school sites, grades prekindergarten through 12, during the 2003-2004 school calendar years. A total of 64,419 students were served in special education programs for 2003-2004. According to the demographics for M-DCPS, the student population profile is as follows:

White Non-Hispanic – 37,532
Black Non-Hispanic – 106,182
Hispanic – 217,480
Other (includes American Indian, Asian, and Multiracial) – 8,384

The primary ten languages (other than English) that are used by the students include:

Spanish – 198,113
Haitian Creole – 20,986
French – 2,446
Portuguese - 1,615
Zhongwen (Chinese) – 758
Arabic – 495
Urdu – 479
Russian – 437
Hebrew – 231
Polish – 187

As immigrant parents and students struggle to acculturate themselves to their new community and schools, educators are charged with the responsibility of helping them transition into a climate of high stakes testing. The State of Florida's standardized testing accountability system assigns letter grades of A through F to each school based on the proportion of its students passing the Florida Comprehensive Assessment Test. Thirty-nine Miami-Dade schools have been given the grade of "F" because of consistently poor academic performance for three consecutive years (Pinzur, 2004). Abedi (2001) reported that state test

results indicate that English language learners consistently perform lower than many other subgroups on standardized assessments. Newly emigrated students not only have to learn the language of their adopted country, but they must also master the subject matter. To compound issues of school adjustment and student achievement, non-school factors, such as parent's educational level and socioeconomic status, can outweigh school factors in their impact on student achievement. Teachers and administrators have become vocal in attributing these factors to the decline in the school climate. With pressure coming from Washington, D.C., parent advocates, and the Florida Inclusion Network (FIN), the practice of inclusion is being added to the "mix".

"All Students All Schools" – Miami Dade County Public Schools Full Inclusion Programs

Inclusion is relatively new to the county school system. Individual schools that wish to participate in the "All Students All Schools" inclusion program, complete grant applications funded through the Individual with Disabilities Act (IDEA). Each grant must identify a project leader to ensure that all of the grant funds are expended responsibly within the grant cycle. The grant awards are contingent upon school personnel participating in the required training. Grant target areas include: (a) increasing the percentage of students with disabilities who spend 80% or more of their school day in the general education classroom; (b) utilization of research based effective practices; (c) demonstration of collaborative activities; and (d) curricular, instructional, and assessment adaptations that promote achievement. Each grant must also identify measurable outcomes which can include passing grades for participating students. Identification of participating students and teachers and a process for evaluation procedures must also be incorporated into the grant proposal. Evaluation procedures may include attendance and/or completion of class work and homework assignments.

As of the start of the 2004-2005 school year, approximately 75% of the Miami-Dade County schools implemented inclusive educational practices. Over 185 school teams were trained in the spring of 2004 for implementation of inclusion and more teams continue to be trained. An initial two day training program, with an emphasis on the team teaching approach, began being practiced countywide. Initial training has been composed of an examination of the philosophy, laws, and practical issues relating to implementation. During this two day workshop, teachers also reflect upon their own teaching methods and create an action plan for program implementation. Each team is afforded the opportunity to develop a student-by-student plan so that they can conceptualize the scope of their responsibilities for each individual student in their classroom. Steering committees are also formed to ensure that each school site gets critical support throughout the school year. M-DCPS is divided into six regions and each region houses a coordinator who provides additional monitoring, especially when special cases arise. A follow-up workshop is designed to further support team building and focus on any unresolved team issues.

M-DCPS utilizes three models for the practice of inclusion in its schools: the external support model, in class (internal) support model, and the specialized support model. The external support model provides accommodations to the special education population but does not provide direct services to the students with special needs. Children are monitored and there is ongoing teacher-to-teacher consultation. The in class (internal) support model is a co-teaching model. This collaborative teaching model is structured around a team that consists of one general education teacher and one special education teacher working together (co-teaching) and servicing an inclusive class to be made up of two-thirds general education students and one-third special education students. Each teaching partner is expected to deliver academics to all the students in the class so that no child is singled out and identified as needing special services. Teachers are expected

to plan and assess learning in a collaborative manner. The third model is the specialized support model. This model establishes a resource room where students can receive specialized services after being "pulled out" from their general education classroom.

Method

The authors conducted a pilot study that examined the inclusive practices of selected elementary, middle, and high schools in the Miami-Dade School District. While the schools chosen for this pilot were randomly selected, the respondents were known to the researchers. Thirty-five questionnaires were mailed out and 15 were completed and returned. Staff and administrators from nine elementary schools, three middle schools, and three high schools responded to the survey. Of the 15 returned questionnaires, seven were completed by general education teachers, six were completed by special education teachers, and two were completed by administrators.

Instrumentation

All respondents were administered an open ended questionnaire that was designed to determine whether inclusion was being implemented at specific school sites and what models for inclusive practice were being utilized. In addition, the survey explored the process for teacher selection for inclusive teaching assignments and teacher attitudes regarding full inclusion. The following questions were asked of survey participants:

1. Do you have an inclusion model within your school?
2. What does your inclusion model look like?
3. How does your inclusion model accommodate ELL students in inclusive classes? Do their services for their language change as a result of placement in an inclusive class?
4. How are teachers selected for teaching inclusive classrooms of children?
5. Do you personally believe that inclusion will produce positive outcomes for our children here in Miami?

The surveys were mailed to each school site with a cover letter asking the respondent to identify the school location. No other identifying information was requested.

The classifications of exceptionalities referred to within this document are those utilized within the State of Florida. For the purposes of clarification, the student identified as being Educable Mentally Handicapped (EMH) is one who is mildly impaired in intellectual and adaptive behavior and whose development indicates a reduced rate of learning. The measured intelligence generally falls between two and three standard deviations below the mean and assessed adaptive behavior falls below that of other students of the same socio-cultural group and age. An Emotional Handicap (EH) is defined as a condition resulting in persistent and consistent maladaptive behavior, which exists to a marked degree and interferes with the learning process of the student. A Severe Emotional Disturbance (SED) is an emotional handicap, the severity of which results in the need for a full time program and additional support services.

Results

Of the total number of 15 surveys returned, 13 schools confirmed that some form of inclusion is being practiced at their specific site. Although each model establishes a framework for program delivery, there appears to be great flexibility within each school's interpretation and implementation. Eleven of the schools are utilizing the co-teach/internal support model and the unique profile of each school defines the design of the school's program. There is variation in the size of each inclusion class as well as variation within the student population itself. Classes range in size from 19 students to 38 students and the ratio of participating students who are identified falling within a special education category can be from approximately 10% to 33% of the total inclusive class population. The composition of each

inclusion class varies between school sites as well. Completed surveys reported that varying exceptionalities are selected to participate in the full inclusion program at each school. Children enrolled in inclusion classrooms have been identified with Specific Learning Disabilities (SLD), Attention Deficit Hyperactivity Disorder (ADHD), Physical Impairment (PI), Hearing Impairment (HI) or Speech Impairment (SI). Those students identified as Educable Mentally Handicapped (EMH) or Emotionally Handicapped (EH) are also involved in their school's inclusion program. One school has placed students with Severe Emotional Disturbances (SED) in an inclusion classroom. English language learners (ELL) have been integrated into all of the inclusion programs surveyed. The two remaining school programs implement the specialized support model by placing students who are served through the special education program in the general education class for part of the school day and pulling them out for individualized instruction.

The internal support model, or co-teaching model, appears to be the model of choice for those schools surveyed. Administrators and teachers view collaborative teaching as a viable way to meet the needs of all their students when placed in one classroom setting. While the school district has established models for the practice of inclusion in its schools, it is clear that individual school sites establish their programs with their specific population in mind. Therefore, even though several schools might utilize the co-teach model, one school's inclusion program might be quite different than another school's program.

This survey also explored the impact of full inclusion on Miami's English language learners. It must be noted that M-DCPS requires that all teachers who have ELL children in their classroom have English for Speakers of Other Languages (ESOL) training and the school district provides their teachers with this continuing education in order to meet this mandate. However, students identified as requiring intensive language support, receive additional services. While some of the responding schools maintained a traditional pull out model for children requiring ESOL services, several schools reported seeing the benefits of servicing both ELL and special education/ELL students within the inclusive classroom.

Five of the responding schools reported that services seem to be improving because students are now being serviced by two teachers in one classroom. Special education/ELL students participating in inclusion seem to be benefiting because there is increased interaction and socialization with the general education population. The general education students are working collaboratively with their special education, special education/ELL, and ELL classmates. This provides for more opportunities to expand upon social and English language speaking skills.

Additionally, based on the respondents, accommodating the ELL students (whether they are ELL general education or special education/ELL students) is much easier in the inclusive classroom. Many of the strategies and accommodations used for special education students are considered good practice. It must be noted that teachers who work with children who are identified as English language learners must be trained in ESOL strategies. As these strategies and techniques mirror those utilized within special education, this can also be advantageous for those children placed in inclusive classrooms. Students seem to be benefiting from the use of a variety of accommodations and modifications that include reinforcement through repetition and additional time on task. All of the remaining reporting schools stated that services for their ELL population have remained the same with students being pulled out for language instruction.

Teacher attitudes and desire to participate play a key role in the effective implementation of a full inclusion program. Five schools had teachers come forward and volunteer for the opportunity to teach in an inclusive classroom. Several schools reported that teachers were selected for the assignment by administrators or teams of grade level teachers. Personality,

classroom management abilities, class schedules and the ability to work collaboratively were the criteria considered.

Teachers' responses regarding the positive attributes of a full inclusion program on children were evenly distributed. The reasoning behind the responses was fairly consistent. Many of the respondents who looked favorably upon the implementation of full inclusion stated that special education students taught in a "pure grade" classroom work very hard to "fit in" with their general education peers and teachers are finding that children placed in inclusive settings become more tolerant of each other. The more heterogeneous the environment, the greater the range of academic and social experiences. It was also noted that special education and ELL students have shown marked accomplishments within these specific classrooms. One respondent reported that the gains for the special education students were higher than those for the general education students participating in this school's inclusion program. The lack of fragmentation in the schedule for children receiving special education services seems to be a contributing factor within this specific school community. From a teaching perspective, the respondents spoke of the benefits of learning to teach to all learning styles and the improvement of teaching practice. The common thread throughout this group is the belief that full inclusion will produce positive outcomes when there is a "good fit" between students and teachers. Special education students selected for a fully inclusive classroom need to be higher functioning in order for all students to benefit.

The single respondent who did not perceive full inclusion favorably cited the lack of adequate personnel to support a viable co teaching model. At this specific school site, the total enrollment is 1300-1400 students with a substantial number of those students identified as Learning Disabled. The respondent stated that teachers would resent an added burden of managing yet another program. It was this individual's opinion that special education students are better served in a pull out program supported by specially trained teachers.

Those respondents who viewed full inclusion with mixed opinions were unanimous in their concerns. The thoughtful identification of participating students was a determining factor in program success. There was agreement that certain exceptionalities, such as children identified as Emotionally Handicapped, need smaller class sizes and teachers with highly specialized training. Additionally, the importance of teacher, student, administration, and community "buy-in" was also identified as a key element to any successful inclusion program.

Summary and Conclusions

Survey responses would indicate that inclusive education is the direction for Miami-Dade County Public Schools. In face of the multidimensional challenges that accompany living in an international city, the public school system is moving forward in its efforts to institutionalize full inclusion. This pilot study suggests that more schools are favoring the co-teach model in which a general education teacher works collaboratively with a special education teacher in servicing all students placed in the classroom. However, the flexibility of implementation within each school site appears to be a crucial factor in program delivery. Each school has its own unique student and teacher population. Therefore, the stakeholders need to be active participants in their own program development.

Several respondents spoke about the advantages of the inclusive setting for special education, ELL and special education/ELL students. It is believed that the increased opportunities for social interaction help all those participants involved. Some teachers' comments regarding marked improvement in students' social and English language skills reinforce what much of the research is saying. The general education population also benefits through the development of empathy and values that are a natural by product of an established caring community.

When questioned about how they view the impact of full inclusion on the children in M-

DCPS, the responses from teachers and administrators (both positive and mixed) were in alignment. Those who viewed full inclusion from a positive perspective found that students are showing marked accomplishments as a result of increased interaction with the general education population. All responses echoed the key factors that determine the success of any inclusion program. These factors include: (a) the thoughtful selection of students who participate; (b) school and community support; and (c) teacher training.

This pilot study will be followed by a more in depth longitudinal examination of teacher perceptions of full inclusion programming in Miami Dade County. A cross section of public school communities will be selected for further study for the purpose of identifying successful inclusion practices across diverse neighborhoods. "As schools move toward inclusive practices, alternate paths may therefore actually be healthy, reflecting the complexity of school environments and the unique characteristics of individual school sites" (Burstein et al, 2004, p. 113). Miami Dade County Public Schools serves as the heart of one of the most diverse communities in the United States. Charged with educating an international and disparate population of students, the mandate to implement full inclusion is yet another challenge to be met by its teachers and administrators.

References

National Center for Research on Evaluation, Standards and Student Testing. (2001, Summer). *Assessment and accommodations for English language learners: Issues and recommendations*. (Policy Brief No. 4) Los Angeles, CA.: Abedi, J.

Burstein, N. Sears, S., Wilcoxin, A., Cabella, B. & Spagna, M. (March/April, 2004). Moving towards inclusive practices. *Remedial and Special Education* (25) 2, 104-116.

Grotto, J. & Yardley, W. (November 20, 2001). Poverty rate a distinctive challenge for Miami. *The Miami Herald*. p. 1A.

Helmstetter, E., Peck, C.A., & Giangreco, M.F. (1994). Outcomes of interactions with peers with moderate or severe disabilities: A statewide survey of high school students. *The Journal of the Association for Persons with Severe Handicaps* (19) 4,pp.263-276.

Miami-Dade County Public Schools. (September,2005). Statistical Highlights. Retrieved September 10, 2005 from http://bilingual.dadeschools.net/BEWL/statistics.asp.

National Association of School Psychologists (2002). Inclusive programs for students with disabilities. Retrieved October 21, 2005 from http://www.nasponline.org/information/pospaper_ipsd.html.

Pinzur, M.I. (August 7, 2004) Crew rouses his principals. *The Miami Herald*. p. 2B.

Rice, S. (2003). How special is too special for inclusion in the regular classroom? Philosophy of Education. Yearbook.

Salend, S. & Garrick-Duhaney, L. (1999). The impact of inclusion on students with and without disabilities and their educators. *Remedial and Special Education*. (20) 2 pp.

Staub, D., Schwartz, E., Galluci, C. & Peck, C. (1994). Four portraits of friendship at an inclusive school. *Journal of the Association for Persons with Severe Handicaps*. (19)4, pp. 314-325.

United States Census Bureau (2000). Income, earnings and poverty from the 2000American Census. U.S. Department of Commerce.

Waldron, N. & McLesky, J.(1998). The effects of an inclusive school program on students with mild and severe learning disabilities. *Exceptional Children*. (64) 3, pp. 395-505.

Zigmond, N., Jenkins, J., Fuchs, L., Deno, S. Fuchs, D. Baker, J., Jenkins, L. & Couthino, M.(1995). Special education in restructured schools: Findings from three multi-year studies. *Phi Delta Kappan*. (76) 7, pp. 531-540.

Teaching Students to Organize and Synthesize Information

Karen Sue Bradley
Texas A&M University-Kingsville
kfksb00@tamuk.edu

Jack A. Bradley
Texas A&M University-Kingsville
kfjab01@tamuk.edu

Learning is most effective when classrooms emphasize knowledge derived from active participation in meaningful conversation within important fields of study (Applebee, 1981; Brozo & Simpson, 2003; Manzo, Manzo, & Thomas, 2005). Organizing and synthesizing information can be a mind-boggling process for struggling readers. Goldenberg (1992) encourages the use of what he calls instructional conservations. During these highly interactive sessions, Maria (1989) asserts that students can expand their knowledge by pooling what they know with others in a visual. Students have varying levels of understanding of concepts under study. When brainstorming in a small group, students suggest related terms and phrases. As each individual contributes to the graphic, other students make connections. A simple vocabulary extension might begin with synonyms for an overused word like "said." A number of other research reports have supported the use of graphic organizers as an aid in organizing students' thoughts (Lambiotte & Dansereau, 1992; Rakes, Rakes, & Smith, 1995). The purpose of the following strategy is to encourage students to utilize a number of information sources when making decisions on issues. It provides for optimum teacher-to-student and student-to-student interaction. Beginning with an opening regarding a current issue, it involves a reading selection and the sharing of opinions of both students and their instructor. By varying the reading level of text and the conceptual level of the issue involved, the strategy is applicable across varied grade levels and disciplines. In addition, the strategy reinforces the reading/writing connection through a scaffolding lesson. Olson (2003) emphasizes the importance of integrating the reading and writing processes, rather than addressing them separately. Included is a secondary social studies example.

Step I. Teacher Preparation

A. Choose an issue that will catch student interest. (Included is a secondary example)

> "How safe are we in America? Should the Department of Homeland Security be telling every American to be afraid?" (Friedman, 2005).

B. Select four quotations from the text for students to retell orally and paraphrase in writing.

1. "The odds of dying in a terrorist attack are miniscule."
2. "The idea that terrorists stealthily stalk America, looking for weak spots, implies levels of capabilities and cohesion that are more myth than reality."
3. "The key to protecting ports without unduly burdening commerce is using intelligence to identify risky cargo."
4. "Today, the main threat to the United States comes in the form of extremist entrepreneurs with only tenuous links to bin Laden."

Step II. Procedure

A. Pose thought-provoking questions to stimulate interest.

* How safe are we at home in America?
* Should the United States Department of Homeland Security constantly be telling

every American to be afraid? Briefly discuss these questions to get students thinking.

B. Introduce the synthesis graphic. Ask students to put their opinion in the "I say" portion of the graphic. See Figure 1 to see an illustration of this step.

C. Place the students in groups of four. Have them discuss their responses, taking notes on "peers say" side of the graphic. See Figure 2 to see an illustration of this step. This proceeds into total class discussion.

D. Give each group of students the four quotes from the text. Have them come up with an appropriate paraphrase for each of the quotes. They may use the article, a dictionary, or a thesaurus. Each student is responsible for being able to paraphrase the quotes orally, as well as paraphrase the quotes in written form.

E. Students read the article, *Homeland Security* (Friedman, 2005), and as they read, think about the original issue. Should the Department of Homeland Security constantly be telling every American to be afraid?" Are we safe in America?

F. In groups of four, students return to the graphic and complete the "author says" part of the graphic. The instructor adds facts not discussed and clarifies vocabulary, then adds the "instructor says" comment on the graphic. See Figure 3 to see an illustration of this step.

G. Pose the final question: Is there a right or wrong answer to this issue? From this, guide students into the synthesis section of the graphic. See Figure 4 to see an illustration of this step.

As students progress through school, they are expected to organize and synthesize information from an increasingly more complex variety of sources. Discussion strategies coupled with the use of graphic organizers can help students synthesize information from both written and oral text. Alvermann, Dillon, & O' Brien (1987) state that "discussion is an integral part of the comprehension process" (p. 13). This strategy facilitates the necessary components of discussion as purported by Alvermann, et al. (1987):

1) Discussants should put forth multiple view points, but be willing to listen,

2) students should interact with each other as well as the teacher, and

3) the interaction should exceed the two or three phrase units common to recitation. (p. 8)

The information age has changed our society. Today's students face a fast-moving, competitive workplace where the skills of organizing, generalizing, and synthesizing will be crucial. Vaughn, Klinger, & Bryant (2001) provided one of the most recent studies that emphasize the need for students to talk with others about reading-related graphic organizers, predictors, generalizations, evaluations, and judgments. This strategy encourages the development of that level of independence.

References

Alvermann, D.E., Dillon, D.R., & O'Brien, D.G. (1987). *Using discussion to promote reading comprehension*. Newark, NJ: International Reading Association.

Applebee, A.N. (1981). *Writing in the secondary school*. Urbana, IL: National Council of Teachers of English.

Brozo, W. & Simpson, M. (2003). *Readers, teachers, learners: Expanding literacy across the content areas.* Upper Saddle River, NJ: Merrill Prentice-Hall.

Fisher, D., & Frey, N. (2004). *Improving adolescent literacy.* Upper Saddle River, NJ: Merrill Prentice-Hall.

Friedman, B. (July-August, 2005). Homeland security in *Foreign Policy* 22-24, 26 & 28.

Goldenberg, C. (December 1992/January 1993). Instructional conversations: Promoting comprehension through discussion. *The Reading Teacher*, 46, 316-326.

Lambiotte, J.G., & Dansereau, D.F. (1992). Effects of knowledge maps and prior knowledge on recall of science lecture content. *The Journal of Experimental Education, 60, 189-201.*

Manzo, V., Manzo, U., & Thomas, M. (2005). *Content area literacy*. Hoboken, NJ: Wiley & Sons.

Maria, K. (1989). Developing disadvantaged children's background knowledge interactively. *The Reading Teacher*, 42, 296 300.

Olson, C.B. (2003). *The reading writing connection*. Boston: Allyn & Bacon

Rakes, G.C., Rakes, T.A., & Smith, L.J. (1995). Using visuals to enhance secondary students regarding comprehension of expository texts. *Journal of Adolescent and Adult Literacy*, 39, 46-54.

Vaughn, S., Klinger, J., & Bryant, D. (2001). Collaborative strategic reading as a means to enhance peer-mediated instruction for reading comprehension and content-area learning. *Remedial and Special Education*, 22(2), 66-74.

Appendix

Figure 1.

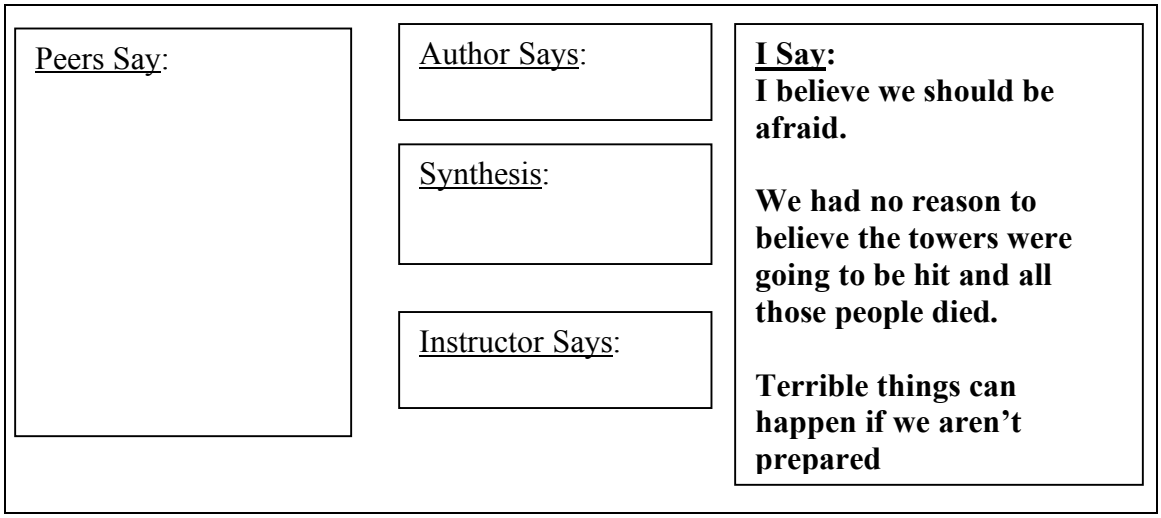


Figure 2.

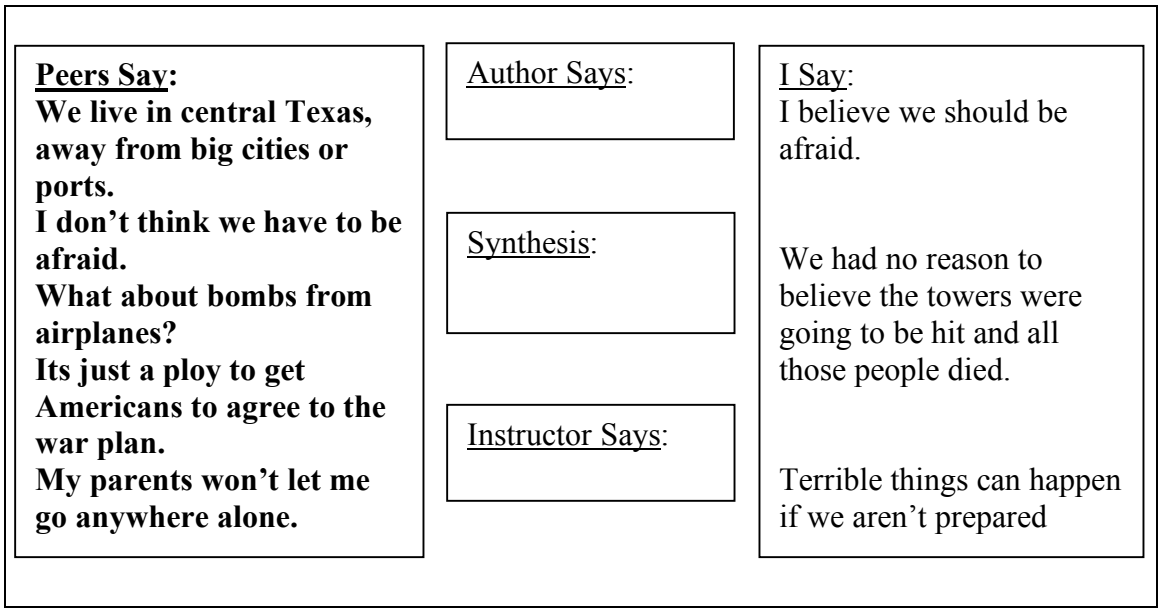


Figure 3.

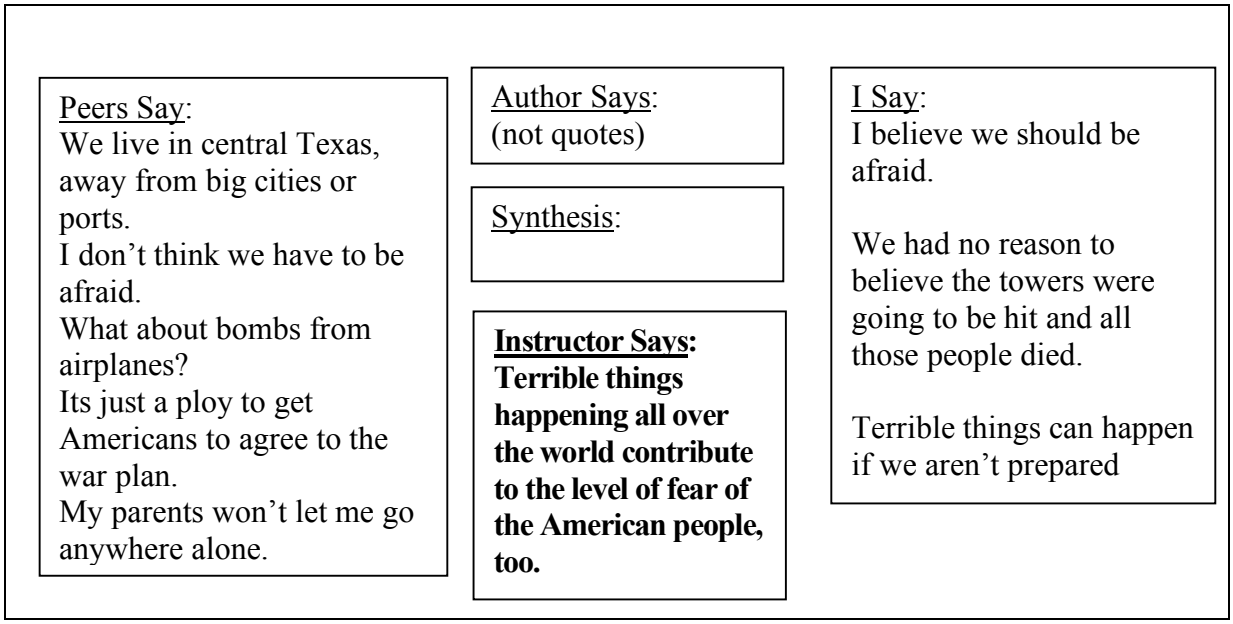
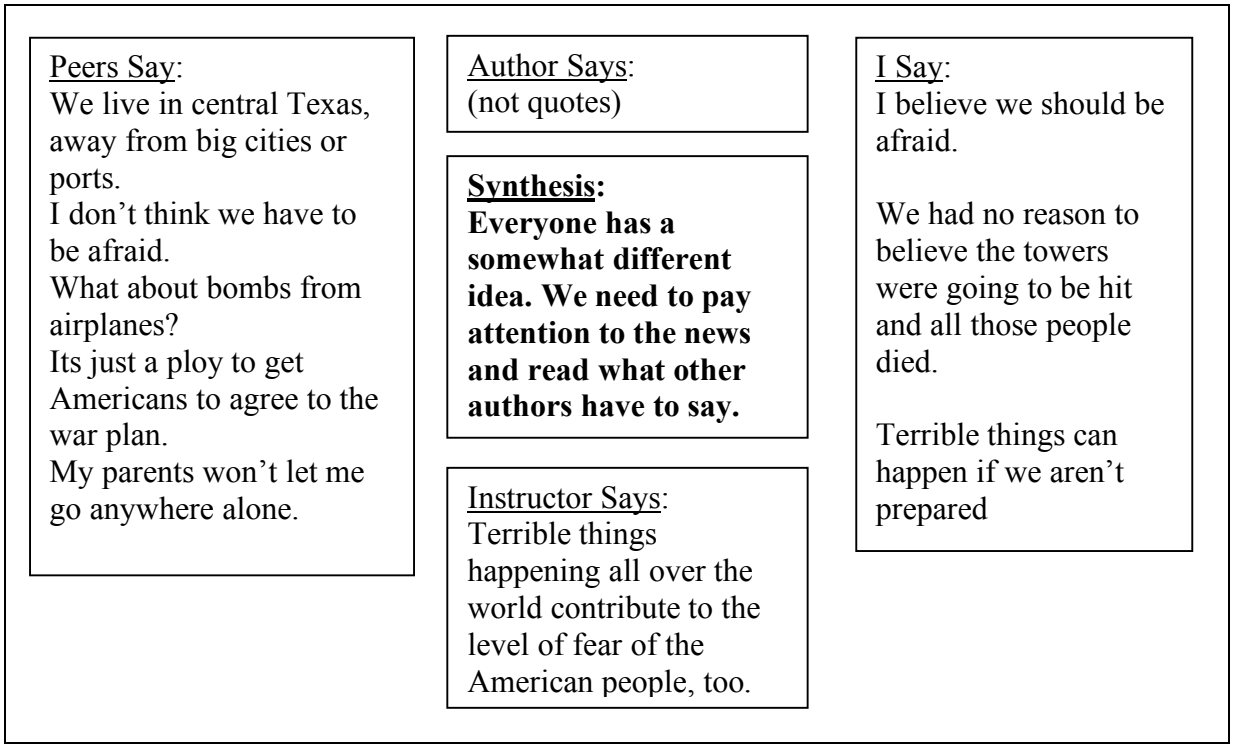


Figure 4.



Travelling Skills: Specific Training of Adding Value to the Ezlink Card in Singapore

Karen P. Nonis
Nanyang Technological University
National Institute of Education, Singapore
kpnonis@nie.edu.sg

Yvette V. Pereira
Jervois School, Singapore

Lynette Gomez
Katong School, Singapore

Bernadette Gomez
METTA School

Ti-Na Tan
Singapore School for The Deaf

Introduction

Traveling independently is an essential skill that can be learned by individuals with mild intellectual disabilities. Students with disabilities face a myriad of challenges when they have to use public transport. They must know what modes of transport are available, how to access them, how to plan and execute their travel plans safely. With training, independent travel can be accessible to these students. Singapore's public transportation, on both buses and trains, requires the use of either cash or an ez-link card which has a stored cash value. The skill of adding value to the ez-link card forms part of the sub-skill needed for independent travelling.

Based on classroom observations, we realized that many students could not perform the task of adding value to their ez-link card independently at the ticketing machine at the train station. Often students require assistance from parents and or train station staff and bystanders which delays their travelling. To help teachers teach a component of traveling skills, we developed a systematic method encompassing pre-requisite skills identification, classroom and on-site practice intervention strategies for the skill.

Identifying Pre-requisite Travelling Skills

Students must possess the foundational skills of awareness of personal space and environment and the recognition and response to danger prior to travelling on public transport (see Appendix A). The student should be observed over at least a period of a week to establish the consistency of performance, that is, from Monday to Friday to and from school and home. Further, the student's ability to recognise currency denominations both on-site at the train station and the classroom needs to be identified (see Appendix A). Trials were used to establish the consistency of performance in recognising the currency denominations. This could be expanded over the week and integrated into the daily classroom teaching.

Identifying specific skills for topping up the ez-link card

Once the pre-requisite skills have been identified and based on the task analysis of

adding value to the ez-link card (Ezlink Card, Mass Rapid Transport, Singapore, 2005), the teacher can then use this checklist to observe the performance of the student (see Appendix A).

Observation and Analysis of the student to determine the intervention strategies

Beyer, Hedebouw & Samoy (2004, p 7) aptly wrote, "All practioners in vocational training, sheltered work and community employment need to understand how each client learns best, and tailor their teaching and support to the person's individual needs."

After several observations of our student, we found that students lacked specific skills of reading instructions on the screen of the ticketing machine, recognising the current monetary value of the card (prior to topping-up) and the new value of the card (after topping-up). In addition, students did not know how to insert a note into the slot of the ticketing machine.

The Intervention Strategies

The strategies used to teach the student involved both classroom teaching supplemented with on-site teaching and practice of the task include; (a) reading instructions on the machine, (b) recognizing current and new value, (c) recognizing minimum top-up value and (d) note alignment and direction.

Firstly, in reading instructions on the machine, classroom intervention involved teaching the student how to read and recognize selected words and phrases on the ticketing machine and read the instructions displayed on the screen. We developed A4-sized picture cards of the machine screen display which featured each step of adding value to the ez-link card. Flash cards of specific words and phrases were used to match these pictures. To supplement classroom teaching, on-site intervention hands-on teaching and practice sessions were conducted at the ticketing machine over two weeks. This enabled the student to relate the steps required in the process of adding value, to the instructions on the screen.

Secondly, classroom teaching involved identifying the current and new value of the ez-link card on the ticketing screen. Again, A4-sized picture of the ticketing machine screen and flash cards with the relevant phrases were used. During teaching, the student's attention was directed to the part of the screen which showed the current and new value of the card. The flash cards of the relevant phrases were placed next to the same phrases on the A4-sized pictures of the ticketing screen. This was used to reinforce the meaning of the phrases to the student.

On-site instruction at the train station ticketing machine involved using flash cards placed directly next to the words on the screen of the ticketing machine. An ez-link card was used to demonstrate to the student that the current value of the ez-link card would increase upon completion of adding value to the card.

Thirdly, the intervention strategy used to recognize the minimum top-up value involved identifying the correct note denomination required to add value to the card and read the phrase "Minimum top up value". The denominations reflected on the screen of the ticketing machine were $2, $5, $10, and $50. Only $5 and $10 notes were used. A flash card with the phrase, "Minimum top-up value" and the relevant A4-size pictures of the ticketing screen were used in the intervention process.

Lastly, note alignment and directionality are key factors in the successful completion of the transaction to add value to the ez-link card. In classroom teaching, a mock-up of the ticketing machine note slot and a flash card of the phrase "Align to the left" were created. The student read the words "Align to the left" and practiced aligning $5 and $10 notes into the ticketing machine. It took 90 minutes of training to complete this task.

Application to other Urban Communities

The task analysis (see Appendix A) was based on the steps involved in adding value to the ez-link card at the train station. This task analysis could be modified based on the specific

design specifications of the ticket dispensing machines of any urban community. For example, in Washington D.C., the task analysis would include identification of the circular target found on the Passes or Farecard machine which reads the details on the SmarTrip card. In addition, the push (+) and (-) signs on the Passes or Farecard to add or substract values on the SmartTrip card would also be part of the task analysis.

Concluding Observations and Recommendations

Individualized Teaching

Based on the observations made in this study, adding value to transportation cards is a complex task when the individual needs are taken into consideration. Linking the classroom training session with on-site training at the train station made it meaningful for the student who could then transfer the skills to a real life situation. It is recommended that for the successful completion and execution of the task, individualized teaching should include both classroom and on-site practice sessions. Teachers could use visual aids, flash cards, hands-on concrete teaching aids to enhance the student's learning process. For example, a mock-up of the ticket note slot and a video capturing the task of adding value to the card would be useful for the teacher.

Continuing Support and Education from the Home Environment

For any training program to be effective, it must have strong home support (Feldman, 2004). The direct involvement of parents and/or siblings in helping to reinforce the learning is crucial to the success of the program.

A Training Center for Travelling Skills

Traveling skills is an essential skill not just for the disabled but all school children and the aged. It is recommended that unit training centers be made available to teachers and the community to use to teach special populations on the changes made within the transportation system.

References

Beyer, S., Hedebouw, G., & Samoy, E. (2004) Reflections on Good Practice in Vocational Training and Employment for People with Learning Disabilities. Retrieved September 8th, 2005, from http://www.start_labor.org.

Feldman, R. A. (2004). Self-directed Learning of Child-Care Skills by Parents with Intellectual Disabilities. *Infants and Young Children,* 17(1), 17-31.

Singapore Mass Rapid Transit's, "The ez guide to ez-link". Retrieved September 8th, 2005, from http://www.ezlink.com.sg/theCard.htm.

Metrorail farecard and SmarTrip vending machines. Retrieved October 24th, 2005, from http://www.wmata.com/metrorail/buyingfarecrd.cfm.

How to add value to a SmarTrip card. Retrieved October 24th, 2005, from http://www.wmata.com/metrorail/recharge_smartrip.cfm.

We would like to acknowledge the contributions of Lee Siew Leng (METTA School) and Nurfazlin Bte Samsudin (Katong School) in this project.

Appendix A

Figure 1. *Pre-Requisite Skills Test and Post-Test Evaluation*

Student's Name :	**Class:**		**Date of Test:**			
1. Pre-requisite skills : Travelling	**Teacher/Tester:**					
2. Post Test: Travelling						
	Mon	**Tue**	**Wed**	**Thur**	**Fri**	**Remarks**
Description						
1.Travel independently by Train between home and school						
• Leave house/flat						
• Walk to bus-stop						
• Wait for bus						
• Identify correct bus						
• Flag bus in advance						
• **isttext•** Queue for bus						
• Locate card reader on the bus						
• Tap card gently in the bus						
• Ensure card is read						
• Presses bell in advance to get off bus						
• Tap card gently before getting off						
• Ensure amount has been deducted						
• Alight from bus						
• Walk to train station						
• Locate the control areal at train station						
• Request for card to be topped up at the train station						
2. *Classroom and On-site Observation* *Recognise the following denominations of coins & notes*	**Trial 1**	**Trial 2**	**Trial 3**	**Trial 4**	**Trial 5**	
• 10¢						
• 20¢						
• 50¢						
• $1.00						
• $2.00						
• $5.00						
• $10.00						
• Add combination of notes and coins amounting to $5.00						

Task Analysis – On Site Train Station						
Operating the Ticketing Machine	**Observation**					**Remarks**
	1	**2**	**3**	**4**	**5**	
• Locate the Ticketing Machine						
• Get EZ Link card ready						
• Read instructions on the screen						
• Select language of instruction						
• Select <Add Value> option						
• Insert EZ-Link Card into the card slot						
• Recognise the existing value of the card						
• Get appropriate note denomination ready for insertion into the note slot						
• Align the note for ease of insertion						
• Insert the note into the note slot						
• Recognise the minimum top-up value of $5.00						
• Identify the old value on the card						
• Select <OK> to confirm the top-up amount and process transaction						
• Select <Receipt> to obtain a record of the transaction						
• Identify the new value on the card						
• Remove the EZ-Link Card from the card slot						
• Select <Cancel> to end the transaction.						

PRAXIS
Call for Papers and Submission Guidelines

The PRAXIS section of this journal is intended for readers to be able to immediately apply the methods/strategies described in the articles in their classrooms. These methods/strategies may be new and unique ideas or they can be effective methods/strategies that some teachers have been using and believe that by publishing them many more teachers could implement them in their classrooms. Please see the article, *"Teaching Students to Self-monitor"* (reprinted from Volume 3, Number 1, of *The Journal of the International Association of Special Education*) in this issue for an example (Bettenhausen & Thomas, 2002). The articles should be approximately three to six pages and describe in detail a specific teaching strategy or informal assessment method. The articles should include specific instructions on how to develop and implement the methods/strategies. The methods/strategies should require no unique materials for development. These articles are to be submitted following the same submission guidelines and will go through the same review process as all *The Journal of the International Association of Special Education* articles with the exception of including an abstract. *(See submission guidelines)* The format for these articles should include an introduction, step-by-step directions, materials/examples of charts or graphs if needed, conclusions and references.

We encourage you to consider submitting methods/strategies that you have used with students with disabilities and think would be of interest to our readers. Both classroom teachers and university instructors are welcome to submit articles for consideration for publication in the PRAXIS section of the journal.

Call for Papers

10th Biennial International Conference
International Association of Special Education
In Collaboration with the Faculty of Education and Centre for Advancement in Special Education, University of Hong Kong

June 10-14, 2007 **University of Hong Kong**

Global Challenges in Special Needs Education: Past, Present, and Future

Anyone wishing to present a paper or make a formal presentation is invited to submit two copies using the format outlined below. Proposals for panels, workshops and instructional sessions are also encouraged. IASE values sessions that present current and best practices, including basic information about the nature of various disabilities, as well as innovative approaches to advocacy, assessment, intervention, and instruction. Sessions presenting new ways to ensure successful transition, utilize assistive technology, access the general curriculum, provide a continuum of alternative placements, and foster productive adulthood are also sought.

Presentations are expected to provide current information and opinion on both continuing and evolving topics of interest and concern to both new and experienced Conference attendees.

Note that presenters are limited to one major presentation.

EACH PROPOSAL MUST INCLUDE A COVER PAGE, ABSTRACT AND PROPOSAL DETAILS.

COVER PAGE: Must include items 1-5 below, typed on 8 ½ x 11 paper.

DEADLINE for submission of proposals: August 1, 2006

Send proposals to:
Bev Johns, Chair
IASE 2007 Conference
PO Box 340
Jacksonville, IL 62651 USA
or by email:
bevjohns@juno.com

1) **Title** of proposed presentation (no more than 10 words)

2) **Presenter or session leader's information:**
Address (indicate home or office)
Daytime Phone and Email Address
Role (e.g. teacher, parent, consultant, professor)
Affiliation, if applicable (e.g. agency, organization, or company)

3) **For *each* additional participant:** (Obtain permission before submitting proposal)
Name
Address
Phone and Email Address
Role
Affiliation, if applicable

4) **Session Objectives:** List 4-6 specific areas of content to be covered and the expected audience benefits.

5) **Session Description:** No more than 50 words that provide an overview of the session content and activities and may be used in the Program if accepted by the Program Committee.

ABSTRACT: Typed, double-spaced, on one side of 8 ½ by 11 paper, using no more than 500 words.. Include title of proposed presentation and a summary of the major content of the proposed presentation, including main points, information, and/or techniques to be presented to the audience. Research paper abstracts must include a statement of the problem, procedures, results and supporting data, relevant implications and limitations. It is the proposer's responsibility to indicate content clearly enough and with sufficient examples and /or details to permit fair evaluation by the Program Committee.

PROPOSAL DETAILS: Items 6-10 may be typed on the cover page.

6) **Focus of the session content** (1 for primary, 2 for secondary, if appropriate)

____ Adults/Vocational	____ Early Childhood	____ Mental Health	____ Technology
____ Advocacy	____ Instruction	____ Parents/Families	____ Research
____ Assessment	____ Legal/Legislative	____ Principals/Admin	____ Other:
____ Cultural Diversity	____ Medical	____ Professional Prep	_____

7) **Suggested target audience:**

____ Parents ____ Teachers ____ Administrators
____ University Professional ____ Other _____

8) **Proposed format:** (1 for primary, 2 for secondary)

____ Lecture ____ Workshop ____ Panel ____ Poster
(If necessary are you willing to participate in a combined session on a similar topic?___Yes ___No)

9) **Time Needed** for proposed lectures, workshops, or panels (write 1 for first choice, 2 for second choice)

____ 15 mins ___ 30 mins ___ 60 mins ___ a longer session if available

10) **Audio-visual equipment required:** ___ Overhead Projector ___ Easel & Paper

Be sure to submit your proposal on time and include all of the 10 items listed above and an abstract. Proposals that miss the submission deadline or do not provide the requested information, risk not being considered for the Program.

Proposals will be reviewed by the Program Committee and judged on the basis of completeness, quality, evidence of effectiveness, relevance, importance, and interest. The Committee also selects proposals in order to provide balanced content and broad geographic representation at the Conference. Every effort will be made to meet equipment, logistical and meeting room needs of all presenters, but facilities, time, and scheduling factors may affect availability.

The IASE Program Committee reserves the right to change titles and descriptions for brevity, clarity and consistency.

ALL SPEAKERS ARE REQUIRED TO PAY THE REGISTRATION FEE.

All proposals will be acknowledged as received. All contributors will be notified of the Program Committee's action by October 1, 2006. For further information or special inquiries, please contact the Program Chair.

By submitting a proposal, the writer is presumed to have read the entire Call for Papers.

IASE MISSION STATEMENT

IASE has among its aims promotion of professional exchange among special educators all over the world, development of special education as a discipline and profession, to encourage international cooperation and collaborative international research, promote continuing education of its members by organizing conferences in different countries around the world, and to foster international communication in special education through The Journal of the International Association of Special Education.

SUBMISSION GUIDELINES

The Journal of the International Association of Special Education

Articles that have not been previously published are not under review by any other publication and meet the IASE mission statement aims are invited for review. Both research articles and articles for practitioners will be given equal preference. Please indicate if this is a PRAXIS article.

Mission Statement

International Association of Special Education

The aims of the IASE are to promote professional exchange among special educators all over the world, to develop special education as a discipline and profession, to encourage international cooperation and collaborative international research, to promote continuing education of its members by organizing conferences, and to foster international communication in special education through The Journal of the International Association of Special Education.

Style

Total length of the manuscript is not to exceed 20 pages and should include all references, charts, figures, and tables. Articles submitted should follow the guidelines of the Publication Manual of the American Psychological Association, fifth addition.

Word Processing

Using American English, manuscripts are to be typed in Microsoft Word using 12 point Times regular face (no bold or italics). The entire document should be doubled spaced with .75 margins all around. *(top, bottom, left, and right)*. However, only put one space in between sentences. Tables, charts, figures, and or illustrations should fit in a 3 ¼ width column and are to be on separate pages at the end of the manuscript. Additionally, a copy of any photos, illustrations or other graphics must be attached electronically in jpeg format. This aids in the printing process for compatibility with the Macintosh computers that printers use. References are to be in APA style with hanging indents. *(If you do not have access to Microsoft Word please contact us)*

Cover Page

Include this information on a separate sheet

- Title of the manuscript
- Date of submission
- Author's name, complete mailing address, business and home telephone numbers
- Institutional affiliation, address, e-mail address, and fax number.

Abstract

On a separate sheet of paper at the beginning of the manuscript describe the essence of the manuscript in 100 – 150 words.

Form

E-mail – Attach as one document in the following order: Abstract, Cover Page, Manuscript and e-mail to Greg.Prater@nau.edu. Any jpeg graphics will of course be attached separately. You will receive an e-mail confirming that we received your attachment.

If the article cannot be electronically sent then please:

Mail – Send two (2) hard copies of the manuscript, abstract, and cover page along with this information on a CD to the mailing address listed below. Include a self-addressed postcard *(we will provide postage)* so we can notify you we have received your manuscript.

Mailing Address

Manuscripts, editorial correspondence, and questions should be sent to:

College of Education
Greg Prater
Northern Arizona University
PO Box 5774
Flagstaff, AZ 86011-5774
Phone: 928-523-8979 • Fax: 928-523-1929
E-mail: Greg.Prater@nau.edu

Authors will be notified of the receipt of their manuscripts by the return postcard and/or e-mail as noted above. After an initial review by the editors, those manuscripts that meet established specifications will be sent to members of the Professional Journal Committee for further editing and reviewing. The journal editors reserve the right to make editorial changes. Points of view and opinions are those of the individual authors and are not necessarily those of the International Association of Special Education.

Mission Statement

International Association of Special Education

The aims of the IASE are to promote professional exchange among special education educators all over the world, to develop special education as a discipline and profession, to encourage international cooperation and collaborative international research, to promote continuing education of its members by organizing conferences, and to foster international communication in special education through *The Journal of the International Association of Special Education*.

The IASE is a registered 501(c)3 not-for-profit organization in the United States.

Subscription/Membership Information:

The Journal of the International Association of Special Education is published annually.

The Journal of the International Association of Special Education subscription is included in the International Association of Special Education membership or available at $25 USD plus shipping and handling per issue. IASE membership information is contained in this edition.

For more information, see the IASE web site at http://www.iase.org/

Membership Form **January 1st – December 31st**

☐ Regular Membership	US $50	☐ Institutions	US $70
☐ Regular + Sponsor	US $70	☐ Donation to Marg Csapo	US $70
☐ University Student	US $20	Scholarship Fund	US $___
☐ Developing country	US $20	Total Amount Enclosed	US $___

(Please Print Clearly)

Name_____Occupation _____

Address _____

_____

Phone_____Fax_____E-mail _____

Payment Information

☐ Cheque (*payable to IASE* – **US Funds Only**) ☐ Credit Card ☐ ☐ VISA ☐ MasterCard

Card Number_____Expiration Date_____

Cardholder Name _____Signature _____

Please forward the completed membership form, along with your payment to:

IASE Treasurer, 5142 Route 22, Amenia, NY 12501 USA

The IASE thanks you for your support.