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## **International Journal of Special Education**

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## ADAPTING CREATIVE AND RELAXATION ACTIVITIES TO STUDENTS WITH CANCER

## Nika Jenko Mojca Lipec Stopar University of Ljubljana

The team which forms a comprehensive treatment plan for students with cancer includes, among other experts, special educators. In cooperation with other team members, their role is to enable students to integrate in the educational process, having regard to their individual needs. In the present paper we introduce the study of specific methodical and didactic adaptations which special educators have to consider when planning creative and relaxation activities for students with cancer. Within the research, a multiple case study was carried out. It included various primary and secondary qualitative research methods. The study included three children aged from 7 to 13, treated for cancer during their hospitalization. The data obtained on the sample showed that planning and implementing creative and relaxation activities demand a lot of resourcefulness and flexibility on the part of the special educators. Due to the nature of the problem, particular methodical and didactic adaptations, different from that in other groups of students with special needs, have to be taken into account. Apart from the students' characteristics, various factors, which are a result of the illness, treatment and hospital environment, have to be considered when planning the activities. The results of the study represent a contribution of knowledge to the field of methodology of working with children with long-term illnesses and aim to facilitate planning of support for the children with cancer.

In Slovenia, more than 12 000 people (70 of whom children and adolescents, aged up to 20 years) are diagnosed with cancer each year. Approximately 60 percent of them are younger than 15 (Jereb, 2004; Ćepulić, Nakić, Milić & Ćepulić, 2001). Cancer, being rare among children, represents, however, the first leading cause of death among children (Jazbec & Kitanovski, 2014).

Certain types of childhood cancer are similar to those developed by adults. There is, however, a significant difference in the incident of certain types of cancer in children as compared to adults (Jazbec & Kitanovski, 2014). There is also a difference in defining successful cancer treatment between the two groups (Anžič et al., 1991; Ćepulić et al., 2001, Jazbec & Kitanovski, 2014). While in children successful treatment represents a full recovery with comprehensive physical, psychological and social rehabilitation, success in treating adults, in a large number of cancer types, means prolonging the patients' life by 2 to 3 years (Ćepulić et al., 2001). Today, up to 70% of *children diagnosed with cancer are expected to make a full recovery* (Jazbec & Kitanovski, 2014). In children, the focus (as compared to the treatment of adults) is on the psychosocial treatment, helping a child to face the illness and its consequences and on their social integration, during and after the therapy.

Emotional factors have a special role in the context of psychosocial treatment, as they influence our psychological well-being and our physical health. There are numerous studies on the impact of emotional stress on the occurrence of illnesses, their course and their treatment, which, however, do not give uniform results. The relation between emotional and/or psychosocial factors with the occurrence of cancer is studied by the psychosocial oncology which involves different experts (Prstačić & Sabol, 2006). In the framework of comprehensive treatment of ill children, different authors (Anžič et al., 1991, Bečan, 2012) draw attention to the importance of school and teacher support, which, besides the family support, represent an important element of a child's social environment. A detailed school role is defined by Bečan (2012), who states that school, representing an important psychosocial environment, is a tie to their normal life, their hope for the future and a condition for their future independent life.

The team, who has a task of developing comprehensive support for children with cancer, includes, among other experts, a special educator. Special educator's role is to encourage the participation of all students, even those with long-term illnesses, who, due to the nature of their illness, need a special treatment. In cooperation with other team members, their role is to enable a student's integration in the educational process, having regard to their individual needs.

Children treated for cancer attend hospital school during their hospitalization. Besides providing continuity of schoolwork, hospital school aims at preventing feelings of loneliness, of being lost, of fear and anxiety, as well as at giving meaning to the time spent in hospital (Bečan, 2012). Anžič et al. (1991) points out similar aims, when she defines school activities for children with cancer as therapeutic. According to her words, they help children see their way forward and give them hope of healing. Their active participation helps to strengthen their will to fight the illness and to live a full life. For this purpose, during the experience of working with severely ill students, the programme of therapeutic (supportive and relaxation) activities was designed, apart from the regular school programme. It includes contents of primary school programme (with a different methodological approach), as well as the contents from everyday life, only partly related to a child's medical condition (Anžič et al., 1991). Creative and relaxation activities are part of the previously mentioned programme as well. The importance of these activities is supported by the findings of experts who study different complementary programmes, within the framework of treatment and rehabilitation of people with cancer (Beebe, Gelfand, & Bender, 2010; Prstačič & Sabol, 2006; Kudek-Mirošević et al., 2000) and other types of chronic illnesses (Beebe et al., 2010). Their findings highlight the use of different artistic media for therapeutic and recreational purposes, with the aim of improving the life quality of patients during the therapy and rehabilitation. Prstačić (2006) in his work highlights the importance of complementary supporting therapy methods in preventing and reducing the adverse effects of treatment in children with cancer, e.g. fear of pain, loneliness, change in the relationship between a child and other family members, mood swings, feelings of guilt, anxiety, depression etc.

Introduction of creative activities can have different purposes (helping to cope with distress, promoting social relations etc.) and different aims, as evidenced by various authors (Beebe et al., 2010; Minou, 2006; Mynarikova, 2012; Šugman-Bohinc, 1994). Creative activities can provoke positive emotions, induce relaxation, cause pleasure, help build and improve the relationships. They are associated with voluntariness, spontaneity, freedom, challenge, opportunity for socialization and personal growth (Šugman-Bohinc, 1994). Šugman-Bohinc (1994) stresses the importance of the participation in an activity, rather than its result.

Literature (Hrenko, 2005; Kudek-Mirošević et al., 2000; Prstačić, 2006; Beebe et al., 2010) is full of examples of how to implement creative and relaxation activities in the care of ill children. Various authors (Šugman-Bohinc, 1994; Poštrak, 2007) emphasize the use of creative activities as means of encouraging communication. Šugman-Bohinc (1994) stresses the fact that creative activities make it easier to approach a child and facilitate the communication, especially in the initial stages. Unpleasant feelings, thoughts or doubts are in fact difficult to express through a direct communication. Jenko (2008) states that creative and relaxation activities enable children with cancer to creatively express themselves, especially through art, as already stated by Trstenjak, (1996) and confirmed by the recent studies (Walsh, Radcliffe, Castillo, Kumar & Broschard, 2007).

Apart from the expressive role, creative and relaxation activities also have a cognitive value (Jenko, 2008). They can be helpful at gaining knowledge and for training various skills. Integrating different work types (pair work, group work) encourages social contacts. The studies (Jenko & Lipec Stopar, 2010) show that there are different reasons for which children are stimulated to participate (a desire to face a challenge, a way of passing time, proving one's abilities even in the hospital environment. Specific characteristics of creative activities enable an individual to be successful, as already stated by Trstenjak (1981).

Authors (Jenko & Lipec Stopar, 2010; Walsh et al., 2007) stress the importance of involving parents in implementation of creative and relaxation activities. Pleasant, stimulating and creative atmosphere as well as active time spending represents an important element of maintaining life quality of hospitalized children and their loved ones. Walsh et al. (2007) established that the participation of both, patients and their relatives in the artistic activities reduces their common anxiety and stress, at least while performing the activities.

The role of creative and relaxation activities, which are planned and implemented by special educators, is described by Hočevar (1999). They are not intended to treat the illness itself. Their intent is to explore the emotions, feelings, relationships and thoughts; to control the anxiety; to provide some quality time; to help form and preserve a positive self-image etc. Special educators can plan the activities, selecting from different art forms. In their work with children they can include art, music, drama, dance etc. They need to follow the same criterion as used at planning schoolwork for hospitalized children. They need to adequately adapt the schoolwork and forms of assistance and support to enable a child to be successful, according to their abilities (Bečan, 2012). They also need to take into account the individual needs, deriving from the nature of the illness and its treatment. They need to consider a child's physical conditions and possible limitations (e.g. of movement). They need to be aware of the changes the illness had brought into a child's every-day life, into family relations and peer relations etc. Severely ill children are often faced with worries, unpleasant thoughts and emotions. Special educators need to consider their possible difficulties in expressing discomfort. In order to prevent its suppression, special educators need to adapt the communication and apply adequate methods to encourage children and adolescents to acknowledge their discomfort and share it with others (Hočevar, 1999; Jenko, 2008). Variety, accessibility and adaptability of creative and relaxation activities enable special educators to have more possibilities for providing an individualised approach in planning the activities.

In the framework of individualized education plan a special educator supplements the adapted teaching methods with various creative and relaxation activities, aimed at providing comprehensive support to hospitalized children. Their application needs to follow the same criterion as used at planning schoolwork for hospitalized children. Special educators need to choose a suitable form of support and adapt the activities to a child's needs. The question then arises as to which specific methodical and didactic adaptations a special educator needs to take into account when planning creative and relaxation activities for children with cancer.

In relation to the identified problem, a partial aim of this research was to build up knowledge about ways of adapting activities to ill children, particularly to children with cancer. We focused on those teaching approaches which are applied by special educators and are aimed at maintaining the life quality of severely ill children. Many children are, due to their illness, unable to cope even with the adapted schoolwork. That is why special educators have to adapt the aims of their work and identify other special-rehabilitation methods, often using creative and relaxation activities for this purpose.

### Methods

## Participants

We included three children treated for cancer during their hospitalization at the Unit of Haematology and Oncology (The Division of Paediatrics) at the University Medical Centre Ljubljana. Activities involved two boys (aged 7 and 9) and a girl (aged 13) receiving intravenous chemotherapy. During their chemotherapy treatment they stayed in the hospital ward. During the rest period they stayed at home, coming back only for follow-up ambulatory examinations. Parents remained with their children throughout their hospital stay. All children were students of regular primary school, coming from a supportive family environment.

## Data Collection Instruments and Procedure

Due to the complex nature of the problem we used a variety of methods and techniques for collecting data. Within the research, a multiple case study was carried out. It included various primary and secondary qualitative research methods. Data on positive ways of adapting work to ill children was obtained by monitoring the effects of the activities on a child. The information was obtained through our own observations and through the feedback we got from the children. Children evaluated the activities and their own well being while performing them on the basis of various visual analogue scales (Figure 1). Before the evaluation we verified each child's interpretation of individual symbols on the scale; they provided an explanation of their evaluation afterwards. At the beginning and at the end of the meeting, each child defined his current mood by selecting a graphic symbol on the scale of facial expressions and explained the selection. Descriptions of individual expressions are given below - envisaged description and those given by the children (Jenko & Lipec Stopar, 2010).

$\odot$					(ð.6) 	8.6	(d)	( - -	( • •	6.0
1	2	3	4	5	6	7	8	9	10	11
Blank	Control	Neutral	Happy 1	Sad 1	Angry 1	Vindicti ve	Angry 2	Sad 2	Happy 2	Sad 3
I don't know	Confuse d	Serious	Very happy, glad	Medium sad	Slightly angry	Vindicti ve, mean	In rage, very angry	Melanc holic, slightly sad	Happy, glad	Very sad

Figure 1. Scale of graphic presentations of facial expressions (Thayer & Schiff, 1969)

Apart from the secondary qualitative method, our study included primary qualitative methods as well. At each appointment we collected data on children's performance and their responses to the planned activities through a systematic observation, in partially controlled conditions. Information was recorded in a specially designed observation scheme, covering different areas: readiness to cooperate, mood, behaviour, physical appearance and physical changes, way of performing activities and persistence. Individual elements of the observation scheme were applied at the beginning, in the middle or at the end of a session. To verify the selective attention at the beginning and at the end of the session, we used the task which forms an integral part of The Stroop Color and Word Test. It consisted of naming the colour of the word, printed in a colour not denoted by the name, in a limited time of 45 seconds (Jelenc, 1999).

The choice of activities and the basic guidelines for working with an individual child was designed after having studied numerous sources and a vast literature. The choice was adapted to their age, abilities, interest, and personal conditions. Before planning the programme we consulted the departmental psychologist and special educator and we analysed a child's story (BASIC Ph). The analysis of a child's story is a projective technique used to study a patient's strategy of coping with stress (Ayalon, 1995). Information obtained was supplemented by consulting other sources (discussing with children, parents, and teachers).

The sessions were held at the Divison of Paediatrics mostly by a child's bedside. They were carried out in the period of three months. Activities were planned and carried out mostly individually, occasionally in a pair or in a small group. The duration of an activity was adapted to a child's physical and psychological well-being, their treatment schedule and their schoolwork. Most activities were limited to 45 minutes (one school lesson). A purpose, a course and operational objectives were defined for each activity. All observations were recorded in an observation scheme, prepared beforehand. After a session, an analysis of obtained objectives was carried out. When necessary, additional analysis and observations of a child's creative piece of work was made.

### Methods of data processing

Qualitative data analysis consists of data and context description, their analysis and integration. The process of a qualitative analysis of children's creative works contains the process of concept explication (Mesec, 1998). In the framework of a qualitative research, the conclusions were based on analytic induction (analytical generalization). We considered rules and principles of the qualitative analysis procedure according to Glaser and Strauss – gradual abstraction of common characteristics of various elements observed (statements, records). Analysing individual activities we focused particularly on the analysis of achieving operational objectives and on defining possible obstacles in achieving them. To illustrate (un)successful approaches in working with children, we associated our conclusions with their feedback (related to implementation of individual activities and children's satisfaction in participating in them), as well as with our observations related to their creative works. Further processing included integrating and consolidating our findings, to extrapolate them to a wider population of ill children.

## **Results and Discussion**

Data obtained from the selected sample show that special educators (managing the activities) need to design several methodical and didactic adaptations when selecting creative and relaxation activities for the children with cancer. Adaptations are, due to the nature of the problem, somewhat different from those applied in other groups of children with special needs. Apart from a child's characteristics, they

need to consider numerous other factors which are the result of the course of illness, treatment and hospital environment.

Observations and the responses of children show that they are encouraged to participate in the activities by their desire and the possibility to prove themselves, to receive a positive acknowledgement through the creative activities. Importance of creating a sense of personal efficacy in a child is confirmed by some of the responses provided by children (explained in Table 1 and Table 2), showing their explanation of the choice of symbols on a visual analogue scale at the end of the activity. The choice of a happy facial expression is mostly related to a finished piece of work. Our research did not confirm Sugman-Bohinc's claims (1994) saying that what is important is not a finished piece of work but rather a participation in the activity itself. To enable a child to feel successful, activities need to be planned in a way to give them a possibility to complete their task in the time given.

## Table 1. Child 2 – Explanation of the Choice of Symbols on a Visual Analogue Scale at the End of the Activity

Activity	Choice of symbols on a visual analogue scale at the end of the activity	Explanation
1	Happy facial expression	»because I've made a leaflet. «
2	Happy facial expression	» because I've made a leaflet.«
3	Neutral facial expression	The nausea has stopped.
4	Neutral facial expression	»I don't know what to draw«
5	Neutral facial expression	Without explanation

Table 2 Child 3 - Explanation of the Choice of Symbols on a	Visual Analogue Scale at the End of
the Activity	

Activity	Choice of symbols on a visual analogue scale at the end of the activity	Explanation
1	Happy facial expression	Without explanation
2	Happy facial expression	» because I've made a leaflet. «
3	Happy facial expression	Satisfied with the piece of work created
4	/	Without explanation
5	Happy facial expression	»I've enjoyed playing with dust«

Scheme 1 illustrates an example of a composite activity planning, broken into short, independent steps. Instructions are given to children gradually (after completing one step, they get instructions for the next step). Each step, representing a finished task (with a finished piece of work), it is easier for a child to feel successful. According to Trstenjak (1981), a sense of one's own success provides motivation, freedom, contributes to self-awareness, self-image, self-testing and communication development. With such activity planning we were able to easily adapt to the child's needs, even after numerous interruptions caused by their fatigue, medical examinations, visits etc.

1.1	Creating tangrams		
Tools: a tangram game, drav	wing tools, a drawing sheet		
Stimulating creative shape forming, relaxation, amusement         OBJECTIVES:         - Assembling geometric shapes - tangrams to create various figures, following a template. - Creating figures, according to a specific topic.         - Creating random figures.	Child is given an instruction sheet and some suggestions for creating various figures. After the activity of creating figures by using templates, we encourage a child to create figures autonomously. If necessary we help them choose a topic, e.g. 'Assemble shapes to create a flower/tree/car/countryside etc'. A child puts the shapes together randomly, without a predetermined solution. We encourage a child to choose topics autonomously.		
1.2	Artistic processing of composite figures		
<u>Stimulating creativity</u> <u>through art,</u> <u>Stimulating thinking</u> <u>about the impact of</u> <u>colours on emotional</u> <u>well-being.</u>	After having assembled shapes into random figures, a child receives instructions to outline the figure on a drawing sheet. A child receives instructions and drawing materials gradually, following the next steps:		
OBJECTIVES:	warm colours.		
- Outlining the chosen figure on a drawing sheet. -Inner side of the figure is filled with random patterns, using warm	<ul> <li>2. The background is designed, using cool colours.</li> <li>The background is filled with lines. They can be vertical, horizontal oblique etc.</li> </ul>		
<ul> <li>colours.</li> <li>The background is filled with lines, using cool colours.</li> </ul>	3. A child is engaged in observation and discussion about the drawing.		
- Answering questions about the drawing.	-What does the warm/cool part of the drawing represent? -Which group of colours would you choose to draw a school / happiness/ joy / childhood/ hospital?		
	- Observe both parts of the drawing. Which do you find »nicer«?		
	- Which colour would you choose to paint your room/playroom?		
	- What is the colour of the hospital room? Why do you think it is painted in that colour? etc.		

Scheme 1. Composite Activity Planning

Our findings demonstrate that one of the factors which need to be considered when planning creative activities is a choice of techniques. In doing so, we need to take into account the objectives set for working with children. To express less tangible motives (what is happening inside a child's mind, emotions etc.), it is recommended to choose the painting techniques which do not demand attention to details and forms e.g. drawing with chalks on sandpaper, displaying an image by putting matches on paper, drawing with crayons, watercolours etc. We also need to adapt objectives to a child's abilities, their physical and psychological conditions and to the level of the task difficulty. In fact, children were more successful in expressing their emotions when the activity contained a simple work technique. A complex work technique made children become more focused on the procedure itself, not on the content of the activity. Children becoming tired very quickly, we need to pay attention to the duration of the activity and allow enough time for them to get familiar with the work techniques. We noted that they

became more relaxed and creative only when they got familiar with the instructions and rules of each activity.

Expressing concerns, thoughts and emotions can be very difficult to an ill child. This can be facilitated by using activities which enable both verbal and non-verbal ways of expression. An important factor in this case is a trusting relationship between a child and the person who conducts an activity. This is also evident from children's works which become more original as the relationship develops. In addition, the activities need to allow enough freedom and choice. open problems in art, open target situations, as they encourage creative solution finding and represent a challenge. In this way it is easier for us to approach a child's interests, abilities and strengths.

Walsh et al. (2007) stress the importance of parent participation in implementing creative and relaxation activities. It facilitates the creation of a pleasant and encouraging atmosphere. The present study evidences an important role of parents for children's initial motivation for participation. This is particularly true for the first session with a child, when a child and their family still need to familiarize themselves with a new situation. Observations of a child's attitude while engaged in an activity, show that it is suitable to plan various expressive techniques, allowing relaxation and expression of emotions; shorter activities (they stay focused for a short time); less demanding, simple activities (they react turbulently when faced with an obstacle, become nervous, less motivated) and more encouragements. Children should be given a possibility to participate only partly (e.g. they can participate only in one step of the activity). It is a special teaching approach which offers more adaptation possibilities when planning an activity. A child gets involved in an activity when they are ready. This way of working is particularly appropriate when we need to consider some key objectives and principles for using creative activities in the hospital environment (completing a creative piece of work, freedom of choice, including one's own ideas). It is, however, more difficult to predict a child's response, their physical and psychological conditions and the obstacles (Jenko & Lipec-Stopar, 2010).

When a child avoids peer contacts, we can still encourage their sense of participation and involvement (e.g. within the hospital department, with peers from their school), using certain adaptations of creative and relaxation activities. At first, it is suitable to use methods with less direct contact, giving a child a possibility to contribute to the final result of the group. A child can view a finished piece of work in person or in a photo. The possibility to observe a finished piece of work, made by a group, enables a child to feel part of the group, without having any direct contacts.

The use of ICT provides numerous possibilities for realising objectives in the social field. Its use enables children to participate in creative and relaxation group activities, preventing them to feel lonely; it facilitates the exchange of experiences and thoughts with other children who are also struggling with various illnesses and connects them with peers from their home environment. At the same time, its use makes it easier to regulate the intensity and duration of the communication, which is particularly important for children who refuse contacts. Certain means of communication ensure less intensity than others (e.g. e-mail as opposed to a video conference), which can have advantages when working with severely ill children.

Through an appropriate selection of methods, we can use creative and relaxation activities to regulate direct contacts between children and thereby facilitate their gradual integration. Initial involvement of children in group work can be adapted in a way that it demands a minimal collaboration with other group members (exchange of materials), avoiding ulterior emotional distress.

### Conclusion

Special educator needs to adequately adapt the work methods and find suitable forms of assistance and support to provide a quality treatment for children with cancer. This is true both for schoolwork as well as for planning creative and relaxation activities, in order to provide comprehensive support to an ill child. Planning and implementing creative and relaxation activities thereby demands a lot of resourcefulness and flexibility on the part of special educators. They need to consider specific methodical and didactic adaptations, which are, due to the nature of the problem, somewhat different from those used in other groups of students with special needs. Apart from a child's characteristics, various factors, which are the result of the course of illness and its treatment, need to be taken into account.

Observations obtained in the study and the children's responses, both contributed to a more precise definition of some efficient approaches, used when working with children with cancer. Adaptations are

related to various aspects of using creative and relaxation activities; from organisation and implementation, to the choice of methods, teaching techniques and contents.

The described approaches contribute to development of a teaching model for children with long-term illnesses and help to overcome the obstacles and problems that often arise when working with that particular group of children. With adaptations of creative and relaxation activities, we proposed some efficient suggestions for encouraging children to express their concerns, thoughts, emotions; to communicate with their peers or with those from the same hospital department. We also identified some organisational adaptations which facilitate coordination of work and children's needs their treatment schedule etc.

This study primarily focuses on the use of creative and relaxation activities, aimed at guiding children in focusing on their inner world and ways of expressing it. A number of authors (Minou, 2006; Mynarikova, 2012; Šugman-Bohinc, 1994, Poštrak, 2007, Walsh et al., 2007) point out the possibility of using creative and relaxation activities for different purposes and with different objectives. By changing purposes and objectives, we change the adaptation needs as well. Therefore, more attention should be paid to studying efficient approaches and suitable adaptations for achieving objectives, relative to: maintaining contacts between children and their home environment, integrating them in peer groups and back to their school class; exchanging experiences with other ill children, facing with late cancer effects; involving parents into implementation of the activities, etc. Efficient ways of transferring this teaching model from the hospital environment to children's school class, together with the activities carried out by the support group, still remains an open issue.

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## BRIEF REPORT: AN EVALUATION OF AN AUSTRALIAN AUTISM-SPECIFIC, EARLY INTERVENTION PROGRAMME

Jessica M. Paynter Emma P. Riley AEIOU Foundation

**Wendi Beamish** *Griffith University* 

James G. Scott The University of Queensland

Helen S. Heussler Mater Research Institute-UQ

There is a relative paucity of evidence examining the effectiveness of early intervention for young children with Autism Spectrum Disorder, in particular those delivered through educationally-based programmes. This study aimed to evaluate the real world effectiveness of a community-based autism-specific early learning and intervention programme in Australia. Children enrolled between February 2010 and May 2013 who had a diagnosis of an Autism Spectrum Disorder was eligible to participate in the study. Fifty-nine children with a mean age of 3.98 years participated. Cognitive ability, language, autistic symptoms, and motor skills were assessed at baseline and follow up (12 months or at programme exit) using standardised measures. Pre- and post-measures were compared using paired sample t-tests. Significant improvements were found in receptive and expressive language, autism symptoms, and overall adaptive behaviour. No significant change was found in motor skills. Children with Autism Spectrum Disorder attending the community-based programme had significant gains particularly in domains of cognition and language. Study limitations are discussed.

Brief Report: An Evaluation of an Australian Autism-Specific, Early Intervention Programme Early intervention for children with Autism Spectrum Disorder (ASD) has been recognised as a health and educational priority (Charman & Howlin, 2003; Lord et al., 2005). There has been considerable research into Early Intensive Behavioural Interventions mainly in university trials (see review by Magiati, Tay, & Howlin, 2012). However, research has paid little attention to other models of intervention for young children with ASD, particularly in community settings (Benvenuto, Battan, Benassi, Gialloreti, & Curatolo, In Press). Such research is vital, as other models of intervention, specifically educationally-based programmes, are frequently delivered in local communities (Howard, Sparkman, Cohen, Green, & Stanislaw, 2005).

The Queensland Autism-Specific Early Learning and Care Centre (ASELCC) is one of six federally government funded community-based intervention centres providing affordable specific support and early learning programmes to children with ASD (Department of Families, Housing, Community Services, and Indigenous Affairs, 2009). A non-government organisation, based in Australia, AEIOU Foundation, delivers the Queensland ASELCC early learning and care programme within an autism-specific long day-care service model. The programme (for further programme information, see Paynter & Falvey-Henderson, 2011) is consistent with the Australian Good Practice Guidelines for Early Intervention in ASD (Prior & Roberts, 2012) as described in Table 1. The programme involves 25 hours

per week of intensive programme time for children who attend full-time. Staff includes speech and occupational therapists, early childhood teachers, and childcare professionals.

Good Practice Guideline	AEIOU Programme Elements
Assessment of strengths and needs to inform programming	Completion of standardised assessments (see Methods) on intake as well as classroom observations and parent interviews.
Individualised programming based on above Review, evaluation, and adjustment of program	All children have an Individual Plan (IP) that guides programming. Children's IP is reviewed at least every six months or earlier by parent request or if goals are met. Programme is adjusted from this information.
Relevant programme content addressing autism features (e.g., communication)	AEIOU uses its own autism-specific curriculum that focuses on four key areas: social emotional; language and communication; physical; and cognitive.
Highly supportive teaching environments and generalisation strategies	Teaching environment features a range of appropriate environmental supports to facilitate learning and generalisation such as visual supports, work systems, and structured teaching.
Predictability and routine	Classrooms follow a daily schedule and children have a visual schedule where indicated by assessment of strengths and needs to make routines predictable.
Functional approach to challenging behaviour	Positive behaviour support approach.
Transition support	Families receive training on educational options throughout the year, are supported when choosing their child's next educational setting, and visits from and to schools are included.
Family involvement	Families are included as partners in goal setting, and are encouraged to share their knowledge of their children and participate in AEIOU activities, decisions, and training.
Use of visual supports	Visual supports are used throughout the environment including schedules, augmentative and alternative communication devices and supports, and work schedules.
Multidisciplinary collaborative approach	Staff include teachers, childcare professionals (Diploma in Early Childhood and/or Certificate III in Early Childhood Education), speech pathologists, and occupational therapists working together in a multidisciplinary collaborative team.
Staff with knowledge and experience of ASD	Staff receive regular training via an initial induction, weekly staff meetings, professional development activities, and an annual staff conference.
Targeting of child goals in small group context with at least two adults to six children	Learning centres are conducted in small groups that target children's goals. Ratio varies between 1:1 to 1:4 dependent on children's level of independence.
Research and evaluation of programme	Systematic assessment of children's communication, thinking and reasoning, social and adaptive functioning on intake, 12-months and exit to the programme using standardised assessments.

Table 1. Good Practice Guidelines (Prior & Roberts, 2012) and AEIOU Programme Elements

As part of the ASELCC initiative, ongoing data have been collected via child assessments and parent questionnaires. A pilot evaluation (N = 10) of the AEIOU<sup>1</sup> Programme (Paynter, Scott, Beamish, Duhig, & Heussler, 2012) showed promising results in terms of improvements in educational and cognitive skills, adaptive behaviour, and autism symptoms. Significant gains on cognitive verbal/preverbal, fine motor, visual-motor imitation, and social reciprocity were found on the Psycho-Educational Profile-3, together with gains in age-equivalent scores on the receptive language scale of the Mullen Scales of Early Learning. Gains in age-equivalent scores on some subscales of the parent-rated Vineland Adaptive Behaviour Scales, including expressive and written communication, and fine motor scales were found. A

reduction in autism symptoms was indicated by parent ratings on the Social Communication Questionnaire. However, the small number of children necessitated further evaluation of a larger sample. The present study builds on the pilot evaluation using data collected over a 3-year period. The aim of this study is to evaluate the AEIOU programme as implemented at the Queensland ASELCC through evaluating changes in children's intellectual and adaptive functioning, as well as their level of autistic symptoms. Based on previous research (Paynter et al., 2012) it was predicted that children would show improvements in these areas.

## Methods

## Ethics

Ethics approval was granted by Griffith University (Protocol Number EBL/88/10/HREC). Signed informed consent was obtained from parents of participating children.

#### **Participants**

This study includes children who entered the Oueensland ASELCC from February 2010 and finished their placement by May 2013 with 68 of 94 eligible children's families providing consent (response rate of 76%). Eligibility for entry to the programme included a DSM-IV diagnosis (American Psychiatric Association, 2000) of ASD including Autistic Disorder, Asperger Disorder, or Pervasive Developmental Disorder - Not Otherwise Specified by a medical practitioner (paediatrician, child psychiatrist, or neurologist) not associated with this research project, combined with a chronological age at intake between 30 and 71 months. All children included in this study had a Social Communication Questionnaire (SCQ: Rutter, Bailey, & Lord, 2003) score greater than 11 as recommended by Lee, David, Rusyniak, Landa, and Newschaffer (2007). The initial sample included 68 children; however, three were excluded due to having an SCQ score under 11, and six were excluded because their parents did not return the SCQ at intake (pre-test). Therefore, this study included 59 children, with 83% of them being male. The mean age was approximately 4 years (Mean age = 3.98 years, SD = .81, range 2.65-6.05) and the majority (64%) had an Autistic Disorder diagnosis. The majority of children were born in Australia (86.4%) and spoke English as their primary language at home (83.1%), although a significant minority (27.1%) of families identified that they were from a culturally and linguistically diverse background. The majority of children lived with both parents (88.1%) and many parents reported a tertiary qualification (primary carer: 71.1%; secondary carer: 64.4%)

#### Measures and Procedure

Measures were completed at intake, and then after 12 months in the programme, or on exit, whichever came first. Child assessments were conducted predominantly by the first or second author, AEIOU staff members with experience in assessing children with ASD, who were not involved in the daily programme implementation or design of individual programmes. Although assessors were not strictly blind to intake assessments, these were not reviewed prior to Time 2 assessments, and due to the high volume of assessments conducted it was unlikely that individual child data was remembered from assessments conducted approximately 12 months earlier.

Child assessment was conducted using the *Mullen Scales of Early Learning* (MSEL: Mullen, 1995) which is a standardised assessment of early developmental skills commonly used to assess cognitive functioning in young children with ASD in previous research (Eapen, Črnčec, & Walter, 2013; Vivanti, Dissanayake, Zierhut, & Rogers, 2013). This measure includes five subscales including Gross Motor, Visual Reception, Fine Motor, Receptive Language, and Expressive Language. The Gross Motor subscale was not administered in the present study because of the low ceiling (norms up to 33 months only) of this scale. This measure yields raw scores, age equivalents and standardised T scores. However, the majority (e.g., at pre-test, Receptive Language Scale 74.6%, Expressive Language scale 71.2%) of children in the present study did not achieve sufficiently high raw scores to allow calculation of a T score with their performance at less than the 1<sup>st</sup> percentile relative to typical development. As such, developmental quotients (DQs) were calculated for each subscale by dividing children's age equivalent scores by their chronological age and multiplying by 100, as has been done in previous studies with this population (e.g., Eapen et al., 2013). In addition, an overall MSEL DQ was calculated for each child by summing the four scales and dividing this by four. DQs were subsequently used as the unit for analysis to allow comparison of changes over time controlling for age.

ASD symptoms were measured using the SCQ, a short 40-item questionnaire derived from the Autism Diagnostic Interview-Revised (Lord, Rutter, & Le Couteur, 1994). On this questionnaire, parents indicate whether a child displays characteristic autistic behaviours and a total score was used in the

present study to both verify diagnosis and monitor changes in symptom level over time. This measure shows good psychometric properties (Berument, Rutter, Lord, Pickles, & Bailey, 1999) and has been commonly used as a measure of autism symptoms (e.g., Eapen et al., 2013; Paynter, Riley, Beamish, Davies, & Milford, 2013).

The Vineland Adaptive Behaviour Scales- 2<sup>nd</sup> Edition (VABS: Sparrow, Dominic, Cicchetti, & Balla, 2005) parent-caregiver version measured adaptive behaviour in four domains: Communication, Daily Living skills, Socialisation, and Motor Skills. Raw scores were converted into standard scores using tables in the manual. An overall Adaptive Behaviour Composite (of the four domain scores) was likewise calculated. This measure shows good psychometric properties (Sparrow et al., 2005) and has been widely used to assess changes in adaptive behaviour in other ASD early intervention studies (e.g., Eapen et al., 2013; Vivanti et al., 2013). Statistical analysis used paired sample t-tests to compare pre-and post-assessment scores on all measures.

## Results

The average time between pre- and post-assessments varied between measures due to instrumentation change in the first year (MSEL), child availability for scheduling assessments, and parent return time of questionnaires. The average time between assessment completions were: SCQ, 10.39 months (SD = 2.10, range 4.50-12.98 months); MSEL, 9.36 months (SD = 1.82, range 6.21-13.01 months); and VABS-II, 9.11 months (SD = 2.27, range 4.50 - 13.37 months).

#### Cognitive Functioning (MSEL)

Significant increases in children's overall DQ, as well as Receptive and Expressive Language DQs were found with a small effect (see Table 2). No significant changes were found in DQs on the Visual Reception or Fine Motor scales.

## Autism Symptoms (SCQ)

Table 2 shows a significant decrease in mean SCQ scores from pre- to post-testing with a medium effect, indicating a reduction in ASD symptoms.

#### Adaptive Behaviour (VABS)

Significant increases in children's standard scores on the overall Adaptive Behaviour Composite, as well as on the Communication domain both with medium effects were found (see Table 2). No significant changes were found on the Socialisation, Daily Living Skills, or Motor Skills domains, although changes were found in the expected direction.

## Discussion

We report one of the first real-world effectiveness studies of an Australian-developed educationallybased early intervention programme for young children ( $2\frac{1}{2}$  to 6 years) with ASD. Participants in the AEIOU programme showed significant gains on a range of clinical outcomes, particularly communication scales on the MSEL, autism symptoms, and overall adaptive behaviour. Results were consistent with and stronger than, the previous pilot findings with a small sample (Paynter et al., 2012) and may be due to having sufficient power in the present study to detect small to medium effects.

Improvements in the overall adaptive behaviour score on the VABS were largely attributable to gains in the communication subscale. The finding of significant gains in standard scores on the communication measures (both VABS and MSEL) reflects the areas of focus in the AEIOU programme (Paynter & Falvey-Henderson, 2011). In addition, areas of significant gain on the MSEL scales (receptive and expressive language) also reflect areas of greatest difficulty and may thus have been areas of targeted learning in children's individual plans.

Although results are promising, the study had three key limitations. These were the lack of a control group, the programme not being fully manualised, and diagnosis not being verified beyond a brief screen with the SCQ. Lack of a control group raises the concern that significant improvements may be due to maturation or other effects. However, at least in terms of cognitive skills and adaptive behaviour, as argued also by Eapen and colleagues (2013) in their pre-post intervention study, this seems unlikely for three key reasons. First, key improvements were made in standard scores or developmental quotients standardised for age; this suggests changes are greater than what would be expected due to maturation. Second, at least in terms of cognitive skills, previous studies (see review by Begovac, Begovac, Majic, & Vidovic, 2009) have generally suggested that IQ tends to be stable over time, thus improvements are unlikely to be due to maturation. Although some studies have found improvements over time and *catch*-

*up* in development these changes tend to be in higher functioning children and those with PDD-NOS (e.g., see review by Begovac et al., 2009). Given the majority of our children scored below the 1<sup>st</sup> percentile on the MSEL, it is unlikely that this occurred in the present study. Third, previous studies have found among children with lower levels of functioning, regression is actually the more common course (e.g., see review by Begovac et al., 2009). However, it is acknowledged that there is some evidence that the level of ASD symptoms may remit over time (see review by Levy & Perry, 2011). Thus, it is unclear whether improvements in ASD symptoms may be attributable to participation in the AEIOU programme, maturation, a combination of both, or additional factors. Future research of community-based interventions in educational settings needs thus to incorporate appropriate control groups.

Programme						
	Time 1	Time 2	t	df	р	Cohen's
	(SD)	(SD)				d <sup>a</sup>
MSEL						
Visual Reception DQ	55.75	58.86	1.39	57	.17	.21
	(20.19)	(28.91)				
Fine Motor DQ	54.68	54.10	.39	57	.70	05
	(18.05)	(21.57)				
Receptive Language	39.64	44.68	2.65	57	.01*	.35
DQ	(22.98)	(23.91)				
Expressive Language	40.12	44.75	2.04	57	.046*	.27
DQ	(25.80)	(24.67)				
Overall MSEL DQ	49.28	52.21	2.17	54	.034*	.30
	(20.68)	(22.74)				
SCQ						
Total Score	18.61	15.65	4.58	53	< 0.001***	67 <sup>b</sup>
	(4.34)	(6.24)				
VABS-II						
Communication	68.33	75.08	4.19	51	< 0.001***	.59
Standard Score	(18.00)	(20.63)				
Socialisation	72.14 (10.67)	73.08	.68	49	.50	.10
Standard Score		(14.54)				
Daily Living Skills	70.14 (13.53)	72.39	1.22	50	.23	.19
Standard Score		(20.17)				
Motor Skills Standard	77.02 (13.08)	78.51	.95	50	.35	.14
Score		(15.11)				
Adaptive Behaviour	69.28 (11.96)	73.38	3.38	49	.001**	.54
Composite Standard		(16.17)				
Score						

Table 2.	Change in	Scores from	Pre- to	Post-Testing	in Children	Attending the AEIOU

\* *p* < .05; \*\* *p* < .01; \*\*\* *p* < .001.

<sup>a</sup>Corrected for dependence between means using Morris and Deshon's (2002) equation 8.

<sup>b</sup>Negative effect size denotes a reduction in ASD symptoms from Time 1 to Time 2 with lower SCQ scores indicating fewer symptoms.

While the AEIOU programme is not fully manualised, it meets Australian Good Practice Guidelines (Prior & Roberts, 2012) and is documented in the organisation's current policies and procedures. A formal manual with protocols and fidelity measures is in development. Programme manualisation will operationalise core components and enable measurement of treatment fidelity, which in turn will allow comparison in controlled trials and potential independent evaluation of autism-specific intervention programmes in the future.

All children in the present study had been diagnosed by a medical professional independent of the study to meet eligibility criteria (DSM-IV) for entry to the programme as well as to access funding. In addition, they were in the clinical range on the SCQ. However, in the wake of the release of DSM-5 (American Psychiatric Association., 2013), it is becoming increasingly important to clearly specify children's diagnosis and to verify diagnosis. It is unknown if all participants would meet DSM-5 criteria or established gold-standard criteria on the Autism Diagnostic Observation Schedule (Lord, Rutter, DiLavore, & Risi, 2001). Nevertheless, the present results show real-world outcomes for the children

who present to a community-based intervention centre and may have more relevance for everyday clinical practice.

In conclusion, despite the acknowledged limitations, this research provides valuable new information about the value of centre-based autism-specific intervention programmes for children with ASD that use an educational model. It suggests promising results in terms of outcomes for young children with ASD with respect to cognitive skills (particularly verbal scales), adaptive behaviour (overall and communication), and autism symptoms.

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## CULTURAL AND LINGUISTIC DIVERSITY AND SPECIAL EDUCATION: A CASE STUDY OF ONE MOTHER'S EXPERIENCES

## Sherry L. Steeley

Georgetown University

## Karrin Lukacs

Shenandoah University

Special education services have seen great improvement since the passage of the Individuals with Disabilities in Education Act (IDEA) in 1975, but culturally and linguistically diverse (CLD) families still face exceptional challenges when advocating for special education services for their children (Artiles & Harry, 2006; Palawat & May, 2011). Beyond language barriers, school culture and the special education system are often challenging to navigate, and cultural misunderstandings may lead to over-representation or the provision of services that fail to meet children's needs (Artiles & Harry, 2006; Palawat & May, 2011). This study investigates the case of one such family across several school districts and early intervention settings to identify areas of success and shortfalls, in order to contribute to research on critical needs for further improvements in special education relationships and services for CLD families.

## Introduction

Although the U.S. has made great strides in providing special education services to students with learning differences, non-native speakers of English face particular challenges when advocating for their children's special education services (e.g. Blue Banning et al., 2004; Summers, 2005). Yet while children who are English Language Learners (ELLs) and students who are culturally and linguistically diverse (CLD) are over-represented in special education (e.g. Banks & Banks, 2007; Hardin, 2009), little work has been done to explore the experience of parents working to attain services for their children.

Based on our own experiences as native English speakers working in the education field, and as parents of children with special needs and IEPs, we know that navigating the special education system can pose challenges. These may be even more daunting for non-native speakers with no prior school experience or inside knowledge of how school systems operate. Due to the gap in research on special education services and CLD families, this study focuses on the experience of one family that has experienced multiple school environments and service providers in their quest to find the right *fit* for their son.

This case study provides an initial data set in order to answer the following research questions:

- How has this family experienced the special education process?
- What, in the parents' view, have the school districts done well?
- What have been greatest frustrations for these parents?
- What suggestions do they have for improvement?

Based on the case, we have developed a set of recommendations that policy makers should consider in developing more targeted interventions to support the needs of CLD families. While many families in the U.S. face challenges in obtaining adequate services for their children, the additional obstacles of language and cultural differences require support and mediation between home and school cultures.

Within the school culture, cooperation and collaboration are needed among specialists in language acquisition, special education, and general education so that appropriate interventions can be designed in conjunction with the input from CLD families.

## Review of Literature

Since the passage of the Education for All Handicapped Children, the precursor to the subsequent Individuals with Disabilities in Education Acts (P.L. 94-142) in 1975, federal, state, and local education districts have made extensive efforts to enact educational policies and programs to meet the educational needs of individuals with learning differences (U.S. Department of Education, 2010). Improvements have been hastened by research and practice in early identification and intervention, research-based programming, a focus on transitions and educational outcomes, and an emphasis on parent involvement as part of the Individual Educational Program (IEP) planning process. A key element has been a commitment to culturally relevant instruction for diverse learners in inclusive environments (U.S. Department of Education, 2010, p. 7). While research through the 1980s documented that culturally and linguistically diverse students with special needs received watered down instruction in segregated settings (U.S. Department of Education, 2010, p.7), there has been a concerted effort to improve since then, with a focus on culturally relevant instruction and assessment that is validated and linked directly to curricula, including for students whose native language is not English. Improvements in this domain have mirrored efforts to close the persistent achievement gap for CLD students living in poverty, as illuminated by the reporting required by the No Child Left Behind Act (Carey, 2014; Kim & Sunderman, 2005).

## CLD Parent Involvement in U.S. Education

A great deal of research and advocacy has been devoted to the issue of increasing the involvement of CLD families in U.S. schools and overcoming the cultural differences which separate U.S. school culture from CLD families (e.g., Berman et al., 2000; Borman et al., 2000; Brooks et al., 2010; Bruner, 1996; Cummins, 2000; Erikson, 1996; Gebhart et al., 2002; Good et al, 2010). Historically, the teaching profession has been predominantly populated by teachers who are White and middle class (e.g., Goldring, Gray, Bitterman, & Broughman, 2013, p.3; Sleeter, 2001; p. 94), and as a result, there is a long history of cultural and linguistic misunderstandings that have created barriers to communication and collaboration between CLD families and U.S. schools (e.g., Berman et al., 2000; Brooks et al., 2010; Lacking knowledge of other cultures, school administrators and teachers often Good et al., 2010). attribute this lack of collaboration to indifference, low levels of education, and lack of support (Banks & Banks, 2007; Good et al. 2010; Mapp, 2003; Valenzuela, 2004). However, with the correct structures in place, CLD families welcome the opportunity to contribute to their children's education and to demonstrate their belief in the value of that education (Banks & Banks, 2007; Berman et al., 2000; Brooks et al., 2010; Good et al., 2010; Mapp, 2003). This is especially true when these children require services outside the mainstream classroom.

## CLD Students in Special Education

Culturally and linguistically diverse students are overrepresented in special education in general (Baca & Cervantes, 2004; Banks, & Banks, 2007; Gay, 2002; Harry, 2008; Skiba et al., 2008), and within special education settings in particular, CLD students are assigned to more restrictive environments than students who are White (McDermott, Goldman, & Varenne, 2007, p. 12). Although the causes of this are not clear, and the trend is not monolithic across groups and categories, at least part of the problem can be attributed to cultural misunderstandings (Baca & Cervantes, 2004; Banks & Banks, 2007; Harry, 2008; Meyer et al., 2007; Skiba et al., 2008).

For example, Hardin et al., (2009) posit that English language learners (ELLs) are overrepresented in special education due to the misunderstanding related to cultural differences, a lack of special education staff with linguistic and cultural skills, and communication challenges such as language barriers between parents and schools. In addition, assessment and interpretation of behaviors, appropriate service delivery, establishment of goals and outcomes, and other critical aspects of the special education process are often influenced negatively by dominant culture school administration (Baca & Cervantes, 2004; Banks & Banks, 2007; Meyer et al., 2007). As a result, overlaps in the classification of English language learners (ELLs) and special education placements that rely on professional judgment such as Emotionally Disturbed (ED) and Learning Disabled (LD) are disproportionally represented to a far greater extent than diagnosis-based categories (McDermott et al., 2007).

Although many districts are making strides in providing better services for students in need of both English services and special education, numerous barriers remain for culturally and linguistically diverse (CLD) parents of English language learners (ELLs) in the special education system. This is particularly true of the Individualized Education Program (IEP) process (Baca & Cervantes, 2004; Harry, 2008; Hardin et al., 2009; Hart et al., 2012; Meyer et al., 2007).

### Obstacles for CLD Parent Participation in Special Education

Pursuant to the principles in the IDEA and the guidelines adopted by the U.S. Department of Education, there is a commitment to enacting collaborative partnerships with families (U.S. Department of Education, 2010). In terms of parent participation in the identification, eligibility, goal-setting and placement stages of the IEP process, involvement is legally mandated (Valenzuela, 2004). Nevertheless, it is often the case that very little interaction occurs during IEP meetings (Steeley, 2005; Valenzuela, 2004, p. 368). This is true for several reasons.

First, school officials may take a *deficit* view of CLD students and families, viewing their differences as deficiencies, rather than valuing their addition of linguistic and cultural capital to the school's diversity overall (Harry, 2008, p. 372; Valenzuela, 2004). Next, secretaries or other non-educational personnel are often pressed into the role of translator for IEP meetings. While likely well-intentioned, these individuals are not versed in special education language and nuance and can unwittingly undermine effective parent understanding and participation (Hart et al., 2012). Finally, there is a persistent assumption that CLD families are unconcerned about their children's education, or that they lack education themselves so are therefore incapable of contributing to a partnership (Banks & Banks, 2007; Meyer et al., 2007; Valenzuela, 2004). However, when the school makes efforts to ensure equitable participation across groups, CLD parents are engaged and invested in their interactions with schools (Mapp, 2003; Meyer et al., 2007; Valenzuela, 2004).

For example, in their work with 137 CLD families, Blue Banning et al., (2004) found that CLD families seek positive collaboration in the following ways: 1) positive and understandable and respectful communication; 2) a commitment to the child; 3) equal power in decision making; 4) competent implementation of goals; 5) mutual trust; 6) mutual respect (Blue Banning et al., 2004). Summers et al., (2005) used this research as the foundation for their *Family Professional Partnership Scale*, but given the difficulty of accessing this population, this has been used on a limited basis with CLD families (Harry, 2008).

In sum, effective practices for collaboration with CLD families involved in special education requires a foundation built upon trust between parents and professionals rather than *the more narrow framing of participation required by law, such as attendance at formal meetings and signatures at selected meetings arranged by professionals* (Meyer et al., 2007, p. 380). Such formal meetings are often characterized by technical discussion among professionals in language that can seem opaque and obfuscatory at best, and overwhelming and alienating at worst (Steeley, 2005).

### Purposes of Study

Building on our experiences as K-12 practitioners and parents of children with IEPs, this study seeks to extend current understandings of CLD family experiences with special education by using some of the constructs identified in previous research (e.g., Blue-Banning et al., 2004; Summers et al., 2005) to examine one family's experiences with the provision of services for their CLD child.

We initially undertook this study to investigate explore the obstacles faced by CLD parents in general, but given that Ms. G's experiences were so compelling, we determined that our conversations with her merited a case study approach. Because she encountered, named, and sought to overcome a variety of difficulties throughout the early years of her son David's education, we believe that her story has the potential to inform policy makers and practitioners alike. In this way, we hope to contribute to broader understandings by schools and service agencies working with CLD families in need of services for their children.

### Methods

### Participant Recruitment and Interview Techniques

In order to recruit participants for this study, we developed a flier for distribution through local special education professionals, occupational and speech therapists, and other locally based professionals (see Appendix A). Respondents were invited to meet with us for semi-structured interviews based on the

Interview Protocols presented in Appendix B. Given the individual nature of experience, however, we used the protocols as a guide to ensure coverage, allowing participants to speak in a more open-ended way that reflected their priorities, experiences, opinions, and views of their children and the educational process. We attained written and verbal consent, guaranteed anonymity, and secure digital files under coded names to protect participant identity.

First, following up on our recorded interviews, we transcribed the sessions. Next, we reviewed transcripts to identify overall themes, and then analyzed the transcripts with both categorizing and connecting strategies in mind. We coded initially for emic or emergent themes and then applied etic codes based on the categories previously identified as best practices for school systems working with CLD families involved in special education services.

Resulting themes suggest numerous structural issues that may benefit school districts, parents, and special educators alike.

#### Participant: Ms. G

The subject of this interview is Ms. G, the mother of David, an 11-year old boy with Down syndrome and sensory processing issues. Ms. G is a native speaker of Spanish, and her husband is a native speaker of Tagalog. Both are fluent in English. The extended family includes speakers of both Tagalog and Spanish, and David has been consistently exposed to multilingualism throughout his life. Ms. G holds a graduate degree in the field of communications from a well-regarded university, and she works in a professional setting using this degree. In an extensive interview, Ms. G discussed her experiences dealing with three different educational settings: a private preschool, a medium-sized public school system in a relatively affluent suburban district, and a public urban charter school.

#### Data Analysis and Validity

Because Ms. G's experiences superseded the pre-existing etic framework based on a synthesis of research in this field (e.g., Blue-Banning et. Al., 2004; Summers, 2005) with which we began this project, we concluded that reporting findings based on the emic themes that emerged from Ms. G's responses was far greater in interpretive validity than any attempt to fit her responses into a pre-existing framework. As an additional strategy to enhance validity, we present examples from her responses wherever possible to illustrate her primary thematic points. Given that it is critical to avoid generalization and essentialist or reductionist approaches (Maxwell, 2012), we also undertook a search for discrepant data within each thematic area and each of the school settings.

## Findings

In the discussion of her experiences, Ms. G explained the diagnosis and early intervention efforts for David, her struggles to ensure a bilingual education for him, and her interactions with educators and administrators in the three school settings. In addition, she talked about her larger efforts to engage in self-education and community relations in order to ensure the best possible educational experience for David.

#### Overview: Experiences in Education

Since David's diagnosis shortly after his birth in 2003, Ms. G has been engaged in seeking and managing services for him. In the beginning, she initiated early intervention, and he received services, including speech therapy, at home. Later, she enrolled him in a private preschool that had expressed willingness and the ability to accommodate his need, and for kindergarten, she sent him to the local public school. Her ongoing search for alternatives ultimately led her to try a newly formed charter school in a different school district. Table 1 summarizes Ms. G's school setting experiences; primary themes that emerged from her description are presented in the sections which follow.

Ms. G's experiences with David's education began with the Early Childhood Intervention Services (ECI) provided by the county in which she lived. These services began shortly after birth and continued through elementary school and included both in-home and preschool interventions such as occupational, speech/language, and physical therapies. Her level of satisfaction varied based on the provider; she found interaction with the first speech therapist (detailed below) troubling, but subsequent interventions were more appropriate. During that time, Ms. G also enrolled David in a private preschool (PPS). Although the PPS had verified their preparation to meet the needs of a student with Down's Syndrome, Ms. G felt that David was marginalized and had a sub-par experience. When David reached school age, Ms. G enrolled him in kindergarten with her public school district in a neighborhood elementary school

(NES); while there, he divided his time between mainstream and special education classrooms. Finally, after dissatisfaction with the NES, Ms. G found an alternative, requiring her family to move to a new school district so that David could enroll in a charter school (CES) with a focus on students with exceptionalities and learning differences. The family's experiences in each setting are further detailed in subsequent sections, but several themes persist throughout: the *English only* outlook, the search for like-minded others, the *us versus them* mentality, and the need to be one's own proponent for appropriate services.

## **Table 1. School Settings**

Educational settingAbbreviationEarly interventionECI		on Des •	scription of education County provided; Diagnosis-based.	Age 3 months-5/6 years	<b>Grades</b> Pre-K	
		•	In home			
Private Preschoo	l PPS	•	Admissions-based	3-4 years (check)	Pre-K	
		•	Mainstream classroom			
Neighborhood Elementary Scho	NES	•	Local school district-provided	6-9 (confirm)	K-2 (partially)	
Elementary Serie		•	Mainstream and special education classrooms			
Charter Elem School	entary CES	•	Start up charter in a new district	10 (currently)	2 (partial) (TBC)	

### Bilingualism vs. English Only

The issue of bi-/multilingualism arose very early for Ms. G in the context of early intervention. As she explained, from the time David was a baby, she had spoken to him only in Spanish (her first language) during the day; when her husband returned in the evenings, he spoke to David in English. While his father's first language is Tagalog, and their son heard and was aware of Tagalog through interactions with his paternal grandparents, Mr. G felt that English was far more useful. Ms. G noted that although David was language delayed, he had numerous sight words by age three and could respond to signing in Spanish or English.

The first speech therapist with whom the G family worked, however, encouraged the family to drop the use of Spanish, from the time that David was 1 year old. They resisted.

You know, I said I don't think that it's appropriate for my son. And from everything that I've read, for him to be included in his family, he has to be able to communicate with everybody.

It was this process that started her own process of research and education into the field of Down syndrome education. As a result, Ms. G decided to undertake her own investigation to see if research would support her position.

Ms. G felt confident that bilingualism would not be a problem for David based on his early experiences with Spanish and English, along with exposure to Tagalog. Moreover, she also believed that supporting his bilingualism was essential for his identity in the family. Nevertheless, the issue was not resolved with the first speech therapist.

When David entered the public school system, he started out in a self-contained special education program; Ms. G asked for David to be mainstreamed and included into the bilingual classroom. She said David and the teacher in that classroom responded positively:

He loved it, and the teacher there was very dedicated, and she really liked him, and it was a personality thing. So, she was very happy to have him in her classroom and she actually was teaching him to read in Spanish, which was easier for him than trying to read in English. He caught on faster in Spanish than in English. So, we wanted to continue that...

At the end of the year, however, the school would not allow David to continue in the program.

Ultimately, when Ms. G left that school district in favor of another district's charter school, which she had undertaken extensive efforts to find, she found the linguistic – as well as service – answer to her quest. The new school took into consideration the fact that David was bilingual, and actually used his bilingualism as a tool to reach out to him and further his instruction.

#### Community vs. Isolation

Transitioning from early intervention services, where providers visited her home and provided extensive information in the preschool setting, to the larger and more ritualized environment of the local elementary school proved to be a shock. Ms. G felt isolated on numerous levels.

First, she felt that her son was excluded from the larger school community. Special education students had separate entrances and morning procedures from the broader school community. In terms of relationships within the school community, both among parents and between parents and the school, Ms. G encountered a dramatic shift toward isolation, unable, for *confidentiality reasons* to contact or communicate with other parents in his class unless she encountered them randomly around the school.

In terms of participating in her son's education and school life, she was suddenly shut out and unwelcome in the classroom of the second kindergarten placement, following her son's exit from the bilingual program. Finally, the lack of information, both from teachers and service providers, was seemingly the most difficult issue she faced.

And I found - I found that to be - this is my child and I wanna know what's going on in the classroom. I found that that lack of communication or not even being forthright about - how can you not have a set schedule? That seems kinda ridiculous to me. You know? It was all a mess.

## Distrust of the System

In spite of the difficulties with the first speech therapist, Ms. G had a positive overall experience with early intervention with a *pretty good team and* ... a very good case manager.

I think during early intervention, after I got rid of his speech therapist and I got a new speech therapist who was incredibly supportive, she turned out to be quite a champion, as well as my caseworker. My case manager and my speech therapist were – went to school and really battled for his rights, particularly in the preschool setting. So, I had a wonderful relationship with them.

Yet many other experiences fostered distrust, both in the private preschool setting (PPS) and then in the neighborhood school district (NES). When she enrolled her son in a highly regarded PPS, she found that: he seemed to regress and reversed many of the gains he had been experiencing at home, he had enormous difficulties adjusting to the classroom, and the school was really not able to make appropriate accommodations for a child with Down's Syndrome.

It was an Early Enrichment Center and it wasn't an inclusive setting, per se, but we had talked ahead of time with the director.... Then, when he was in the classroom, he was blamed for a lot of things. Well, he can't walk yet. Why can't he walk yet? I'm like, Did I fail to tell you he has Down syndrome?... and he went from being a kid who could read sight words, three-letter sight words, and be able to identify colors to just completely just – he regressed so deeply that he didn't want anything to do with school.

Because the NES had continued to provide preschool and early intervention services through kindergarten, Ms. G had positive relations with the local school district when her son enrolled. It was during the transition to kindergarten when IEP issues became problematic. Although her very early experience with the school was positive, she characterizes the period overall as one of difficulty.

But it was really when I crossed into kindergarten after three when things became more difficult and the IEP process was always embattled, you know? It was always a

difficult process. And I'd have to say it continued to be a difficult process up through first or second grade, the worst being kindergarten. We did kindergarten twice.

Initially, she felt that the school was very responsive, respecting her request that he be mainstreamed, and offering the bilingual kindergarten option, which supported his home language needs. As noted above, Ms. G was pleased that the school offered the bilingual program and appreciated the efforts of the teacher.

After her son was pulled from the class, however, her relations with the school deteriorated. First, because the decision to take her son out of the class was based on the special education teachers' needs rather than her son's needs, she felt that the school was trying to fit him into the services that they offered rather than tailoring those services to meet her son's needs. Moreover, she felt as though the same pattern were true in his daily routines and services:

....I don't think he was treated with dignity at all and that was part of the problem with that setting .....I think there was an idea that, because he had the diagnosis of Down syndrome, there was some prescribed steps or limitations to what he should be doing and where he would be. I think that that never left us.

Another struggle Ms. G had with the school was in obtaining appropriate accommodations for her son's sensory regulation needs. She had requested an occupational therapy (OT) evaluation and the school determined that there were no needs; she then returned to her private provider who sent her to a major diagnostic center for a full OT evaluation. They found significant sensory processing issues.

The OT in the Center said he needs 15-minute breaks every hour. You know? And that's – and his – and the way that his day was set up was absolutely contrary to anything that would have worked with him at all. He couldn't possibly be successful in that setting.

Perhaps most significantly, before the IEP meeting that would determine his first grade placement, the new teacher told her that the son's kindergarten program would last two years. Ms. G approached the director of special education about the matter, and he told her that in fact that was not the case. As a result she invited the director to her next IEP meeting, when her son's placement would be discussed, but upon arrival, she realized that the placement had already been decided:

When we reconvened for the next IEP, you come in, and all the coffee cups had been – you know, you could tell by the coffee cups. There was lipstick and they were halfway done –So, they'd had the meeting before the meeting and they'd decided that they were gonna retain him another year because that's just what they did. And so, because the special ed director wasn't there, the meeting completely changed from, He's moving on to 1st grade with these supports, to, No, we need to retain him another year because it's not appropriate for him to move on.

As Ms. G recounted, her final battle with the school system was over her son's academic progress, particularly in reading.

*They gave me what was a checklist and the checklist basically said,* He won't answer questions; just put him at the lowest level. *And I said,* This isn't a – this isn't a report. This isn't even an assessment. *Basically, I was told again at my IEP meeting,* Well, your expectations need to be readjusted. Maybe what you need to accept is the fact that he's not going to read at the same level as anyone else or maybe he may not read at all.

#### Parent self-education and advocacy

From the beginning, Ms. G had a strong sense of knowing what was right for her son, of viewing him within the socio-cultural context of his family, and of expecting positive outcomes and growth in his academic progress. Thus, when she encountered low expectations, views that ran counter to David's bilingual/multilingual context, or approaches that were system-based rather than student-centered, she took the steps she needed to inform and equip herself with information and resources to advocate effectively for her son.

The first instance came during the early intervention that was the result of post-birth diagnosis, as noted above, when she researched the option of bilingualism for children with Down's Syndrome. As she proceeded through the early years of working with the local school system, she continued her research in order to bring relevant information to IEP meetings.

You know, I did a lot of research, and I was always bringing something to the table, and I never felt like I could go to an IEP without bringing something to the table, whether it be practice that someone else was doing because I did do research; I read the stuff on the CEC [Council for Exceptional Children website] you know?

Because of her interest and research in the district and in the special education process, Ms. G eventually gained a position in the district's parent resource center (PRC), a source for educating parents of children with special needs and IEPs. From this vantage point, she gained a firsthand look at the special education processes in the district, learned more about the school system, and advised other parents extensively. She also uncovered information that she found troubling regarding the IEP process.

It was when I was working at the PRC. I had access to the IEP online, and I would read an IEP, and I said, Wait. This [IEP] is [for] Johnny, but yet it says, 'Suzie'. You know? If I go to Suzie's IEP, it says the same thing. And it was very disconcerting that there was – and, I mean, I understand people are busy, and I understand that you wanna take shortcuts, and if things have worked with one child, it could possibly work with another child, but being a parent, you really want to know that your IEP is individualized.

For her, this confirmed her own experiences that the special education services in the district were system-centered rather than student-centered. Part of her learning in the PRC led her to access district statistics, at which point she decided to actively seek alternative placements in surrounding districts. At this point, David was selected for a spot in a special-education oriented charter school in a nearby district that involved a housing change, but has proven, in Ms. G's estimation, well worth the effort.

### Resolution: A Responsive School

After extensive research, Ms. G's son was admitted to a newly opened public charter school in a neighboring district. The director founded the school to serve children with special needs after discovering a dearth of responsive services for children with learning challenges and differences.

I think the biggest success is the fact that this school was designed to be an inclusive setting. It was – everything about this school was designed to be flexible enough to give every child their own opportunity. I don't think that the public school setting is designed to do that. I don't think the public school setting is flexible enough. I think you're trying to fit a square peg into a round hole.

Although the school experienced some start up issues, Ms. G has been very happy with their communication, inclusiveness, level of attention, and accommodations. *For example*, unlike the local school district where her son began his education, the charter school acknowledged his sensory needs from the outset, he was much more regulated throughout the school day, and, she felt, he was treated with dignity. In addition, he even began to develop friendships.

When he entered the school, he was evaluated and discovered to be two years behind, but since starting the new school, he made rapid progress. Finally, the new school has taken into consideration the larger family values and identity and is encouraging her son's bilingualism, a fact which seems to make both Ms. G and her son very happy.

So, all of that has contributed to him being more successful and they've also taken into consideration the fact that he's bilingual. So, it was a perfect fit, you know

## **Conclusions and Implications**

Generalization from a particular case study is, of course, impossible. Nevertheless, in presenting the story of Ms. G, we felt that her experiences were compelling to merit a broader reading. The themes of the importance of recognizing the legitimate needs of bilingual families, sharing information with

parents, ensuring dignified treatment of children with learning differences, and creating an environment in which each student can flourish are important ones in informing the processes by which school districts interact with culturally and linguistically diverse families whose children have learning challenges or differences.

Table 2. Summary Recommendations for Services to CLD Students and Families							
Six Themes of Collaborative Family-Professional Partnership With Related Indicators (Blue-Banning, 2004, Table 1, p. 174)	Recommendations based on this Case Study						
Theme Communication: The quality of communication is positive, understandable, and respective among all members at all levels of the partnership. The quality of communication is also at a level to enable efficient and effective coordination and understanding among all members. Being open Listening Communicating frequently Coordinating information	Indicators Sharing resources Being clear Being honest Communicating positively Being tactful						
<b>Commitment</b> : The members of the partnership share a sense of assurance about a) each other's devotion and loyalty to the child and family, and b) each other's belief in the importance of the goals being pursued on behalf of the child and family. Being accessible to the child and family Being consistent Being sensitive to emotions	Demonstrating commitment Being flexible Regarding work as "more than a job" Regarding child and family as "more than a case" Encouraging the child and family						
<b>Equality:</b> The members of the partnership feel a sense of equity in decision making and service implementation, and actively work to ensure that all other members of the partnership feel equally powerful in their ability to influence outcomes for children and families Fostering harmony among all partners Coming to the table/avoiding "turfism"	Avoiding use of "clout" Empowering partners Validating others Advocating for child or family with other professionals Being willing to explore all options						
Skills: Members of the partnership perceive that others on the team demonstrate competence, including service providers' ability to fulfill their roles and to demonstrate "recommended practice" approaches to working with children and families. Considering the whole child or family Being willing to learn	Taking action Having expectations for child's progress Meeting individual special needs						
<b>Trust:</b> The members of the partnership share a sense of assurance about the reliability or dependability of the character, ability, strength, or truth of the other members of the partnership. Being discreet	Being reliable Keeping the child safe						
<b>Respect:</b> The members of the partnership regard each other with esteem and demonstrate that esteem through actions and communications. Exercising nondiscrimination Avoiding intrusion	Valuing the child Being nonjudgmental Being courteous						

As noted, Ms. G is not representative of the typical parent in her level of research, her determination to ensure the best possible learning conditions for her child, her ability to work within the system to advocate for herself and other parents, and her access to resources enabling her to move to a new district when she discovered a much better learning environment for her son. Despite the fact that Ms. G's level of empowerment is not typical, her experiences demonstrate the need for improved school outreach to parents who are not aware of the channels they can pursue to obtain information on their rights and access to services.

Even with her level of information and research and preparation, Ms. G was often marginalized by the formal special education system. While this can be the case for English speaking parents, the risks are all the greater for immigrant families who face language and cultural barriers, in addition to the official barriers of school expertise presented in a manner that is less-than-accessible to parents.

Unfortunately, U.S. schools have a legacy of marginalizing immigrant populations in schools; overcoming this in the crucial context of special education is critical to delivering well-targeted, student services is critical to enabling students to achieve their potential through the educational process.

Ms. G's primary point – that the first district sought to fit her son into existing systems and expectations that did not suit him – is most likely the consequence of districts struggling to comply with the law requiring appropriate accommodations and least restrictive environment for children covered by the IDEA. Many parents will not have the knowledge or means to consider other schools or the technical and cultural wherewithal to challenge pre-existing notions regarding bilingual education and services supporting students with learning differences.

Given the preponderance of CLD students in general, and ELLs in particular, in the special education system (e.g. Banks & Banks, 2007), development of more effective partnerships with CLD families is essential to improving services. Table 2 summarizes our list of recommended measures, which go beyond the framework provided by Blue-Banning et al.,(2004).

Policy-makers should establish guidelines based on best practices for including CLD parents in the special education and IEP process. This could include among other measures professional translators and advocates – ideally representing CLD communities – to assist in meetings. This assistance should not be merely linguistic, but also cultural, so that parents understand the implications of decisions related to school services. In addition, resources for parents should be available in multiple languages, with multilingual outreach targeting the non-English speaking community of parents in a particular district. While this may, in the short run, require additional resources, the benefit to society of producing more capable and independent individuals is significant.

There is a need for future research to develop broader understands of the needs of CLD families (Pugach, 2001, cited in Blue Banning et al., 2004), and our research with CLD families is ongoing to contribute to this foundation. Ms. G's experience shows that there are gaps in service provision aligned with what research has identified as best practice (Summers et al, 2003; Blue-Banning et al., 2004). Navigating the special education system can be difficult for anyone, but for CLD families, given the cultural and linguistic boundaries that may persist in some settings, doing so may pose even greater challenges. It is our hope that identifying these challenges in light of best practices and legal norms will begin to call attention to the need to improve special education services for all students through effective engagement with their families.

While this case study examines the situation in a U.S. context – in relatively well-funded and highperforming districts – the issues are relevant to a wider international context. International migration issues, within regions and across regional borders includes refugees with even more specific needs as well as economic and political immigrant groups who face similar language and cultural challenges in new countries with disparate linguistic and cultural and regulatory parameters. Meeting the needs of all students is a human rights issue, and is also in the self-interest of host countries so that students can achieve their full potential and thus make a stronger contribution to national and international economy and civic life. Our research continues in order to further identify preeminent issues that can lead to the evolution of policy and effective interventions.

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## DO HIGH ABILITY LEARNERS ENJOY LEARNING ALONE OR IN GROUPS? IT DEPENDS....

### Lannie Kanevsky

Simon Fraser University

Pedagogical shifts favouring collaborative learning and findings of recent studies have raised concerns regarding the claim that gifted students prefer to learn alone. The purpose of this study was to further investigate if, when and how high ability learners want to work with or without others. The distributions of 416 high ability students (n=416; Gr. 3-8) responses to survey items were analyzed. Items assessed their general feelings about working alone and in a group and the appeal of specific conditions. Although a majority indicated they enjoyed learning alone, more also enjoyed group work-under certain conditions. Age differences were found but none related to gender. More of the younger students enjoyed teaching their peers while more of the older students were eager to contribute to group discussions and be seated in clusters. Sitting alone became increasingly unpopular with older students. The broad variability in the distribution of students' ratings across conditions demonstrated the preferences of high ability learners are sensitive to many factors in the setting, not just the involvement of others. High ability learners may prefer to work alone when attractive conditions for working in groups are not available. Evidence-based guidelines for group work are offered.

## Do High Ability Learners Enjoy Learning Alone or In Groups? It Depends ....

Calls for collaborative learning experiences as well as the findings of recent studies (e.g., Adams-Byers, Whitsell & Moon, 2004; French, Walker & Shore, 2011) clash with claims that high ability learners (HAL) may prefer to work alone (e.g. Davis, Rimm & Siegle, 2011, p. 39; Manning, 2006, p. 66). The research findings indicate students' feelings about working alone and in groups are dynamic, and vary under different conditions. The work described here continues to *reconsider* (French & Shore, 2009) the belief that HAL prefer to work alone, extending the findings of studies that challenge this *common assumption* (Walker, Shore & French, 2011, p. 135). Its purpose is to further investigate if, when and how HAL, in general, as well as girls and boys of different ages, want to work with or without the company of others.

Within class grouping has strengths and weaknesses. When compared to individual learning experiences, small group learning offers greater individual academic benefits, better group task performance as well as other positive process and affective outcomes (Lou, Abrami & d'Apollonia, 2001), however students identified as gifted (SIG) have expressed numerous concerns when they are grouped heterogeneously with students of differing abilities (e.g., Clinkenbeard, 1991; French et al., 2011; Robinson, 1990, 1991). Although many may enjoy peer teaching (Ristow, Edeburn & Ristow, 1985), many resent being employed as a *junior teacher* (Coleman, Gallagher & Nelson, 1993; Robinson, 1990, 2003) and worry that their grade will suffer if they do not accept a disproportionate amount of the work (Robinson, 2003). Saloman and Globerson (1989) described a number of potential adverse *effects* of unfair group dynamics, particularly when members differ in ability. They include the *free rider* (when one members does less than her or his share and expects the high ability member to do it), the *sucker* (when all other members expect the most able to do all the work), and the *status differential (Higher status members dominate group activity...they receive and give more help than lower status ones.* (p. 95)).

Studies have not provided consistent support for the belief that HAL prefer to learn alone more than their peers. While some findings indicated gifted students preferred *independent study* (e.g., Boultinghouse,

1984; Chan, 2001; Li & Bourque, 1987; Ricca, 1984; Ristow et al., 1985; Stewart, 1981) and learning alone (French et al, 2011; Griggs & Price, 1980; Li & Adamson, 1992; Pyryt, Sandals & Begoray, 1998), others did not (e.g., Burns, Johnson & Gable, 1998; Dunn & Price, 1980; Rayneri, Gerber & Wiley, 2006). Burns, et al. (1998) work was the only study found to intentionally replicated an earlier study, Dunn and Price's (1980) comparison of the learning style preferences of gifted and non-gifted students. Extensive differences in the findings of these two studies and most of those on this topic, continue to raise concerns that the rigorous, consistent body of evidence needed to support characterizations that gifted students may prefer to learn alone does not exist.

Most of the studies cited above employed one or both of two conceptually disparate instruments, which shared very similar names: Dunn, Dunn and Price's Learning Style Inventory (DDPLSI; 1978/1989/2000) and Renzulli, Smith and Rizza's Learning Styles Inventory (RSRLSI; Renzulli, Rizza & Smith, 2002; Renzulli & Smith, 1978; Renzulli, Smith & Rizza, 1998). The Dunns and their colleagues defined learning style as modalities that reflect *the way in which individuals begin to concentrate on, process, internalize, and retain new and difficult academic information* (Dunn, Griggs, Olson, Beasley & Gorman, 1995, p. 353). Their survey was designed to determine the environmental, emotional, sociological, physiological and processing characteristics of an activity an individual finds most conducive to her or his learning. Renzulli, Smith and Rizza's instrument focused on determining the extent which students enjoyed particular *instructional techniques* as assessed by items clustered in nine subscales including Independent Study, group Projects, Peer Teaching (being taught by a peer, not teaching a peer) and Discussion. Age-specific versions of both instruments have been developed in recent years however all have retained their original goals.

For the purposes of their research, French et al. (2011) designed an instrument to investigate factors that might influence gifted individual's desire to work alone and in groups. It included items from the RSLSI (1978) addressing independent study, group projects, and peer tutoring. Other items addressed popularity, personality and perceived support. Comparative analyses of the responses of school identified gifted, high achieving and non-gifted students revealed numerous main and interaction effects related to ability, gender and age. Students identified as gifted indicated a preference for working alone however their eagerness to work in groups increased when they felt they would be supported and appreciated in their group. In light of this result and others, French et al. concluded, *Some gifted students prefer to work alone some of the time*. (p. 154)

In Kanevsky's (2011) study, more than 70% of the students identified gifted (SIG) as well as 58.3% of students not identified gifted (SNIG) enjoyed *working in groups sometimes and alone sometimes*, i.e., a majority of students in both groups felt the same way but a larger proportion of the SIG than SNIG. When working on projects, the same percentage of students in both groups (40.5%) reported they liked to work alone, 17.8% less than those who had said *sometimes*. The popularity of project work in groups varied from a high of 89.1% of SIG and 85.1% of SNIG when they were able to chose their group, to the least popular condition, working with others who learned more quickly, to which 61.5% of SIG and 64.4% of SNIG gave negative ratings. Apparently many highly able learners and their peers enjoyed learning both with and without peers ... it depended upon with whom they worked. The similarities in the proportions of SIG and SNIG's responses cast doubt on the validity of claims that a preference for working alone distinguishes highly able learners from their peers and raises inevitable questions regarding when and under what conditions they like learning alone rather than in groups, vice versa, and when they don't care.

SIG have also been found to prefer working on their own when they felt they would be expected or have to do more than their share of the work (French et al., 2011), or when the task was easy (Diezmann & Watters, 1997). And when do many SIG say they prefer to learn in a group? More than 70% of SIG in Kanevsky's (2011) study enjoyed it when they were able to choose their group and worked in a group with peers who learned at their pace. They did not want to work with others if they were assigned to a group by their teacher, taught by classmates, or worked with others who learned at a faster pace.

Some studies examining ability- and gender-related differences in the learning preferences of SIG have found differences in some preferences related to individual and group work, other studies have not. When using the DDPLSI, Pyryt et al. (1998) found boys preferred learning with peers while girls preferred to learn on their own. Similarly, boys also had more positive attitudes toward cooperative learning (Ramsay & Richards, 1997). In contrast, Ewing and Yong (1992), Hlawaty (2009), and Yong and McIntyre (1992) found gender-related differences in other learning style preferences but not in

learning alone or with peers. Using the RSRLSI, Ristow et al. (1985) found more girls enjoyed Discussion than boys (83.3% versus 66.7% respectively), and French et al. (2011) found girls rated Peer Teaching and Independent Study higher than boys with their survey. When comparing individual, cooperative and competitive learning, Li and Adamson (1992) reported differences that were dependent upon school subject. Gifted students preferred individual activities overall; they were rated highest by girls in English and boys in Science, and by both genders in Math. These inconsistent findings do not offer a clear sense of the nature or direction of gender-related differences in students' preferences for working alone or with others, or when they arise.

Studies of high ability learners' preferences that included age in their analyses have also generated diverse results. Again, some studies found no differences in students' preferences for learning alone or in groups although they did find others (Ewing & Yong, 1992; Hlawaty, 2009; Yong & McIntyre,1992). French et al. (2011) found SIG in junior high and high school preferred to work alone while those in elementary grades did not. Interestingly, these preferences only appeared in data derived from a *suggested-choice* item but not in their responses to open-ended questions. They recommended further research to clarify the effects of gender and age on preferences and the learning conditions that influence them (French et al., 2011).

As the evidence base for social constructivist and sociocultural theories and pedagogies grow in strength and influence classroom practices, educators seek to create learning activities and settings in which students co-construct knowledge and develop increasingly sophisticated psychological functions. Collaboration is a central concept in Vygotsky's (1978) zone of proximal development (ZPD) and therefore sociocultural theory. The ZPD is often characterized as a zone of intellectual readiness, however it is more than that; affect is involved as well (Goldstein, 1999; Levykh, 2008). The way students feel about learning in a particular way influences their willingness to engage and take risks. These feelings play significant roles in ZPDs, healthy collaborative relationships and learning communities. Given the mutual contributions of intellect and affect in sociocultural accounts of development, it is essential that we understand their dynamics, including students' feelings about features of individual and shared learning activity.

The data reported here were collected as part of a larger study of students' feelings about learning experiences differentiated in ways recommended for gifted students by Maker and Nielson (1996). The results of comparative analyses of gifted and non-gifted students' responses are reported elsewhere (Kanevsky, 2011). During that analysis it became apparent that students responses to items focused on group and individual work could address potential age and gender-related differences not included in the analysis focused only on ability. In addition to high ability learners' general feelings about learning alone and in groups, their feelings about conditions related to these options could also be considered. These include seating arrangements, choice of group members and the pace of their learning, as well as activities often involved in group work (discussion, peer teaching, and sharing reasoning). As a result, the research questions addressed in these analyses are:

- 1. Do high ability learners enjoy learning alone and in groups?
- 2. When learning alone or in groups, which conditions do highly able students like most and least?
- 3. Are there differences in the proportions of high ability girls and boys who like and dislike those conditions?
- 4. Are there age-related differences in the proportions of high ability students who like and dislike those conditions?

## Methods

## Participants

The 416 students in this study were enrolled in Grades 3 to 8 in two suburban school districts, one in western Canada (n=171) and one in the northeastern United States (n=245). Table 1 provides the number of participants by gender and grade level. All had been identified as intellectually, academically, spatially or creatively gifted according to criteria and procedures established by their school districts and all were enrolled in a part-time pullout program up to three hours each week. The sample was 81.7% Caucasian, 14.4% Asian, and 3.9% were of other ethnicities.

Grades	Girls	Boys	Total
3 & 4	75	59	134
5&6	59	84	143
7&8	66	73	139
Total	200	216	416

Table 1	Number (	of Particinants	hy Gender	and Grade	Level
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## Instrument

The *Possibilities for Learning* (PFL; Kanevsky, 1996) was a 110-item survey designed to assess students' preferences for specific features of learning experiences. Each item began with *I really like* which was followed by a description of learning in a manner consistent with of one of Maker and Nielson's (1996) principles of curriculum differentiation for gifted learners. Students rated each item on a 5-point Likert scale: strongly agree (SA), agree (A), neutral (N), disagree (D) and strongly disagree (SD). Participants were asked to identify which of five school subjects (Reading, Writing, Math, Science, Social Studies) was their favourite before beginning the survey and then to rate each item in the context of that subject. This was to focus their ratings on content they valued most as a passion for learning is often a defining characteristic of gifted students (Gross, 1998; Porath & Lupart, 2009; Winner, 1996). It was believed that the way they learned in their favourite subject would be more important to them than it might have been in those they valued less.

This analysis focuses on participants' responses to 15 of the 110 items that focused on either working alone or in a group. The text of all 15 items appears in each table in the Results section. The process of the survey's development and establishing its psychometric properties (reliability, face and content validities) were described in detail in Kanevsky (2011).

### Procedure

The PFL survey was administered in students' classrooms either by their regular teacher, the teacher or coordinator of the pullout program, or the author. Participants took 40 to 90 minutes to complete the survey.

## Results

## Do high ability learners enjoy learning alone and in groups?

This general question was addressed by examining responses to the first three of the 15 items (see Table 2). The distribution of students' scores across the five rating categories (strongly agree to strongly disagree) indicated on the relative popularity of each learning condition as well as the homogeneity or heterogeneity of participants' feelings about them.

As can be seen in Table 2, yes, many highly able learners enjoyed learning alone (58% positive on Item 1) and even more of them *sometimes* enjoyed learning with others *as well as* learning alone (72.2% positive on Item 3). Of the 125 students (30% of the sample) who strongly agreed with *I really like learning by working on my own*, 76 (60.8% of them) felt the same way about doing projects in a group when they were able to choose their group; only 16 (12.8%) strongly disagreed. Sixty-seven of the 125 (53.6%) also strongly agreed with working in a group with others who learn at their pace. It appears that the *preference* to work alone may be the default for many of these students when attractive conditions for working with others were not available.

Another factor influencing their desire to work solo appears to be the nature of the task as only 40.5% wanted to work on projects by themselves. This is 17.5% fewer than the 58% who had indicated they *really like learning by working on their own*. Again, these results indicate many students who indicated they enjoyed working alone also enjoyed learning with others under some conditions. For example, when given the opportunity to choose their group or work with others who learn at their pace, more said they enjoyed group work than working alone. As will be described in the next section, they also enjoyed working in a group in other situations as well.

## Conditions highly able students liked most and least

Table 2 also provides the distribution of participants' ratings for each of the 12 conditions related to learning alone or in groups while studying their favourite subject. They have been clustered in to four categories to facilitate their interpretation: seating arrangements, control over group composition, pace of group members' learning and activities in group settings. In order to be considered a most or least

popular condition for learning their favourite subject, an item must have received positive (SA + A) or negative (SD + D) ratings from a majority of participants. Eight items met this criterion, four positive and four negative. Being able to choose the members of their group when working on a project was most popular (83.5% positive), followed by opportunities to work *with kids who learn as quickly as* they did (76.8% positive). Many were also eager to sit with their desks in clusters (62.4% positive) and enjoyed talking in group discussions (54.7% positive).

Items	SA	А	N	D	SD
Learning alone					
1. I really like learning by working on my own.	30.3	27.7	25.2	10.0	6.8
2. I really like to work alone on big projects.	26.0	14.5	24.8	18.1	16.7
3. Sometimes I like to work in groups and sometimes I like to work alone.	40.7	31.5	19.9	4.4	3.6
Seating arrangements					
4. I really like sitting alone.	14.5	7.5	18.7	19.2	40.1
5. I really like sitting in clusters of 3 - 6 desks.	36.7	25.7	21.7	6.5	9.5
Control over group composition					
6. I really like doing projects in a group when I get to choose my group.	62.2	21.3	11.1	2.9	2.4
<ol><li>I really like doing projects in a group when my teacher assigns me to my group.</li></ol>	4.5	13.1	27.0	26.5	29.0
Pace of group members' learning					
<ol> <li>When I'm learning in a group, I really like working with kids who learn more slowly than I do so I am teaching them what I already know.</li> </ol>	10.4	15.1	27.2	23.3	24.0
9. When I'm learning in a group, I really like working with kids who learn as quickly as I do.	46.0	30.8	16.5	4.6	2.2
<ol> <li>When I'm working in a group, I really like working with kids who learn more quickly than I do so I have to work very hard to keep up with them.</li> </ol>	5.9	11.3	21.2	30.0	31.5
Activities in group settings					
11. I really like to talk in group discussions.	31.5	23.2	24.1	11.2	10.0
12. I really like teaching other kids in my class.	16.8	22.6	28.2	19.7	12.7
13. I really like having kids in my class teach me.	3.5	11.0	30.3	27.8	27.5
14. I really like hearing about how other students are thinking about something I'm having trouble with.	15.3	32.8	26.6	13.0	12.3
15. I really like explaining my thinking to other students.	19.8	25.4	26.6	17.3	11.0

Working with others *who learn more quickly than I do so I have to work very hard to keep up with them* was least popular as it received negative ratings from 61.5% of these students. This was followed closely by *sitting alone* (59.3% negative), being assigned to a group for project work by their teacher (55.5% negative), and being taught by classmates (55.3% negative).

Participants' ratings on the remaining four items were dispersed across the response categories (from SA to SD) indicating students' feelings about those conditions were heterogeneous, i.e., some liked it, some did not and some were neutral. This was true of ratings for teaching classmates, hearing others' reasoning, explaining their reasoning to others and working with others who learned at a slower pace.

## Gender-related differences in feelings about the conditions

Percentages of positive and negative responses are provided for the gender-related analysis in Table 3. They represent the proportion of students who liked and disliked each condition. Pooled results for all participants are provided as a reference. Chi-square analyses were performed to compare the distribution of responses to each item based on gender. In response to the increased risk of Type I error due to multiple comparisons (30), the Bonferroni correction was applied to an alpha level of .1. This resulted in a very conservative adjusted significance criterion of .003 for group differences to achieve statistical significance. Although this would avoid false-positives, it would also likely result in false-negatives so an adjusted critical value of .01 was set due to the exploratory nature of this work. None of the chi-squares comparing the responses of girls and boys revealed statistically significant group differences (see
Table 3) indicating the distributions of their responses were similar for all four categories of learning conditions.

for Each item for All Participants and by Gender								
	All		Girls		Boys			
	N = 416		N = 200		N = 216			
Items	Positive	Negative	Positive	Negative	Positive	Negative	(df=4)	р
Learning alone								0.133
1. I really like learning by working on my own.	58.0	16.8	62.1	14.2	54.2	19.1	7.06	0.155
2. I really like to work alone on big projects.	40.5	34.8	42.6	29.9	38.4	39.4	4.23	0.376
<ol><li>Sometimes I like to work in groups and sometimes I like to work alone.</li></ol>	72.2	8.0	76.0	7.0	68.6	8.9	3.25	0.474
Seating arrangements								
4. I really like sitting alone.	22.0	59.3	19.1	61.8	24.6	57.0	3.70	0.448
5. I really like sitting in clusters of 3 - 6 desks.	62.4	16.0	64.2	15.0	60.6	16.8	2.91	0 574
Control over group composition	02.4	10.0	04.2	15.0	00.0	10.0	2.91	0.574
<ol><li>I really like doing projects in a group when I get to choose my group.</li></ol>	83.5	5.3	85.9	5.0	81.3	5.6	2.01	0.733
7. I really like doing projects in a group when my teacher assigns me to my group.	17.6	55.5	18.0	57.3	17.1	53.8	2.63	0.621
Pace of group members' learning								
<ol> <li>When I'm learning in a group, I really like working with kids who learn more slowly than I do so I am teaching them what I already know.</li> </ol>	25.5	47.3	22.3	48.7	28.5	45.9	4.99	0.288
9. When I'm learning in a group, I really like working with kids who learn as quickly as I do.	76.8	6.8	77.9	5.5	75.7	7.9	1.33	0.856
<ol> <li>When I'm working in a group, I really like working with kids who learn more quickly than I do so I have to work very hard to keep up with them.</li> </ol>	17.2	61.5	14.1	66.2	20.2	57.2	7.15	0.128
Activities in group settings								
11. I really like to talk in group discussions.	54.7	21.2	52.0	23.7	57.1	18.9	4.90	0.298
12. I really like teaching other kids in my class.	39.4	32.4	44.4	28.5	34.8	35.8	9.39	0.052
13. I really like having kids in my class teach me.	14.5	55 3	14.4	52.3	14.7	58.1	4 71	0.319
14. I really like hearing about how other students are thinking about something I'm having trouble with.	48.1	25.3	51.8	21.5	44.6	28.9	12.66	0.013
<ol> <li>I really like explaining my thinking to other students.</li> </ol>	45.2	28.3	47.9	27.3	42.4	29.2	5.29	0.258

Table 3.	Percentages of Ratings (Positive = SA + A; Negative = SD + D) and Chi-Square Statistics
	for Each Item for All Participants and by Gender

# Age-related differences in feelings about the conditions

The same frequency and chi-square analyses performed in the gender comparison were undertaken to contrast grade level groups. The results appear in Table 4. Statistically significant age differences were found for both items referring to seating arrangements and two activities in group settings. No grade-related differences achieved significance in the remaining eight conditions indicating the distribution of students' responses in all three grade groups were similar.

Seating arrangements: Initial chi-square analyses of students' responses to items related to sitting alone and in clusters revealed complementary, statistically significant age differences (sitting alone:  $\Box^2 = 27.16$ , df=8, p=.001; sitting in clusters:  $\Box^2 = 23.55$ , df=8, p=.003). Post hoc paired comparisons were undertaken to determine which differences among the three grade groups contributed most to these findings. Although a majority of students in all three grade groups disliked sitting alone, significant increases were found between the Grade 3/4 and 5/6 groups ( $\Box^2 = 17.395$ , df=4, p=.002), as well as the Grade 3/4 and 7/8 groups ( $\Box^2 = 23.961$ , df=4, p=.000). The differences were most evident in the percentage of students who felt strongly about sitting alone. Of the Grade 3/4s, 26.4% strongly agreed with this item and 36.8% strongly disagreed, while 9.6% of the 5/6s and 7.7% of the 7/8s strongly agreed, and 45.9% of the 5/6s and 46.4% of the 7/8s strongly disagreed. Younger students' feelings about sitting alone were more heterogeneous than the more negative responses of the older students.

	Grade Levels									
		All	3	8&4	5&	6	78	28		
	Ν	N = 416	Ν	= 134	N = 1	43	$\mathbf{N} =$	139		
Items	Positive	Negative	Positive	Negative	Positive	Negative	Positive	e Negative	(df=8)	р
Learning alone										
1. I really like learning by working on my own.	58.0	16.8	66.4	9.9	56.7	18.2	51.4	21.7	10.78	0.214
2. I really like to work alone on big projects.	40.5	34.8	39.7	38.9	40.7	34.3	40.8	31.3	10.35	0.241
<ol><li>Sometimes I like to work in groups and sometimes I like to work alone.</li></ol>	72.2	8.0	66.1	12.1	75.6	7.0	74.4	5.1	13.86	0.085
Seating arrangements										
4. I really like sitting alone.	22.0	59.3	34.4	52.0	20.9	58 3	117	67.2	27.16	0.001
5. I really like sitting in clusters of 3-6 desks.	62.4	16.0	55.0	26.0	62.8	10.7	67.0	12.0	27.10	0.003
Control over group composition	02.4	10.0	55.9	20.0	02.8	10.7	07.9	12.0	23.33	0.005
<ol> <li>I really like doing projects in a group when I get to choose my group.</li> </ol>	83.5	5.3	82.8	9.0	83.6	4.9	84.1	2.1	10.26	0.247
<ol><li>I really like doing projects in a group when my teacher assigns me to my group.</li></ol>	17.6	55.5	20.1	57.4	17.5	57.7	15.2	51.5	15.97	0.043
Pace of group members' learning										
<ol> <li>When I'm learning in a group, I really like working with kids who learn more slowly than I do so I am teaching them what I already know.</li> </ol>	25.5	47.3	35.7	38.0	24.1	46.0	17.4	57.2	16.92	0.031
<ol> <li>When I'm learning in a group, I really like working with kids who learn as quickly as I do.</li> </ol>	76.8	6.8	73.7	12.1	80.5	4.2	75.9	4.4	14.04	0.081
10. When I'm working in a group, I really like working with kids who learn more quickly than I do so I have to work very hard to keep up with them.	17.2	61.5	20.3	64.0	16.4	58.6	15.2	62.3	12.92	0.115
Activities in group settings										
11. I really like to talk in group discussions.	54.7	21.2	46.6	32.0	57.1	15.5	59.9	16.8	21.02	0.007
12. I really like teaching other kids in my class.	39.4	32.4	51.5	28.0	37.3	31.0	29.9	37.9	20.98	0.007
<ol> <li>I really like having kids in my class teach me.</li> </ol>	14.5	55.3	14.8	57.1	13.1	59.2	15.6	49.6	12.70	0.123
14. I really like hearing about how other students are thinking about something I'm having trouble with.	48.1	25.3	38.8	32.5	54.4	23.2	50.7	20.4	16.96	0.075
15. I really like explaining my thinking to other students	45.2	28.3	42.0	29.8	46.5	28.1	46.8	27.0	9.50	0.302

# Table 4. Distributions of Ratings (Positive = SA + A; Negative = SD + D) and Chi-Square Statistics for Each Item for All Participants and Each Grade Level Group

The declining popularity of sitting alone was matched by a statistically significant increase in the number of students who wanted to sit in clusters ( $\Box^2 = 23.55$ , df=8, p=.003). This finding was driven by differences between the youngest and middle grade groups. As above, the proportion of students who strongly agreed increased and strongly disagreed fell significantly. The who were enthusiastic rose from 33.9% of the Grade 3/4s to 43.1% of 5/6s, and those who disdained it dropped from 17.3% of the 3/4s to 5.8% of the 5/6 group. Neither of the comparisons with the Grade 7/8 group achieved significance. These results indicate that from Grades 3 to 6, as their age rose, so did the proportion of these students who *did not* want to sit alone and *did* want to sit with others.

Activities in group settings: Differences among the three grade groups' feelings about speaking in group discussions was significant ( $\Box^2 = 21.02$ , df=8, p=.007), however the post hoc comparisons did not produce p values less than the .01 level set for significance in this study. The closest was a p value of .036 ( $\Box^2 = 10.30$ , df=4) for the comparison of the Grade 3/4 and 7/8 groups in which more of the older group strongly agreed (35.7% of Grade 7/8s versus 26% of Grade 3/4s) and 10.6% fewer strongly disagreed (7.7% of Grade 7/8s versus 8.3% of Grade 3/4s). As can be seen in Table 4, students' responses to Item 11 indicate a growing proportion of these students enjoyed contributing to group discussions in the subject they liked most as the grade level increased.

A statistically significant grade-relate decline in the popularity of opportunities to teach peers in their class was also found ( $\Box^2 = 20.98$ , *df*=8, *p*=.007). Both post hoc paired comparisons with the Grade 3/4

group were significant (with Grade 5/6:  $\Box^2 = 15.415$ , df=4, p=.004; with Grade 7/8:  $\Box^2 = 27.303$ , df=4, p=.001), however the comparison of the two older groups was not. A slight majority of students in the youngest grades felt positively about teaching others (51.7%) and 27.3% of them felt strongly so. This contrasts with the older group's ratings which were greater in the *neutral* and *disagree* categories (Grade 3/4: 20.5% neutral and 15.9% disagree; Grade 5/6 29.1% neutral and 23.8% disagree; Grade 7/8 29.8% neutral and 25.5% disagree). These results suggest that after Grade 4, teaching peers was significantly less attractive to an increasing number of students when learning their favourite subject.

## Discussion

As French et al. (2011) found, a majority of HAL in this study reported they enjoyed learning alone <u>and</u> in groups when studying their favourite subject. Their preference depended on factors other than the mere presence of peers. Most wanted to work in groups if they were able to choose their group, could work with students who learned at their pace, and could sit in a cluster. They also enjoyed contributing to group discussions. Group work was unattractive to a majority when it involved peers who learned faster, being assigned to a group, or being taught by classmates. Participants' responses were heterogeneous with regard to working with students who learned slower, teaching classmates, hearing others describe their reasoning and explaining their thinking to others.

As previously summarized, some studies have found differences in girls and boys feelings about learning with and without peers (Pyryt et al., 1998) in certain ways (French et al., 2011; Ristow et al., 1985) and in certain subjects (Li & Adamson, 1992), however no evidence of gender differences appeared in this analysis. This result is consistent with other work in which girls and boys preferences were similar (Ewing & Yong, 1992; Hlawaty, 2009; Yong & McIntyre, 1992). The samples, school contexts, instruments, and analyses employed in these studies have differed substantially so it is possible that some are more sensitive to gender differences than those employed in this study. For example, girls have rated being taught by peers higher than boys in a study involving participants in a summer program (French et al., 2011) while high ability learners in this study were assessed in their regular school and no differences were found. It may be that girls did not want to teach peers during the school year but enjoyed it during summer, i.e., students' ratings may have been influenced by differences between conditions in the settings in which the data is collected.

Although girls and boys did not differ in their ratings for the 12 conditions, younger and older students differed on four. Sitting in clusters became attractive to a growing number of students in higher grades and sitting alone appealed to fewer. More students in the oldest than youngest group enjoyed talking in discussions and more in the youngest liked to teach their peers than either of the other groups. These findings contrast with those in studies of that have not found age differences among SIG participants (Ewing & Yong, 1992; Yong & McIntyre, 1992), however the similarities across the age groups on the remaining eight conditions for learning are consistent with them.

Although the grade groups in this study did not differ in their feelings about learning alone, French et al. (2011) found elementary school participants rated Independent Study higher than students in junior high or high school, but found no differences in Peer Teaching or group Projects. As in studies exploring gender differences, interaction effects involving age and ability have been found however none of the post hoc analyses revealed preferences for working alone or with others contributed significantly to those results (e.g., Chan, 2001).

The finding that a large majority of these students wanted to work with students who learn at their pace aligns well with findings indicating students grouped homogeneously for ability interact more collaboratively (e.g., Diezmann & Watters, 1997; Fuchs, Fuchs, Hamlett & Karns, 1998) and are compatible with meta-analyses that reported positive academic outcomes of homogeneous versus heterogeneous groups, particularly when the curriculum is differentiated (Kulik, 1992; Lou, Abrami, Spence, Poulsen, Chambers & d'Apollonia, 1996; Wilkinson & Fung, 2002). Authors of these works and hundreds like them have made it clear that learning is a complex process. Therefore attempts to account for the effects of learning with and without others need to consider more than group size or composition as *peer influences interact with instructional processes to mediate the effects of group composition on learning*. (Wilkinson & Fung, 2002, p. 425) These influences include peer politics, status, their ability to articulate their reasoning, interest in the task, and others.

In addition to highlighting the importance of collaborative activity while learning, sociocultural theories of development emphasize consideration be given to an individual's history with similar activities and

their current context when attempting to understand how they feel about them. Inconsistencies in the results of studies investigating students desire to learn with and without peers are understandable when viewed through this theoretical lens. Learning preferences are not stable *traits*; they are unstable, varying *states* (Curry, 2002; Riding, 1997) that reflect a convergence of past experiences and traits related to current conditions. As such, they can be expected to vary depending on a variety of factors including the conditions addressed here as well as their relationships with peers and their teacher, their interest in the subject and much more. Given this position, the work presented here is not intended to explain high ability learners' complex preferences, but to challenge the simplistic claim that they prefer to learn alone. This is true of some, some of the time, but few all of the time.

It should be remembered that although collaboration has its benefits, so does solitude. Students' ambivalence regarding group and individual learning contexts is also valuable in the grand scheme of talent development. It might offer *the solitude necessary to develop their talent*... (p. 33, Csikszentmihalyi, Rathunde & Whalen, 1993). While learning *alone* may diminish opportunities for peer-to-peer interactions, it may also provide time and space for students to interact with experts beyond the classroom through their written works, online resources and mentorships.

The heterogeneity of participants' feelings about each condition supports the provision of opportunities to work alone <u>and</u> offering flexible grouping options and conditions. A collection of guiding principles can be distilled from the findings of this and other studies investigating means of optimizing group learning activities (see also Blumenfeld, Marx, Soloway & Krajcik, 1996). Learning in groups is maximally effective when:

- Students feel they have some control or choice of features of the activity (Ryan & Deci, 2000, 2009; Housand & Housand, 2012)
- Others in each group learn as quickly as the highly able student does or the range of abilities is narrow (Nihalani, Wilson, Thomas, & Robinson, 2010; Wilkinson & Fung, 2002)
- The task is complex and challenging; it requires collaboration in order to be completed because no group member would be able to complete it alone (Diezmann & Watters, 1997; Lou, et al., 2001; Ross & Smyth, 1995; Winstanley, 2010)
- Tasks and instruction are designed for small groups (Wilkinson & Fung, 2002)
- Students have learned and know how to collaborate well (Blatchford et al., 2003; Fuchs et al., 1998)
- Workload is distributed fairly (Salomon & Globerson, 1989)
- Students feel supported and appreciated (Diezmann & Watters, 1997; French et al., 2011)
- The task is structured so students learn to (if necessary), and are required to, explain their understandings and reasoning particularly in response to questions and errors generated by members of their group (Howe, Tolmie, Thurston, Topping, Christie & others, 2007; Webb, 1989)
- The task must engage students and maintain their intrinsic motivation (Housand & Housand, 2012)
- The teacher knows how to facilitate small group activities (problem finding, problem solving, inquiry, sharing reasoning and resources, providing feedback and feedforward, etc.) (Lim, 2006; Webb, 2009)
- Groups have 3-5 members (Lou, et al., 2001)

Given the context-specificity of students' feelings about learning with others, educators should not interpret the results of this study prescriptively but as encouragement to assess their students' preferences for learning in different subjects and conditions. The questions to ask are not *if* students prefer learning in particular ways at all times, but *when* and *how* they prefer to learn. Educators, as well as researchers, need to explore students' responses to activities that do and do not match their stated preferences. In the midst of students' diverse preferences, educators also have to find a balance between offering what students want and what they need.

All studies have their limitations. The findings reported here are limited to students similar in age, ethnicity and school experiences to those who contributed to this data. They should not be generalized to students who are grouped homogeneously full-time, or are not involved in part-time homogeneous settings. It should also be remembered that the survey, the *Possibilities for Learning*, assessed HALs' feelings about learning in the ways recommended for them, not all possible learning conditions. Also,

students' responses were focused on learning one subject, their favourite, so the findings should not be generalized to all subjects or to those of less interest to students.

Significant differences between girls and boys, and younger and older students have been found occasionally, but not with sufficient consistency to justify characterizing gifted girls or boys of any age as preferring to work with or without peers. Ideally, future research on students' preferences needs to give simultaneous consideration to a number of factors believed to influence them: learner characteristics (e.g., ability, age, gender), peer effects (e.g., group composition, perceived support), school culture, task characteristics (e.g., difficulty or challenge, suitability of task for small group work) and participants' preparation (e.g., students' preparation for collaboration, teachers' task design and facilitation skills). In order to improve our understanding of the effects preference-matched instruction has on academic outcomes, engagement, relationships, attitudes and more, studies need to examine variations students' prefer.

This study provides an evidence-based challenge to long-held beliefs that gifted students tend to prefer to work alone. The feelings of these students were diverse, nuanced and depended upon a variety of task conditions. Theorists and researchers, as well as educators, might heed Burns et al.'s (1998) recommendation that we recognize the emerging nature of learning style preferences (Hunt, 1981) and come to grips with the seemingly topical and temporal nature of such preferences...the instrument should be used to take a *snapshot* of an individual in a particular situation, at a specific point in time. It should not be used to take a group portrait (p. 280).

We need to accept the complex, varied nature of learning and preferences as consistent with the realities of classroom life and theories of learning that situate it in dynamic contexts populated with individual histories and dynamic relationships among those present. As the students have said, *It depends*....

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# DOMESTIC VIOLENCE, RISKY FAMILY ENVIRONMENT AND CHILDREN: A BIO-PSYCHOLOGY PERSPECTIVE

Olusegun Emmanuel Afolabi University of Botswana

Though a large body of research has investigated the impacts of domestic violence on adult victims only few studies have been devoted to the exposure of children to probable inter-spousal trauma that disrupt their neurological and biochemical pathways in development. The aim of this paper is to analyse the current empirical research that discusses the biological and psychological inference of domestic violence and risky family environment on children's health. In realizing this objective, the paper used the ecological framework to explain the interaction effects of bio- psychological processes on emotional regulation and social competence skills of children living in a domestic violence and risky family environment. Finally, the study shows that a risky and harsh early family environment exacerbates disturbances in children' physiological and neuro-endocrine responses to stress, and also has long-term adverse implications on their mental health.

When we deliberate about the impacts of household violence and risky family environment on children's well-being, we are looking at the implication of living in a home where marital conflict and spousal violence are happening. Domestic violence is globally described by various scholars, academicians and professionals in human development and public health as a stern social problem, and to say the least, a human rights violation. The recent debate over the years on the issue explains the significant influence it has on the mental health of young children. Broad research evidence also indicates how intensely damaging is risky family environment for children's well-being (Margolin & Gordis, 2000, Mathias, Zeanah, Danis, Hirshberg, Benoit, Miller & Heller, 1999). Though, the awareness of the ordeal of children induced by family violence are mentioned in various pieces of literature [McIntosh, 2009], current and past literature still labelled marital conflict as the strongest predictor of behavioural problems in children (Marshall & Watt, 1999) and was connected with internalized and externalized behavioural conduct in adulthood. As a baffling topic for academia, practitioners, and policy-makers, children who live in a violent domestic household are influenced in their bio-psychosocial development and suffer deleterious impacts on their socio-cognitive functioning (Hetherington & Kelly, 2002). Although evidence shows that most child victims are resilient, the significant few, still suffer long-term adverse psychological and biological consequences in later life (Hetherington & Kelly, 2002).

Moreover, the main problems, identified in literature are how to protect the vulnerable young children from the probable inter-spousal trauma that disrupts their neurological and biochemical pathways in development (Dodd, 2009, Kershaw et al., 2008, Barnish, 2004, McGee 1997, Humphreys, 2006,). As often mentioned, the most cited predictive factors that promote negative outcomes in children are the risky family environment (Cummings & Davies, 2010; Hetherington & Kelly, 2002). Besides, a collection of cross-sectional and future studies revealed that children reared in circumstances, i.e. (irritable and quarrelling environment) developed mental health problems earlier in life, i.e., conception to adulthood (Repetti et al., 2002). Thus, a *risky family* is a childhood household milieu that consists of persistent or constant skirmish, violence, as well as crisis ridden in lieu of warmth and nurturing milieu (Taylor, Lerner, Sage, Lehman, & Seeman, 2004). Early exposure of children to such complex environmental prompts different forms of behaviour that hastens the acquisition of biological and psychological impairment that come with persistent experience of trauma (Repetti et al., 2002).

Although, emergent research establishes a possible lasting legacy and relationship between childhood riskier family milieus and bio-psychosocial impairments in adult age, similarly, other scholars like

Repetti, Taylor and Seeman (2002) also established a number of childhood's biological and psychological problems that are linked with the occurrence of dangerous household environments such as nervousness, behaviour disorder, antisocial conduct, and poor cognitive abilities to mention a few. Apart from the childhood implications, negative family exposures promote psychopathology in early adulthood, and later relates to decreased trauma responses, less significant self-rated health, plus poor social relations (Taylor et al.,2004). Besides, research also maintains that domestic violence (DV) experiences increased depressive symptoms in adults (Sen et al.,2010), nervousness intensities (Edge et al., 2009), as well as disturbed emotional processing (Taylor, Eisenberger, Saxbe, Lehman, & Lieberman, 2006). In addition, children's household milieu also acts as a mediator for children's health and quality of life and dangerous family circumstances promote poorer sleep due to daily distress (Hanson & Chen, 2010). However, what is yet to be confirmed by most researchers on the topic is the interplay between biological and psychological processes that promote these negative outcomes.

### Purpose

Studies that address biological and psychological influence of living in a risky family environment are still new. Research has not clearly solved the genetic bases for risky family environments and the impacts they have on the child's 'well-being. This paper analyses broad assessment of bio-psychological inference of domestic violence on children's mental health, and also examines the implications that such experiences have on their emotional regulation and social skills. Besides, the paper also discusses broad research about childhood ordeal, particularly, in the context of domestic violence (Center for Disease Control [CDC], 2013; Chapman, Liu, Presley-Cantrell, Edwards, Wheaton, Perry & Croft, 2013). Though, current research on bio-psychological processes of children living in a violent domestic environment emphasizes more narrow topics, i.e., (adult victims), only a few offer a reliable framework for child victims of the incidence. Finally, an ecological framework that explains the interaction effects of biological and psychological processes of children witnessing domestic violence are presented in this study and possible areas for impending research are debated.

## Methodology

This paper analysed and reviewed empirical literature in order to investigate and checked new empirical studies that link risky family environment and children's bio-psychological development. The study collated and reviewed relevant articles, books, journals, and meta-analysis of domestic violence, risky family environment and children's mental health. Both the ERIC and PSYCHLIT databases were searched using the following keywords: domestic violence, risky family environment, children mental health, and bio-psychological process. This procedure initially reported about 2283 articles, journals, technical reports, paper presentation and book chapters covering over a 20 year period. The research was lessened to a relatively few hundred of studies that are pertinent and relevant to the theme of this paper. The contents of the remaining several hundred of articles cum journals were further scrutinised and only those that reported empirical findings were kept aside and used in this review, while others were left out of further consideration. This process shows that only a few studies documented empirical findings about the link between living in a domestic violence or risky family environment and children biopsychological processes. Even among the studies that document empirical analysis, only those that show Pearson correlations between risky family environment indicators and children biologically and psychological development were used. To verify references, manual searches of relevant journals and articles related to the paper were performed.

# Background Information

# Overviews of Domestic Violence and Children's Mental Health

Research continues to prove that young children are potential victims of domestic violence at home and this happens in different ways. A significant body of research argued that children living in a risky family environment are prone to health problems such as emotional and behavioural difficulties. For instance, a study conducted by Fealty and colleagues in (1998) reported a robust association between early exposure to domestic violence and bio-psychological disorders in adulthood. Also, scholars such and Walker and colleagues (1999) reported a similar relationship between risky family environment and children mental health. This among other research confirmed the link between children health problem and their contextual environment (Repetti et al., 2002). The significant question that continues to generate debate in most literature is why early childhood experience of an adverse household is linked with such broad range of health problems that continue till adulthood.

Domestic violence remains an endemic and dangerous situation that impacts negatively on young people's health and has long-standing implications on their development (Peedicayil et al., 2004). In fact,

most research identifies family, social and biological environments like, family's socio-economic resources and inherited factors, as a contributing factor to a risky family social environment. For example, children's brutal exposure to household violence is often followed by many negative evolving factors such as, poverty, poor socio-cognitive functioning, mental health issues, female-headed household (Fantuzzo, Boruch, Beriama, Atkins, & Marcus, 1997). Also, children living in such a risky household mostly get involved in the violence. Most of these children feel that they can call, seek for support or being branded as the main cause of the abusive situation. Although children live in ferocious households, they are prone to menace of physical harm both during prenatally and postnatally (Peedicavil et al., 2004). Besides, hereditary factors are also mentioned as determinants of risky families. For instance, some characteristics that promote and sustain risky family settings may have a genetic predisposition (Plomin, DeFries, Craig, & McGuffin, 2003). Therefore, children who are hereditarily inclined to particular difficulties (hyperactive or excessively inhibited temperaments) are adversely influenced by a risky household situation than those who are not exposed to such weaknesses. To date, research has not clearly solved the genetic foundations for risky family environments and their impacts on children. This drawn global attention, particularly on the causes, effects and how it portends the biological and emotional well-being of young victims.

Though, debate on DV is now globally embraced by various researchers, the focal point of most research on the topic was the adult victims. The problem of abused women has been mounting over two decades, not until recently that the debate about their children receives much consideration and respect it deserved in research literature. While research demonstrates that young children respond to domestic violence in many ways, it is also confirmed that children who constantly experiencing occurrence of domestic violence against a parent bear the worst result of its effects later in life. The emotional disturbance displayed by such children is mostly noted by teachers in school, particularly, in their observation of traumatic violence exhibited when they play with peers, and by paediatricians in the hospital, when they assess children slow developmental progress. Although some of these children are highly aggressive in their general dealing or relationship with peers, they also show signs of depression and withdrawal in their day-to-day activities (Osofsky, 1997).

Most child victims of DV show signs of distress in their development. While some displays high sense of resilience to such negative exposure, others are adversely affected by it. Thus, this risk factor has adverse effects on individual children bio-psychological development. However, research documents a significant correlation amongst children witnessing DV and those physically maltreated (Kitzmann et al., 2003). They also established that children exhibited high levels of resilience to the harmful consequences of witnessing violence at home. Similarly, children living in violent households display signs of social and emotional problems, when compared to those who do not experience DV (Graham-Bermann, 2001). For instance, the higher the level of family or social support available to a child at risk, the more resistant he/she will be (Masten & Reed, 2002). On the contrary, positive parenting such as dynamic parenting, emotional and stable parents alleviate harm and danger for young children (Edleson, Mbilinyi, &Shetty, 2003; Levendosky, Lynch, & Graham-Bermann, 2000; Sullivan, Nguyen, Allen, Bybee, & Juras, 2000) and confirmed the significance of early intervention on children's well-being (Jenkins & Bell, 1997). Despite this assertion, children raised in a violent domestic environment displayed a high risk of maladjustment in life when compared to those from a violence free environment.

### **Bio**-Ecological Perspectives

According to Swart and Pettipher (2005) and Lewis (2009) analysing individual proximal and distal environments that form the basis for understanding the complexity in the individual's life, particularly the interaction and interrelationships between individual and the multiple systems that constitute their environment. As a child grows up they pass through different developmental stages that are influenced by the environment (Dawes & Donald, 2000). This constant interaction significantly influenced their behaviour either positively or negatively, depending on the circumstances they find themselves in. Therefore, trauma or misery does not only limit an individual in a system, but also occur within diverse systems. In lieu of this aforementioned, developmental-ecological perspectives offer a useful framework for better understanding of childhood exposure to risky environment. This theory highlights the significant impact that developmental processes, situational context, and numerous events and interaction has on adaptive as well as maladaptive growth (Rutter & Sroufe, 2000). The theory also linked household intricacy, social, and ethnic factors to developmental adjustments and abnormality in young children and made single-variable reasons held for more examination.

The bio- ecological framework explains how youngsters adjust to cruel situations in their environment, i.e., direct and indirect kinds of violence that compromise their adjusting methods and on-going development. Children's continuous exposure to DV impacts negatively on their biological and emotional adjustment and later leads to nervous and self-doubting approach in relationships which time and again manifest by robust feelings (e.g., frustration, dissatisfaction, aggression, panic). Also, children react differently to their exposure to DV by demonstrating different emotional problems. This is logical as it signifies child's adjustment to maladaptive circumstance. Though, bio-ecological framework permits interaction and understanding at different levels within social systems, what is mostly unnoticed in the research literature about children's mental health is the significance of ecological factors that act as mediators to violence.

Moreover, children experience violence in their home in three different ways, i.e., child's abuse at the ontogenetic level, DV at household/micro system level and societal violence at the exosystem level. Nevertheless, research documents a significant correlation between those experiencing one of these types of violence and other forms of violence. McCloskey, Figueredo, and Koss (1995), submits that a man who subjects or physically abuses his wife is more probable to physically harm their offspring. Research also argues that there is a relationship between children's experience chronic societal violence and intra-family skirmish (Osofosky, Wewer, Hann & Fick, 1993). Also, developmental risk literatures demonstrate that children who experience maltreatment at home are also victims of community anguish and that multiple risk factors upsurge youngsters 'menace for maladjustment exponentially.

In addition, Rutter (1997) established that children who experienced abuse and ill-treatment at home were at risk of developmental psychopathology. This assertion supports the general beliefs that the ecological influences, i.e., (compensatory factors) guard youngster from negative life exposure and reduce the danger of poor developmental effects. Unfortunately, only few researches focus on these broader ecological issues due to lack of child's-centred multi-disciplinary frameworks that embraces developmental preclusion and treatment exertions for offspring experiencing DV. On the other hand, research on marital conflict have come up with a heuristic hybrid process to increase our knowledge on how household and society menace directly or indirectly contribute to childhood psychopathology (Chiccetti, 1996, Rutter, 1997). Bio- ecological model advances future postulation about the consequence of household violence on youngsters' well-being by using rudimental research techniques and systematic philosophies of ecological theory and developmental psychopathology to analyse the relationship between domestic violence and child development. This means that, ecology is contextually based and developmental psychopathology is child focused. Therefore, bio-ecological theory incorporates all the finest of these methods and covering the following mutually dependent foci of study: (a) understanding the difficult understudy in the context, (b) appreciating the influence of difficulty understudy on the voungster with an appreciation for the multidimensional child engagement, and (c) considering the significance of difficulty on child activity over time. So, the process of examining children's outcome as a determinant of their development and transformation over time are symbols of developmentally sensitivity investigation.



Figure 1: Bio-Ecological Model, from Donald, et al., (2006)

The model demonstrates the constant interactions between an individual and the various systems that constitute his or her environments. This interaction has a, significant consequence on a developing child, (i.e., biological and psychological) including the proximal environment in which the child lives. However, the life experience that a child has, whether negative or positive, affects their well-being and development (Lewis, 2009). The question is how a child's social context that consists of risky and violent conditions influenced his/her development?

# The Link between Domestic Violence and Trauma

According to Biersteker and Robinson (2000), family circumstance such as risky household environment influenced parenting style and parents' ability to support and care for their kids. Family interactions are threatened by ways parents relate or engage with each other. A child exposed to DV and risky family environment can display traumatic experiences. (DSM-IV-TR, 2000) and these traumatic situations affect their biological and psychological development. Children can develop continuous fear and panic for their safety with a feeling that this experience can harm them. Based on bio-ecological framework, whatever happens in a child's household environment has a significant effect on their well-being and development (Bronfenbrenner, 1994), including their interaction with the environment. Scholars such as Gabowitz, Zucker and Cook, (2008) and Lewis, (2009) maintain that children living in a DV environment displayed different behaviour such as fear, i.e. (future attack or experience of violence), emotional changes (powerlessness, emotional numbing, and a lack of security). Children's emotional changes can also lead to symptoms such as nervousness, restlessness, irritation and guilt. Similarly, children exposed to household violence experience lethargy, lack of energy, mood swing, sleeplessness and nightmare, poor social conduct and last but not the least, poor cognitive ability that affects their memory.

## Variability in Children Adjustment to Domestic Violence

Decades of domestic violence confirmed that the childhood risky family environment is major predictors of childhood disorder, yet, there are still significant individual differences. As mentioned earlier, children living in risky households are also victims of maltreatment and abuse (Hamby et al., 2010). The degree of exposure was reported as predicting adverse mental health signs (Finkelhor, Ormrod & Turner, 2007). However, children's adjustment to risky family environment is influence by individual differences in resiliency. Numerous protective factors such as easy personality; social skills; intelligence; positive parenting; and social network that relate with risk factors such as high temperament, low intelligence, poor social skills, parental depression and negative peer interactions) are identifies as defining vulnerability in youngsters (Hetherington & Kelly, 2002). Therefore, household milieu and child's physiognomies are vital in explaining the impacts of childhood risky family environment on children's mental health.

The diathesis *stress model*, states that, the psychosocial stressor is explained through analyses of individual's past knowledge, including the bio-psychological and social vulnerabilities (Sbarra, Hasselmo & Nojopranoto, 2012). These pre-disposing features are related to both the distal and proximal effects surrounding the stressor, i.e. domestic violence. The life stressors for young children vary due to the level of stress they can condone and reflects their individual susceptibilities. Children experiences DV through different susceptibilities, founded on bio- psychological tendencies and life experiences. However, the interface between experiences related stressor, biological inclinations, and life histories impacts on post stressor modification stage. Though, most youngsters show signs of highly resilient and exhibits normal functioning following their exposure to household violence, nonetheless, the majority of children victims demonstrate important signs of instability in life. These children represent those that are raised in a high *risky family environment* where annoyance and violence are highly related with parental psychopathology (depression), drug abuse, and negative child-rearing (Cummings & Davies, 2010; Repetti, Taylor & Seeman, 2002). Such youngsters are prone to fixation and stress-related issues that cut across several areas.

### Parenting Capacities

Research shows that children's exposure to DV is not only influenced by the situation of the abuse, but also by the relationship they experience with their parent/families, i.e. be it the culprit or the target of the violence. This invariably influences the value of the parent - child relationship. Mullender et al., (2002), submits that parents perceive domestic violence as having a negative influence on their parenting. Also, Holtzworth-Munroe et al., (1997), conclude that nearly one or two third of those women experiencing domestic violence exhibit high significant experiences of low self-esteem, post-traumatic stress disorder and despair. Besides, reports, documents that mother may experience a regularly overwhelmed state of

mind and still show signs of withdrawal or be emotionally unstable to meet her child's need. However, the most significant roles of any parents are to bring life into the child's world; making their experience manageable and bearable; and support children to develop their cognitive ability. Parents should make emotional sense of what has happened to them; give thought and reflection; and last but not the least, permitting the child to assimilate information (McIntosh 2002).

Also, child development is highly affected or compromised when parents are separated from emotional experiences of DV. Williams (2003) confirms that the contexts of family violence influence the health and well-being of the caregiver and threatens practicability of the father-child interaction. Mostly, DV impacts negatively on parenting skills and prompt most abused parents to start worrying about their own needs (Sullivan et al., 2004). Also, domestic violence is linked with maternal control and discipline (Holt et al., 2008). Rivett and Kelly (2006), establishes that women are liable for emotional and well-being of their children and they are blamed for any kinds of emotional disturbance in their development. Similarly, Humphreys (2006) reports that the maternal authority is highly undermining where a child witness the mother being abused, as this will continue to torment the child even after the family has moved out of the abusive home. Buckley et al., (2007), states that most adolescent display signs of challenging behaviours after exposing to violence in their home, for instance, children show bad conduct such as physical aggression against their mothers; school refusal and stealing even after leaving the abusive home. Nonetheless, the general consensus on the subject confirms the significant importance of parenting capacity by maintaining that mother's parenting skills cannot be under-estimated in child development.

### Moderating Factors

Despite conceptual inconsistencies observed in earlier literature on domestic violence, research has reliably confirmed that, characteristics such as positive and supportive caregiver; warm parenting; parenting stability; child engaging temperament; are significantly associated with resilience (Masten et al., 1999; Wyman et al., 1999). Similarly, reports document a highly significant correlation between positive adaptation and lower level of risk, such as less parental psychopathology; life anxiety; poverty; and membership of most cultural groups (Bradley & Corwyn, 2002; Leech, Larkby, Day, & Day, 2006) and negative implications that come with children living in a DV environment (e.g., Kitzmann, Gaylord, Holt, &Kenny, 2003). Also, limited research explains various characteristic that described children who keep up a positive adaptation despite their exposure to domestic violence (Grych, Jouriles,Swank, McDonald, & Norwood, 2000). This shows that childhood exposure to DV is based on the interaction of an array of risk and resilience factors. On the other hand, Sternberg et al., (2006), reiterates that child's age does not moderate on internalizing behaviour, although older children were at a greater clinical risk. Besides, early exposure to DV impacts negatively on child development comparable to the old age due to the negative influences on the subsequent chain of development (Holt et al., 2008).

## Domestic Violence and Developmental Stage

Recent research on domestic violence highlights biological processes that explain negative outcomes in children. Studies confirmed a significant relationship between exposures to hostile life experiences such as IPA and children's socio-cognitive functioning. It is reported that children living in a DV or high risk environment at the age of three are likely to impact negatively on their memory and cognitive functioning by the age of five (Gustafsson, Coffman, Harris, Langley, Ornstein & Cox, 2013). Also, Gewirtz and Edleson, (2007) established that the most identified primary developmental tasks of infancy are forming affection with the main caregiver. However, to achieve complete dependency, an infant needs a primary caregiver that is passionately sensitive to their needs, promotes a sense of confidence and security and offer safe or enriching environment for them to explore. Similarly insecure attachments are developed when parents fail to respond adequately to their baby's needs. Gerhardt, (2004), explains that DV disturbs children's attachment relationships in a household. The emotional regulation problems between parents and children form the basis of their insecure attachment and causes anxiety for young children. Moreover, failure to address this problem leads to negative child's physiological responses such as, neuronal networks and biochemical functioning. This distorts the stress response and creates high levels of cortisol in the brain region.

Also, research confirms that distress influences children stress response system up till the age of three. It is also established that early exposure to stress influences a child's ability to respond positively to future stress (Gerhardt 2004). However, with the coexisting psychological expectations, this experience creates an emotional framework that guides individual's responses. Similarly, Cummings et al., (2009) confirm that children respond to family violence through integration of both biological and psychological

processes. On the other hand, research confirms that bio-psychosocial model of emotional and physiological reactivity is a strategy that supports children witnessing domestic violence and that children's regulatory process is a moderating factor in their adjustment to violent situations.

Additionally, studies show that toddlers and pre-school children face increasing developmental challenges in life. Besides, Gewirtz and Edleson, (2007), highlight the significant importance of child' learning to behaviour. They argue that emotional and cognitive states become important as a child learns to comprehend and manage their emotions through interaction with sensitive and responsive primary caregivers. Similarly, Cicchetti and Toth, (2005) maintain that maltreatment is a risk for development of effective regulation in young children and limits their recognition, understanding and expression of emotion. As a result of their developmental limitations, young children seek alternative ways to express themselves. Thus, McGee (1997) maintains that CEDV manifest or shows their distress indifferent forms.

Some of these children react with aggression, destructive and externalizing behaviours, while others show no sign or form of behavioural changes in life. On the other hand, some children react emotionally to fearful inhibited or over controlled and internalizing behaviours. Moreover, Carlson, (2000) establishes that because of anxiety and fear for their safety children react clinging and demanding. Research also explains that fear is significantly related to psychosomatic problems, e.g., headaches; stomach aches (Holt et al. 2008). Also, Osofsky, (2003) established that children are vulnerable to domestic violence situation and they show signs of distress through regression in language and toileting. Therefore, children of school age need to negotiate an increasingly complex social milieu and develop necessary skills that will help them to improve and develop effective communication with their peers and people around them, Furthermore, research shows that children react and understand their exposure to domestic violence either through externalizing or internalizing behaviour and this variably or invariably impact on their social competence in such contexts.

Besides, Gewirtz and Edleson, (2007), highlight that some children exhibit lesser social competence and this influences the way they observe or misinterpret social cues in their environment. Similarly, research shows that some children display common attitudes and think that the best way to manage conflicts or aggression is through violence (Osofsky 2003). Moreover, this attitude and behaviour if not properly addressed can lead to conduct disorder and disobedience in a school setting (Carlson 2000). Also, Cicchettin and Toth (2005), confirm that maltreated children show more of antisocial behaviours and less pro-social ones compare to those from enriching and friendly environment. Carlson (2000) maintains that children experience DV display poor peer relationship, low self-esteem, anxiety and depression. This emotional reaction includes severe anxiety and post-traumatic stress disorder (PTSD), hyper vigilance, emotional numbing and flashbacks (Carlson 2000).

## **Biological Processes**

Repetti et al., (2002) linked early children's exposure to risky and chaotic family environment to discrepancies in emotion-regulation skills and negative emotional development in life. The fact that a child live in a domestic or a violent household and display chronic negative emotional development earlier in life make negative experience a likely indicator of disturbances in emotion-regulation skills and as contenders for facilitating the link between early family environment and health consequences. For instance, example, aggression has been linked with coronary heart disease (e.g., Dembroski, Mac-Dougall, Williams, Haney, & Blumenthal, 1985); epidemiological indication explains dose-response association of nervousness to coronary heart infection (e.g., Kubanski, Kawachi, Weiss, & Sparrow, 1998). Also, major despair, low-spirited symptoms, history of dejection, and nervousness is recognized as predicting cardiac actions (Frasure-Smith, Lesperance, & Talajic, 1995).

Children's proximal and distal environments are also reported as vital in determining their ontogenetic development. For instance, an enriching rearing environments characterized by positive household relationships that promote care, responsiveness and engagement is linked to a constructive developmental outcome in children. However, punitive, split and unpredictable family settings are linked with maladjustment (e.g., 1994; Dunn & Davies, 2001; Sturge-Apple, Davies, & Cummings, 2006). Earlier research on development and family study explained the fundamental mechanisms that explain such associations. Most studies define the descriptive part of children's emotionality (e.g., Cummings, Schermerhorn, Davies, Goeke-Morey, & Cummings, 2006), mental functioning (Grych, Harold, & Miles, 2003; Jouriles, Brown,McDonald, Rosenfield, & Leahy, 2008; Sturge-Apple, Davies, Cummings, Winter,

&Schermerhorn, 2008), and behavioural functioning (e.g., Gordis, Margolin, & John, 2001) of bio-ecological model.

However, there is little acknowledgement of children's biological functioning in the context of numerous family interactions. This is most important when looking at the dominant role attributed to children's biological functioning in a household environment dominant of family menace (e.g., Boyce &Ellis, 2005; Repetti, Taylor, & Seeman, 2002). However, to identify the links of abnormalities in youngsters' biological functioning, it is imperative to explore whether risky family environment coupled with poor parental care predict child's adrenocortical reactivity to consistent, laboratory processes planned that provoke youngsters' anguish in inter-parental and child-parent interaction. Neurobiological frameworks explained the importance of comprehending the function of hypothalamic-pituitary-adrenal (HPA) axis stress response system in a domestic situations (e.g., Cicchetti, 2002; Repetti, Taylor, & Saxbe, 2007; Susman, 2006). This works as a means of organizing resources that tackle ecological risk and distress.

The results of HPA stimulation is glutocorticoid hormone cortisol. Therefore, an increase in cortisol stages which come as a result of ecological stressor aid the adaptive role of increasing cognitive handling of meaningfully important actions, and rally to ingvigourate and biological means to tackling the stressor (e.g., Gold & Chrousos, 2002; Gunnar & Quevedo, 2007). Also, inter-parental violence and unresponsive punitive parental behaviours are considered as noticeable ecological pathogens on children's behaviour because of their perniciousness on their security and welfare (Cicchetti & Rogosch, 2001; Margolin, 2005). Based on the stress-sensitive characteristic of the HPA axis, inter-parental violence coupled with parent's emotional unobtainability is a strong prognosticator of uniqueness in youngsters' adrenocortical functioning.

#### Stress Response System

The stress response system contains the Sympathetic Nervous System (SNS) and the Hypothalamic-Pituitary Adrenocortical (HPA). However, the tendency to concurrently establish a link between interparental, child-rearing risk factors and youngsters' cortisol functioning permits influential tests for two conflicting models of stress response. According to the work of Davies and Sturge-Apple, 2007, emotional security theory provides important ways to define the comparative practicability of broad stress and stress-specificity theory in a household. Emotional security is seen in an inter-parental and child-parent's interactions as the most important objective for offspring. Children with long histories of inter-parental problems developed poor emotional safety in such environment. Research suggests that experience spells of violence, hostility, and skirmish in a household is a strong threat to children wellbeing and increases fears about their security and safety in the family. On the other hand, EST suggests that maternal difficulties that promote poor attention, sensitive, and approachable parenting weaken children's confidence if they face any problem outside their home and no caring and reliable parents to help them (e.g., Cicchetti, Rogosch, & Toth, 1998; Levondosky & Graham-Bermann, 2000). Given its importance to family measures, emotional security theory offers theoretical outline that explain the unambiguousness between children with histories of inter-parental and child-parent rapport and biological reactivity paradigms that explain children's worries and safety in a household

### The Interaction of Biological and Psychological Responses

Research linked the higher menace of both internalizing and externalizing difficulties in youngsters to dysregulation in the stress response system that comes with trauma-related experiences (Luecken & Lemery, 2004; El-Sheikh, Kouros, Erath, Cummings, Keller & Staton, 2009).Reports also show a significant correlation between augmented stimulations of the HPA axis, internalizing conducts, and undesirable long-standing physical health effects (El-Sheikh et al., 2001). Similarly, HPA axis is a probable trajectory for the result of high conflict on youngsters' coping reactions, and it clarifies some distinctness observed in their behaviour. According to Koss, George, Davies, Cicchetti, Cummings and Sturge-Apple, 2013, kindergarten- aged children demonstrate three patterns of cortisol fluctuation. For instance, a group displayed no variation between baseline, conflict, and resolve (11 percent), while another group exhibited a stable decline from baseline to resolve that in line with the diurnal rhythm of cortisol (77 percent), and last but not the least, the last group displayed a stable upsurge in cortisol levels (11 percent). Generally, this report confirms that there is no relationship between the cortisol levels and emotional security, or adjustment, which means that kids react to domestic violence or high risk environment in different manners. Children who displayed increasing cortisol during baseline, conflict, and resolve are more probable to poor managing processes, higher levels of observed risk, emotional, and behavioral dysregulation. Also, they are more probable to engage or interfere in the violence (Koss et al., 2013).

#### **Conclusion and Recommendation**

The impact of domestic violence on children' mental health is enormous. Studies continue to show that children who experience domestic violence or risky family environment developed social, emotional, and academic problems (Cummings & Davies, 2010). Although reports show numerous factors that influence child's adjustment, a well-established and reported experience documented is living in a domestic violence household. This prompts recent research on the probable effects of biological and psychological mechanisms that come as a result children witnessing parental conflict. Though, most studies illuminate the effect of children's exposure to risky family environment on cognitive development, surprisingly, it established that children witnessing domestic violence before the age of three, are more likely to develop memory impairment and poor cognitive functioning when they attain the age of five (Gustafsson, Coffman, Harris, Langley, Ornstein & Cox, 2013).

Years of empirical evidence also proves that children from domestic violence household environments developed both biological and psychological health problems in their teenage years and in early adulthood. What most of these studies failed to emphasize is the probable interaction between biological and psychological developments in young children. Yet, research continually argued that living in a risky family household, such as domestic violence impact negatively on child's stress response system, as well as the SNS and HPA axis. Lastly, research shows that child' emotional security is a pathway through which psychological process impacts on biological outcomes (Cummings & Davies, 2010). Thus, if a child is not emotionally secure, she/he will experience hypervigilance and a dysregulated stress response system that affects their sleeping ability and upsets other biological and psychological developments.

#### Direction for Future Research

One of the main objectives for impending research is to use ecological-transactional analysis to broaden the knowledge base on the significant interaction between biological processes like the SNS, HPA axis, sleep, and psychological outcomes of children exposure to domestic violence. To achieve these goals, the following recommendations are suggested:

- 1. Effort should be directed toward understanding the socio-ecological interaction between child's biological disposition and the fusion of risk and protective factors and family milieu.
- 2. Future research should focus more on epigenetics as this helps in comprehending the extent of relationship between biological and psychological processes, and other probable mechanism that come from living in a *risky family environment*.
- 3. Researcher should understand and investigate the biological (stress response, emotion regulation, sleep) and the role they play in triggering and aggravating undesirable psychological functioning that explain individual and group differences. This if managed, will help the practitioner and policy maker to identify *risky families*.
- 4. Also, professionals should identify strategies that will balance the child's needs with family confidentiality.
- 5. Lastly, practitioners working with children exposed to domestic violence must learn, and develop skills needed in providing crisis intervention, suitable assessment approaches and understanding child development, and trauma.

With the information above, professionals and other stake holders will be able to design strategies and ideas that not only meet the prevention and interference programme, but also change the trajectories of exposure to domestic violence.

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## INCLUSION OF STUDENTS WITH DISABILITIES IN FORMAL VOCATIONAL EDUCATION PROGRAMS IN ETHIOPIA

Abebe Yehualawork Malle Raija Pirttimaa Timo Saloviita University of Jyvaskyla

In Ethiopia, individuals with disabilities have limited access to educational and vocational training opportunities. This study investigates prevailing challenges and opportunities for the participation of students with disabilities in vocational education programs in Ethiopia. Data for the study were gathered from the five biggest regions out of the 11 in the country by selecting two colleges of technical and vocational education from each region. A total of 110 trainers and 28 students with disabilities from the selected colleges completed the questionnaire. In addition, 30 regional and college-level administrators were interviewed. Finally, all 10 colleges were evaluated through direct observation in terms of the accessibility of their physical environments. The results revealed significant barriers that limited full participation of students with disabilities, such as lack of adaptive educational materials and facilities. The results are discussed with a focus on the need for continued improvement of vocational and technical education considering international and national strategies that endorse the rights of people with disabilities.

In developing countries, individuals with disabilities typically live in extreme poverty and dependency. One of the reasons for this is limited access to basic services such as education and vocational training. A strong interaction has been confirmed between disability and poverty, with disability causing poverty, and poverty triggering impairment and disabilities (UNESCO *et al.*, 2004). In Ethiopia, poverty, ignorance, war, disease and harmful traditional practices have been shown to be the major causes of impairments (Tirusew & Alemayehu, 2008). Consequently, the vicious circle of disability and poverty tend to expose persons with disabilities to extreme exclusion and marginalization. Exclusion from education leads to exclusion from the labour market, and this in turn, leads to poverty and dependency on others for income and support.

In many developed countries, the issue of disability is included in development policies and recognized as an essential part of human rights concerns. An example of this is The Americans with Disabilities Act Title II Regulations (Department of Justice, 2010). However, in several countries, persons with disabilities remain the most neglected section of society. During the last quarter of the 20th century, the United Nations (UN) increasingly began to pay attention towards persons with disabilities. UN documents and human rights instruments have now contributed significantly to the change and progress at international and national levels in this respect. These documents include, among others, The UN World Program of Action Concerning Disabled People (United Nations, 1983), The Standard Rules on the Equalization of Opportunities for Persons with Disabilities (United Nations, 1993), The Salamanca Statement and Framework for Action on Special Needs Education (UNESCO, 1994) and The Convention on the Rights of Persons with Disabilities (United Nations, 2006).

In the field of technical and vocational education, significant progress was made following the launching of the Education for All movement by UNESCO and several other international organizations in 1990 (UNESCO, 2014). Its third goal encompasses the development of skills, including technical and vocational skills (UNESCO, 2014). The success of the EFA program in the field of skill development, however, has remained low. According to the 2012 monitoring report, an estimated 11% of secondary

school pupils were enrolled in such programmes (UNESCO, 2012, 4).

Several strategies have been recommended to overcome employment-related challenges faced by individuals with disabilities. For instance, Beresford (1996) suggested relevant strategies such as providing increased education and employment training opportunities, encouraging flexible and accessible employment, meeting the additional costs of impairment and challenging prejudice against people with disabilities. Especially, in countries where individuals with disabilities lead a destitute life owing to poverty, vocational education is an ideal instrument to promote their economic empowerment and overall welfare.

### Why Technical and Vocational Education?

In the advanced world, there is a growing need of skilled labour in industries. This creates the need to improve the quality of vocational education in order to upgrade the vocational skills of the workforce (McFarland & Vickers, 1994). In some countries, vocational training is a synonym for respectable middle-level training, while in other countries, it is considered as a level that some people choose for the lack of better alternatives (McFarland & Vickers, 1994). In developing countries, vocational education and training can be considered as a foremost instrument for poverty reduction. Individuals who can access education and vocational training are better poised to progress in all aspects of life. Recognizing this reality, the right to education and training has been established through several international instruments that have global endorsement, such as the Universal Declaration of Human Rights, Article 26 (United Nations, 1948), and Convention on the Rights of the Child, Article 28 (United Nations, 1989).

Vocational education is a significant investment because of its contribution to socioeconomic prosperity of nations. The idea that '...sustainable growth, competitiveness, innovation and social inclusion' could be achieved by training citizens to be knowledgeable, skilful and competent in various types of vocations is simple and straightforward (Zarifis, 2010, 201).

In many countries, vocational training programs are designed to serve people of all ages and training needs. This includes young school dropouts, technically talented students seeking additional training beyond high school, veteran workers needing retraining and women returning to the workforce. Moreover, with the passage of time, socioeconomically disadvantaged groups living on the fringes of a society, including persons with disabilities, have come to be able to enjoy the benefits of technical and vocational education and training programs.

#### Historical Background of Vocational Education in Ethiopia

Ethiopia is a large country located in the Horn of Africa with a population of about 94 million (World Bank, 2014). It is one of the worlds' oldest civilizations but is currently one of the poorest and least developed countries in the world with a per-capita income of \$470 in 2013 (World Bank, 2014) and a ranking of 173/187 in the 2013 UNDP Human Development Index (United Nations, 2014).

The origin of advanced technical and vocational skills in Ethiopia can be traced back to ancient Axumite, and medieval Zagwe and Gondarian civilizations. Artisans constructed magnificent monuments, which are currently designated international heritage sites by UNESCO. However, these cultural advancements were lost over the subsequent centuries. Fresh groundbreaking progress in technical and vocational education started during the Italian occupation (1935-1941), which paved the way for the foundation of several vocational education schools. These schools were established mainly to serve the Italian colonial interest, which was geared towards exploiting the natural resources of the country (Takele, 2008).

In the post-liberation period, a professional workforce was crucial for meeting the skilled human power requirements of the industrial and commercial sectors. Several new technical and vocational schools and colleges were opened during the three decades after liberation (Wanna, 1996). The proclamation of the 1994 Education and Training Policy (Federal Democratic Republic of Ethiopia, 1994) was a turning point in the educational system of the country. It resulted in reforms within existing technical and vocational education and training programs. Following pronouncement of the policy, vocational education programs were reformed, and noticeable results were observed in the sector, such as a rapid rise in the number of vocational education and training policy, the Federal Ministry of Education stipulated Technical and Vocational Education and Training Proclamation No.391/2004 (Ministry of Education, 2004) and The National Technical and Vocational Education and Training Strategy (Ministry of Education, 2008) that enhanced the mission and the overall program objectives. This strategy

envisions producing skilled human power to meet the growing demand for labour in the market. According to the strategic direction of this document, 'Technical and vocational education and training (TVET) in Ethiopia seeks to create competent and self-reliant citizens to contribute to the economic and social development of the country, thus improving the livelihoods of all Ethiopians and sustainably reducing poverty' (Ministry of Education, 2008). In addition, as one of component programs related to the education sector, vocational education was included in the education sector development programs launched in 1997 (Ministry of Education ESDP I, 1997).

## Disability and Vocational Education: Challenges and Opportunities

The first and the second World Wars, while increasing the number of disabled persons in industrialised nations, brought more visibility and attention to the idea of rehabilitation. Policies for employment and vocational rehabilitation of disabled people arose out of the need to provide for those injured in the wars (Helander, 1999). From the 1960s, UNESCO started including among its objectives the special educational and vocational training needs of persons with disabilities. This initiative developed into a principle according to which TVET systems must be open and all inclusive to ensure that even the most underprivileged individuals have access to learning and training (UNESCO & ILO, 2002, 8).

The Convention on the Rights of Persons with Disabilities (United Nations, 2006) recognized the availability and accessibility of education and vocational training for persons with disabilities from the human rights perspective. Based on the universal assumptions endorsed officially by this and other human rights instruments, UN member states initiated efforts to promote the inclusion of persons with disabilities in vocational education programs.

In developed countries such as U.S.A., a considerable amount of information is available on the vocational status of people with disabilities and their vocational education. According to a research review by Harvey (2001), the majority of people with disabilities in U.S.A were not working. However, it was observed that vocational education had some positive impact on post-school employment in this group. It was concluded that enhancing the job skills and employability of persons with disabilities was an important goal of secondary education. The 2011 UN report confirmed that in developing countries, 90% of children with disabilities continue to lack access to education (United Nations, 2011). UNICEF (2014) estimated that about 98% of children with disabilities in Ethiopia had no access to school or vocational training.

In line with the newly emerging, internationally recognized opportunities, the Ethiopian government has made endeavours to provide vocational training to persons with disabilities through formal technical and vocational education programs. Under its specific objectives, the National TVET Strategy (Ministry of Education, 2008) confirmed that special support will be provided to disadvantaged students, including students with disabilities, in the form of affirmative action to ensure their full participation in the country's middle-level technical and vocational training programs.

It has been observed that students with disabilities enrolled in vocational education and training programs report facing more barriers compared with their peers without disabilities (Cocks & Thoresen, 2013). The most commonly reported barriers are related to lack of resources, while support is reported as the most important factor in facilitating course completion (Cocks & Thoresen, 2013). Menbere (2007) summarized the major factors that continued challenging the participation of students with disabilities, such as type of disability, lack of trained personnel, lack of training and employment opportunities, attitudinal problems, national policy limitation, architectural barriers and lack of coordination. Another list of barriers presented includes inaccessible buildings, communication systems, infrastructure, lack of assistive devices and psychological barriers in the minds of people with disabilities (ILO/Japan Technical Consultation on Vocational Training and Employment, 2003).

This study aims to investigate various barriers faced by and opportunities for by students with disabilities who participated in formal vocational education programs in Ethiopia. Data were collected via semistructured interviews with regional and TEVT colleges' administrators and questionnaire-based interviews with students with disabilities and their trainers, as well as by observing the physical accessibility of educational environments. Recommendations for better training/participation of persons with disabilities were collected from all participants.

## Methods

#### **Participants**

The research was carried out in five regions out of nine regional states and two city governments of Ethiopia. The selected regions were Addis Ababa city government, Oromiya, Amhara, SNNP and Tigray. These five regions were selected based on their larger size and the fact that they represent 89.59% of the total population of the country. Moreover, major cities with a large number of persons with disabilities are located in these regions. Out of the 348 government TVET colleges, 327 colleges are located in these regions.

In addition to the regional TVET bureaus and agencies, two technical and vocational education and training colleges were selected from each region using purposive sampling. The selection was based on three criteria. First, colleges that provided training opportunities to students with disabilities were selected. Second, colleges with larger numbers of enrolled students and offering more fields of studies in comparison to others were preferred. Third, colleges that were recognized as leading institutions by their respective regional TVET Bureau or Agency owing to their experience, academic strength and seniority were chosen.

A total of 168 individuals selected from these organizations participated in the study. Fifteen TVET college trainers who were requested to participate in the study were not willing to complete the questionnaire. In the context of the Ethiopian Vocational education, teachers, instructors and trainers are the terms which have been used interchangeably, but *trainer* is the preferable one and thus used here. Face-to-face interviews were conducted with 11 administrators from regional TVET bureaus and 19 college deans, deputy deans and heads of different programs. Semi-structured interviews were conducted with 110 vocational education trainers and 28 students with disabilities.

The administrators were at high posts in regional TVET Bureaus/Agencies, Such as deans and deputy deans, and program leaders such as planners of TVET colleges. Almost all of such persons from the targeted institutions were willing to give information. Thus, 30 administrators from regional TVET Bureaus or Agencies and TVET colleges participated. Of them, 90% were male and 10% were female. Most of them were between 41 and 50 years of age. Of them, 12 were qualified at the BA level, and18 at the MA level; most had worked in the field for more than 15 years (77%).

In each targeted TVET college, there are more than 100 trainers. About 10 trainers from each college were selected randomly from the list of trainers of each field of study (e.g. automotive and other manufacturing industries, tourism and hotel management, garment and textile) in collaboration with the targeted TVET college managements. Finally, 110 trainers with relevant experience and qualification in various vocations participated in the study. Among them, 85 % were male and 15 % were female. Half of the respondents were 18–30 years old, 20 % were 31–40 years old and 30 % were above 41 years. Their academic qualifications ranged from the certificate level to the MA level. A breakdown is as follows: certificate (2%), diploma (20%), BA (45%) and MA (33%). Their work experience varied from less than 6 years (35%) to more than 21 years (18%).

Twenty-eight 28 students with disabilities were selected randomly from the colleges considered in the study. Among them, 61% were male and 39% were female. Half of them were 10–20 years of age, and the remaining half were 21–30 years of age. Of them, 19 were physically impaired (wheelchair or crutch users), two hearing impaired, two visually impaired and five had multiple impairments. They were scattered across grade levels 1–4. Of the hearing-impaired students, 15 were not interested in completing the questionnaire, deeming the process boring owing to a lack of positive expectation from the contribution of such studies in the Ethiopian context.

### Data Collection

To contact and gather data from the study participants, the first author travelled across the five selected regions in Ethiopia. Among these regions, Tigray and Amahara are located at an average of 800 km from the capital.

*Interviews.* Face-to-face interviews were conducted to generate information from high-level leaders of regional TVET Bureaus/Agencies and TVET colleges. An interview guide was prepared to maintain quality and consistency across interviews, and all interviews were recorded using a digital recorder. The content of the interview guide was designed with a focus on support services and regional TVET Bureaus/Agencies and colleges' efforts toward addressing the special training needs of students with

disabilities. Data was gathered with informants' consent at locations convenient to them, and the data gathered from the study participants has been kept confidential. The interview guide contained 16 basic questions, and each interview lasted an average of 1 h. The recorded interviews were transcribed into text, which ran in to 80 pages.

Table 1. Participants and Data Collection						
Participants	Ν	Data collection method				
Administrators						
regional	11	Interviews				
colleges	19	Interviews				
Vocational education trainers	110	Questionnaires				
Students with disabilities	28	Questionnaires				
TVET Colleges	10	Systematic observation				

*Questionnaires*. Semi-structured questionnaires were prepared to be completed by students with disabilities and their trainers. The questionnaires were distributed to both students with disabilities and trainers. The filled questionnaires were then collected and analysed. The questionnaire for students with disabilities was translated into Amharic to facilitate students with disabilities to understand the concepts underlying the questions and answer them properly. The questions focused on the challenges faced by students with disabilities, as well as the effects, positive or negative, of the services made available to them on their participation in vocational education. For instance, the students were asked about the availability of adaptive educational materials, status of the accessibility of the physical environments of TVET colleges and the response of trainers towards their special educational and training needs.

*Observation.* The emphasis of observation was on the physical environment of the 10 selected TVET colleges. The first author, who is visually impaired, conducted these observations with the help of his research assistant. The assistant was trained to complete the observations, and having worked in the disability field for 30 years, she is familiar with disability-related issues. The observation targeted the status of physical accessibility for students with disabilities. The observation checklist was prepared by consulting the accessibility requirements listed in relevant UN documents including the UN Standard Rules on the Equalization of Opportunities for Persons with Disabilities, 1993, and The Convention on The Rights of Persons with Disabilities, 2006. The focus was on the accessibility of pedestrian walkways, lobbies and corridors, classrooms, toilet buildings and signage. The checklist contained 12 basic items. An average of 1 h was spent in conducting observations in each college. During the process of observation, pictures and notes were taken to organize and analyze the findings.

### Data Analysis

The data collected using each method was organized thematically. The themes focused on the main challenges in the participation of students with disabilities in vocational education and past recommendations to promote better opportunities. The information gathered from the study participants and observations was categorized based on the outlined thematic issues. The inductive approach was used for the analysis, and the thematic issues were linked with the information gathered from the study participants (Patton, 1990; Braun & Clarke 2006). Percentages and frequencies were calculated as well. The major findings were interpreted in reference to relevant documents.

## Findings

## Preparedness of Colleges

The administrators were asked about the problems faced and existing best practices with regard to accepting students with disabilities in colleges. Twenty-seven administrators out of 30 reported that students with disabilities unsuitable for acceptance in some fields of study, especially in fields requiring 'hard skills' such as automotive, manufacturing, construction and electricity. These administrators believed that students with mild physical impairments were more likely to be accepted in these fields of study over students with other types of impairments. The administrators preferred that students with disabilities rather join 'soft courses' such as accounting, business, ICT etc. However, they explained that no general guidelines existed for stipulating which type of impairment was compatible with which fields of study.

Students unanimously agreed that they had limited access and opportunities to join the desired field of study. The majority of students, 19 of 28, stated that they were not supported by vocational counsellors in identify the fields of study best suited to their impairment.

Several factors were identified from the responses of trainers and administrators as hindrances preventing students with disabilities from attending training, particularly in hard courses. These include the lack of trainers qualified to train students with disabilities in both hard and soft fields of study; non-availability and/or lack of relevant adaptive technology, mainly machineries required to make possible the participation of students with disabilities in vocational training programs; prevailing knowledge gap concerning the existence of such assistive technology; failure to consider mobilizing and allocating financial resources for the transfer of the technology for this purpose and the assumption that hard courses are not suitable for students with disabilities in some cases for safety reasons. In this respect, almost all administrators substantiated the argument citing the example that training machines with sound signals are not suitable for training students with hearing impairment.

The observations showed that the average height of the training machines ranged from 90 cm to 1.6 m. This height was unsuitable for physically impaired students who use a wheelchair to operate the machines properly. Moreover, the loom machines used for imparting training in weaving were not accessible to students with physical impairment in the lower limbs because the reason that the pedals of these machines are designed to be operated by lower limbs. However, one of the targeted TVET colleges which was given a mandate of transferring technology and knowledge in the form of a tailor-made training program and the modification of such loom machines to be operated by hand. Thus, they were made accessible to students with physical impairment of upper limbs.

One of the administrators explained her experience with the challenges that applicants with disabilities may encounter during registration as follows:

While I was a deputy dean of one of the polytechnic colleges two years ago, I received a complaint from a student with physical impairment. The student had deformity on a part of her face, and upper and lower limbs due to epilepsy-related accidents. The applicant was highly interested in joining a front operation (reception) training program in the hotel management vocation. After the orientation conducted by the college management, she was registered in the department of hotel management studies based on her inclination/interest to be trained in frontline service in the hotel industry. However, the principal trainer of the department rejected her registration, and she refused to accept her choice believing that the student will not be able to secure a job in frontline hotel service or an apprentice/cooperative trainee owing to her deformed physical appearance. Nonetheless, the student insisted on her choice, and the college management stood by her, recognizing her choice based on the principle that students have the right to pick a course of their choice without exception in line with their inclination and interest. However, the principal trainer, too, insisted on her decision, and she gave me a serious warning that if the student is allowed to take part in the training, she will submit an official resignation to the college management. Regardless of the trainer's concerns, I sincerely tried to sensitize and convince her to recognize the inalienable training rights of the student and respect the student's choice. Finally, after heated debate and negotiation, the deadlock was resolved by convincing the student to change her field of study to IT. This case study vividly substantiates the fact that students with disabilities were not at complete liberty to join a field of study of their choice and proclivity.

Similarly, three administrators stated that some students with disabilities were coerced to leave their field of study owing to their impairment. One of these administrators stated

The application of physically impaired students for training as rural agriculture development agents was rejected owing to the assumption that the stakeholders who employ development agents, mainly the ministry of agriculture, may not be willing to accept the trainee because the work requires long distance journeys from one peasant locality to another.

As another aspect of the problem, one of the participants revealed a *student with hearing impairment enrolled in a hydraulics course in one of the TVET colleges in Oromiya region was pushed to leave the college and his study after his impairment was detected under the assumption that hearing capacity is needed for such training and in the associated jobs.* 

Twenty-one out of 30 administrators believed that harmful cultural beliefs prevailing in society, which disregard the potential and capacity of persons with disabilities, too, contributed to lower participation of students with disabilities in vocational training programs. They further argued that persons with disabilities themselves lacked the self-confidence and motivation required to join the training programs assuming that they may not secure a job on completion of the training. A total of 16 students out of 28 believed that the society, including college communities, did not believe in their success in vocational education. However, 19 students believed that upon completing their training, they would not face discrimination in job opportunities. In contrast, 62% of the trainers believed that there was no demand in the labour market for trained students with disabilities owing to entrenched negative attitudes of society towards disability.

## Physical Environment Accessibility

A total of 64% of the students and 100% of the administrators stated that the physical environment, mainly buildings and sidewalks in the campuses, were not accessible to students with disabilities, especially to those with visual or physical impairments. The topography of the college compounds was described as rugged and marked by physical features such as open ditches or poles erected on pedestrian walkways. Particularly, roads and older buildings were not accessible.

Observations inside the physical structures of the colleges focused on lobbies, classrooms, corridors, toilets, office premises and walkways. The findings confirmed that with the exception of a few buildings, these facilities were not accessible by students with disabilities. The toilet rooms were not accessible, particularly by wheelchair users and visually impaired students. The lobbies and corridors of buildings and workshops lacked adequate space for the wheelchair movement.

## Adjusted Facilities and Pedagogical Services

A total of 68% of students and 87.2% of trainers considered that adaptive training and educational materials were not available to them. All participants (trainers, students and administrative staff) noted that the basic services particular significant for addressing the special training needs of students with disabilities were not made available at all levels of the vocational education sector. In this regard, the administrators listed the following drawbacks:

- No budget allocation for special needs education;
- No availability of special needs education coordinators at all levels of the sector;
- Inaccessibility of physical environment, including training facilities such as workshops in colleges;
- Failure to include the issue of disability in the annual action plan of regional TVET Bureaus/Agencies and colleges;
- Lack of screening and need-assessment tools concerning the type of impairment and special training needs of students with disabilities.
- The respondent trainers and students with disabilities also attributed the problem to the following five major reasons:
- Absence of readiness and initiative at all levels of the training system to take responsibility to meet these needs;
- Students with disabilities were not able to demand their rights and pressurise the concerned bodies to fulfil these educational and training needs;
- Failure to recognize access to said resources and services as educational and training rights of the students with disabilities, and considering the grant of such access as a favour or optional privilege;
- Non-availability of adaptive training technology and experience learned from other countries that have adopted best practices in promoting the participation of students with disabilities in vocational education;
- Lack of opportunity for trainers to be trained in special needs education and as adaptive skills for training students with disabilities. In this regard, 75.4 % of the trainers confirmed that they have not had the opportunity, formal or informal, to be trained in special needs education.

A total of 81.8 % of trainers and 100% of students confirmed that tutorial support was not available in regular vocational training programs. A total of 61% of the trainers reported that they did not include methods and procedures in their lesson plans to meet the special educational needs of disabled students. These trainers gave the following reasons:

- They have not been trained to deal with the special educational needs of students with disabilities;
- Some believed that disabled students had to succeed through their own effort;
- Preferential or special support to disabled students would result in the neglect of and consequent disadvantage to other students;
- There were no disabled students in the classes they taught.

A total of 60% of trainers believed that students with disabilities could attend training in inclusive class setting. The remaining 40% identified the following challenges in the course of instructing classes consisting of students with and without disabilities.

- Inability to appreciate the special educational needs of trainees with disabilities;
- Lack of access to training in the area of special needs education;
- Total absence or inadequate number of itinerant trainers assigned to support regular trainers in addressing the special educational needs of students with disabilities;
- No availability of adaptive training materials/equipment.

A total of 73.6% of trainers acknowledged that they were not informed about national or international policies, or legal instruments concerning the participation of students with disabilities in vocational training and general education programs.

Regardless of these barriers, the study participants identified existing opportunities for the enrolment of students with disabilities in vocational education programs. A total of 75% of the participant students with disabilities mentioned the availability of soft skills programs suitable to the special needs of students with disabilities and the fact that the enrolment of students with disabilities was being treated under affirmative rules and actions. A total of 14 administrators substantiated that such initiatives were launched in the Tigray and Amhara regions for increasing the level of participation of students with disabilities in vocational education. A total of 28 administrators further argued the fact that the strategy of vocational training programs in the country is 'competence-based', flexible and accessible. The existence of a strategic direction to bring disabled persons into the mainstream and the availability of alternative fields of study are considered as additional prospects for enhancing the participation of students with disabilities in such programs.

## Recommendations of Participants

Study participants, both students and trainers, were encouraged to make suggestions for ensuring better inclusion of students with disabilities in TVET programs. Several recommendations were presented. They are grouped here under six main themes.

*Learning materials and skilful staff.* Both students and trainers underlined the necessity for adaptive learning materials and tools. Trainers were also keen to enhance the roles played by themselves in relation to the participation of students with disabilities in vocational studies. In particular, they stressed the need for staff trained in special needs education.

*Curriculum and vocational counselling*. Both trainers and students demanded modification and adaptation of the curriculum to address the special training needs of disabled students. They proposed that the participation of students with disabilities in vocational education programs should be mentioned in the curriculum. There is a demand to organize training activities. In addition, trainers suggested that all such efforts should be made an integral part of the annual action plans of the Federal TVET Agency, Regional TVET Bureaus/Agencies and TVET Colleges. Students with disabilities recommended the provision of vocational counselling to help them choose suitable careers. Such counselling should take place during the process of selection of a field of study.

*Attitudes.* Both students and trainers noticed that there is a need to develop and apply non-discriminatory attitudes and approaches to the special needs of students with disabilities. Trainers emphasized the need for persistent efforts at the community level, not only to shape the attitudes of people but also to combat harmful practices.

Accessibility. Student participants indicated the need for friendly transportation services and accessible physical environments in TVET colleges and local communities. Social accessibility is essential as well:

people with disabilities need support and encouragement in vocational education. Sign language interpreters were mentioned in particular as a means of support for academic/training performance and success of students with hearing impairment.

*Employability*. Students demanded that colleges ensure the employability of trainees with disabilities through cooperative training. Trainers did not comment on this issue.

*Research.* Trainers believed that research could result in positive changes for students with disabilities in TVET colleges. They mentioned that a national survey on the major challenges hindering the participation of students with disabilities in formal vocational education programs should be undertaken. In addition, efforts should be launched at the local level for monitoring and evaluating the overall participation of students with disabilities in TVET programs, as well as to bring the issue of disability in the mainstream by using suitable reporting formats at all levels of the sector. Assessments of the special training needs of students with disabilities in terms of the local context should be conducted as well.

#### Discussion

This study aimed to verify the status of the inclusion of students with disabilities in formal vocational educational programs in Ethiopia. It was found that the physical environments of TVET colleges, such as buildings, walkways and other essential structures, were not accessible by person with disabilities, particularly by persons with visual and physical impairments. Various physical obstacles hindered the mobility of persons with disabilities in these institutions. This was in contrast with the legislation on accessibility of the environment passed by the Ethiopian government in 2010 as per Article 9(4) of the Constitution (Federal Republic of Ethiopia, 1995), and confirmed in the UN Convention on the Rights of Persons with Disabilities (CRPD). Article 9 of the Convention stipulates that 'States Parties shall take appropriate measures to ensure to persons with disabilities access, on an equal basis with others, to the physical environment, to transportation, to information and communications' (United Nations, 2006).

Moreover, the study identified further contributory factors that limited the participation of students with disabilities in vocational training. The main ones were acute shortage of adaptive training materials and equipment such as machines accessible by physically and hearing impaired students, inadequate pedagogical preparation on the part of trainers in terms of the special training needs of students with disabilities and lack of special support for the students with disabilities, such as the provision of tutorial classes. The need for such provisions was confirmed in rule 6 of the UN Standard Rules on the Equalization of Opportunities for Persons with Disabilities. It says that 'Education in mainstream schools presupposes the provision of interpreter and other appropriate support services, and adequate accessibility and support services, designed to meet the needs of persons with different disabilities, should be provided' (United Nations, 1993, 15).

As confirmed by the findings of the study, the participation of students with disabilities in vocational education was limited due to various factors. Nonetheless, the UN Convention on the Rights of the Child (Articles 2 and 23) of 1989 stipulates that member states allocate the necessary resources and other support so that children with disability can access education. Moreover, the UN Convention on the Rights of Persons with Disabilities Article 24(5), (p.18) stipulates that 'States Parties shall ensure that persons with disabilities are able to access general tertiary education, vocational training, adult education and lifelong learning without discrimination and on an equal basis with others'.

Regardless of the prevailing challenges that curtail the inclusion of students with disabilities in vocational education programs in the country, the findings also divulged promising progress in the participation of students with disabilities in vocational education programs. Impressive efforts were carried out in some regional TVET Bureaus/Agencies to promote the inclusion of students with disabilities in the vocational programs through affirmative action.

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# JAMES M. KAUFFMAN'S IDEAS ABOUT SPECIAL EDUCATION: IMPLICATIONS FOR EDUCATING CULTURALLY AND LINGUISTICALLY DIVERSE STUDENTS

## Lynn Tetzloff Red Apple Elementary School

#### Festus E. Obiakor

Valdosta State University

For decades, James M. Kauffman has been a reputable scholar in the field of special education. While his contributions to the field cannot be doubted, his ideas about special education have been somewhat controversial and even devastating to the education of culturally and linguistically diverse (CLD) learners with and without disabilities. Specifically, his ideas about student labeling, standardized tests and testing, multicultural education, and disproportionate placement of CLD learners seem inconceivable and counterproductive. We respect Kauffman as a renowned scholar and we do not doubt his heart, however, we are unclear if he is aware of the negative consequences of his ideas. In this article, we critique his ideas based on his writings on some critical issues in special education.

James M. Kauffman is currently Professor Emeritus of Education at the University of Virginia, where he has been for over 40 years. He began his professional career in special education in the 1960's, teaching children with emotional and behavioral disorders. He has written many books and articles on education; much of his writings have focused on issues in special education. Hallahan and Kauffman (2006) defined special education as *specially designed instruction that meets the unusual needs of an exceptional learner*...*the single most important goal of special education is the finding and capitalizing on exceptional learners' abilities* (p.13). Earlier, Kauffman (2002) argued that special education must be improved; not discontinued. While we whole-heartily agree with this statement, we argue that many of his views on special education. The labeling of students, the use of standardized tests alone to determine eligibility, multicultural impacts on special education, and the disproportionate placement of culturally and linguistically diverse (CLD) students into special education continue to be pillars of disagreements.

Kauffman and Konold (2007) acknowledged that most practitioners do know fantasy from reality about education (p. 92). Indeed, there are elements of truth in their statement. The question is, who engages in fantasy and who engages in reality? The reality is many scholars and practitioners in the field do not necessarily support Kauffman's statements about the need for labeling, the value of standardized testing, and the fantasy of cultural insensitivity. Earlier, Kauffman (2004) argued that it is impossible to have special services (something only some get, not everyone) without labels (p. 316). Labeling can be defined as the practice of assigning a name to a child's differences with any of the federal or state government's categories of impairment. Identifying a child with a disability often has implications that affect the child's entire life, especially when the identified child comes from a CLD background (Oswald, Coutinho, Best, & Singh, 1999). Stigma, low self-esteem, lower expectations, inappropriate interventions, and the disproportionate placement of CLD students may result from the disability label a child is given (Obiakor, 1999, 2001, 2007a, 2007b). Kauffman (2002) acknowledged that standardized tests are norm-referenced tests that have been valuable resource for the measurement of student progress. The Individuals with Disabilities Act (IDEA) Amendments of 1990 and 1997 required students with disabilities to participate in district and state assessments. These tests are also a source of controversy, as the results are often used to determine labels for students (Gates, 2010; Obiakor, 2001) and placement into special education. Another negative aspect of these tests is that there is a test bias that can be a

contributing factor to the disproportional placement of CLD students into special education (Harry & Klingner, 2006; Metzger, et al., 2010; Salend, Garrick Duhaney, & Montgomery, 2002).

Clearly, the current demographic shift in our nation due to accelerated immigration has created a more diverse student body in U.S. schools; schools are required to make changes to meet the needs of this diverse student body (Ysseldyke, Algozzine, & Thurlow, 2000). Students who come from these diverse backgrounds that differ from the cultural norms of any given area can be classified as CLD learners. It is no surprise that multicultural education has been viewed as a solution to this dilemma (Obiakor, 2001). Multicultural education encompasses educational programming that seeks to maximize the potential of all learners and to provide educational and vocational opportunities for everyone, regardless of cultural and linguistic differences, nation of origin, or socioeconomic background (Obiakor, 2007a, 2007b). Multicultural education and the disproportionate representation of CLD students in special education are both important issues (Kaufman 2002, 2010). Disproportionate representation was defined by Oswald, et al., (1999) as *the extent to which membership in a given ethnic group affects the probability of being placed in a specific special education disability category* (p.198). Kauffman's (2002, 2010) ideas differ on the methods to best educate children from CLD backgrounds, as well as the reasons for disproportionality. There is also strong link between living in poverty and the risk of being identified with a disability (Fujiura & Yamaki, 2000).

Kauffman (2005b) noted that *it is time-way past time, actually – for real-world talk about education, not fantasy talk, not nonsensical statements supposed to express a vision of reality but conveying only an aberration* (p. 521). In this article, we agree that it is way past time to decipher Kauffman's ideas. We are taking up on his offer and examine the realities of some of the issues and trends (the need for labels, the value of standardized tests, multicultural education, and the disproportionate placement of CLD students) in special education that he has so prolifically written about during his long and prominent career.

# Labeling of Students: A Necessity or Just Fashionistas?

Our society has become somewhat obsessed with labels. Fashion-forward consumers seem to delight in having a designer label visibly displayed on their apparel. Product labels influence what groceries are purchased at supermarkets. However, labeling a child with a disability is much more serious matter. The reality of such a label is the label not only affects the labeled child, but all who interact with the child, often for a lifetime. In special education, the use of labels was established by law. According, to Kauffman (1999b), labeling is not of matter of educator preference. Furthermore, labeling a child is unavoidable, as anything that is talked about needs to be named (Kauffman, 1999b, 2002, 2004, 2005a, 2005b, 2007b; Kauffman & Brigham, 2009; Kauffman & Konold, 2007). Kauffman (2004) affirmed that, It is impossible to have special services (something only some get, not everyone) without labels. A label for what we observe is not the big problem (p. 316). Another reason for labeling children, according to Kauffman (2002) is, People need labels describing their characteristics if we are to understand who they are and what they need (p. 96). He believed labeling issues should be about the responsible usage of labels and the understanding of labels (see Kauffman, 2005a). In some fashion, we agree with him; however, student labeling would not be an issue if the positive effects outweighed the negative effects (Ysseldyke, Algozzine, & Thulow, 2000). The negative effects of labeling can include inappropriate interventions, lower expectations, stigma, seeing the label and not the child, inaccurate self-concept, and the disproportionate labeling of CLD students (Obiakor, 2001). Unfortunately, the use of disability labels by special education professionals and associated fields often focuses on the negative aspects of the disability instead of on the child's strengths (Blum & Bakken, 2010).

Kauffman (1999b) argued that concerns for negative effects of formal labeling appears to have little foundation in research evidence (p. 452). Lauchlan and Boyle (2007) reported that labeling a disability may be beneficial, as it may lead to appropriate interventions and resources that may not have been available to the child without the label. Certain disabilities, including learning disabilities, cognitive disabilities, and emotional behavior disorders do share some characteristics such as academic challenges or similar problem behaviors (Ysseldyke, et al., 2000). However, there may be limits to the usefulness of generalizing interventions. Individualized interventions may be more effective as they are based upon each child's strengths and weaknesses (see Lauchlan & Boyle, 2007). Metzger, Simpson, and Bakken (2010) found that the practice of a label determining placement, as well as the amount and level of services to be provided to a child, can lead to inappropriate interventions. Parents usually pursue a diagnosis for their child's difficulties, believing the resulting label will result in an improved life; but when the process does not lead to appropriate interventions, there is little value in the labeling process

(see Lauchlan & Boyle, 2007). In consonance, Ysseldyke, et al. (2000) argued that labeling students has not guaranteed that those labeled receive appropriate services for their disability. In some cases, labels provided excuses for students with needs who have not met their goals, and have led to the decreased willingness of some teachers and service providers to work with students. Labels have also victimized students as they inevitably caused them to make inaccurate assumptions regarding their actual abilities (Obiakor, 2001, 2007b; Ysseldyke, et al., 2000). Students with a disability may be excluded from some activities because of their disability label (Lauchlan & Boyle, 2007). They may be perceived to not be competent enough to be successful, despite actually being fully competent. Teachers' preconceived notions of a students' ability level may preclude them from daily classroom activities (Blum & Bakken, 2010; Obiakor, 1999).

While it is common knowledge that labeling a child can lead to lower expectations for the child by teachers, families, and even the child (Obiakor, 1999), Kauffman, McGee, and Brigham (2004) explained this unfortunate outcome as a perceived benefit of special education (p. 617) and freedom from the expectations of performance (p. 617) to compensate for the stigma of being in special education. Appropriate expectation must be based upon the child's responses, and not national or state goals (see Kauffman & Brigham, 2009). The process of setting appropriate expectation is easier when a child has been classified and identified (see Kauffman & Brigham, 2009). Although Kauffman (1999b) stated that a problem must be labeled before it can be dealt with effectively, Blum and Bakken (2010) found that the disability label often gets in the way of the most effective education practice (p. 120). The practice of a label determining placement, as well as amount and level of services to be provided to a child, can lead to inappropriate interventions (Metzger ,et al., 2010). Another unfortunate effect of labeling children with disabilities is the perception of the child by others. Labeling a child as disabled can become the focus of the way he/she is perceived and may predetermine the perception of his/her performance (Blum & Bakken, 2010; Gates, 2010). Labels often cause the child to become the problem, and not the child's behavior (Cassidy & Jackson, 2005). A child's behavior and socialization can be affected by a label (see Gates, 2010). Even Kauffman and Brigham (2009) acknowledged that prejudice against those with behavior problems is real, and because of it we can't be cavalier toward labeling or identification (p. 60). Inappropriately used labels can have devastating effects on the labeled person (Obiakor, 2001). The child can become overshadowed when the label becomes the focus (Gates, 2010; Harry & Klinger, 2006). Disability labels do not go away (Blum & Bakken, 2010; Lauchalan & Boyle, 2007); once a child is placed in special education he/she usually remains in special education (Harry & Klingner, 2006). However, Kauffman (2002) concluded that students in special education will require service throughout all their years in school and many of them will still require support services throughout the balance of their lives.

Kauffman (2003a) stated that *the assumption that special education, which is at its best the fair treatment* of disability, creates stigma is not just wrong; it is perverse (p. 196). In a perfect world this statement would be absolutely true; an education system in this perfect world would, indeed, ensure that the needs of all students with special education would engender fair treatment at all times. The reality of our current society is that there is stigma attached to special education. *Short bus* jokes abound on television; students are often unwilling to admit that they are receiving special education services; and parents become very selective in choosing public outings for their children with special needs. Kauffman (2002) believed this social stigma was due to the differences in the affected person, not due to an official label; we don't need to believe the fantasy that the label is the problem (p. 95). Kauffman and Konold (2007) alleged that the problem with stigma comes from people's negative reaction to the label and not because there are labels for conditions and interventions. However, abusive labels that can create unnecessary stereotypes, division, and stigma (see Obiakor, 2001).

Kauffman (1999a, 2005a) noted that many children with a disability are stigmatized and suffered from a loss of self-esteem prior to being identified and labeled because of their behavior and learning difficulties. Receiving a label and giving a name to the child's struggles is actually a relief (Kauffman, 2005a; Lauchlan & Boyle, 2007). Social rejection or isolation can be a result of labeling a child, but can also occur even when a child is not labeled (Kauffman & Brigham, 2009). Changing the name of a disability, such as renaming it as a challenge, is simply fooling people with the underlying reasoning that *people are stupid* (Kauffman, 2002, p. 45); *the social reality of disabilities cannot be hidden with antilabeling rhetoric* (Kauffman, 2002, p. 95). Kauffman and Konold (2007) indicated that using the word *challenge* for a disability has several negative effects; the person with the alleged disability ends up being ridiculed, communication is hampered, and eventually the disability is viewed more negatively. Not talking about a disability or pretending that the disability does not exist does not make it go away;

pretending the disability does not exist may actually increase the associated stigma. Speaking directly, honestly, and openly about a disability has been the most effective way to minimize the attached stigma (Kauffman, 2003a, 2007b; Kauffman, McGee, & Brigham, 2004). Kauffman ,et al., (2004) expressed a correlation between an aversion to labeling and the denial of a disability. Disabilities should be treated as any other medical condition; with a realistic description of the disability and a supportive attitude toward the child with the disability (Kauffman, 2003a). Labeling disabilities has led to more public awareness for many disabilities, although this has not necessarily made the disability more understood by others (Lauchlan & Boyle, 2007). Kauffman (2002) noted that labels with the most objections were the labels used to indicate something was wrong; the person had a disability, a deficit, or a disorder that was in need of correction. Blum and Bakken (2010) believed a disability label is not a neutral term in most cultures and it is often regarded negatively.

Race has proved to matter in the labeling of students (Obiakor, 2001). The stigma that labeling brings can be compounded by the stigma of ethnicity for CLD children (Harry & Klingner, 2006). Teachers may resort to labeling students from CLD backgrounds to remove them from the classroom because they speak, look, or behave differently from peers (Obiakor 1999, 2001). Teachers and service providers must be careful when using a label to classify students; this is especially true for the labeling of students from culturally, linguistically, and socioeconomically diverse backgrounds (Obiakor, 2001). It is essential for educators to learn about the facts of labeling and classifying students (Obiakor, 2001); and misclassifying CLD students can lead to the incorrect labeling. The use of standardized tests, the subjectivity in labeling problem behaviors, the ambiguity of the definitions of some disabilities, and gaps in teacher knowledge can all lead to the incorrect labeling of a student (Lauchlan & Boyle, 2007). Special education teachers and other professionals often use labels as an aid for communicating; it can provide a rapid description of a student. However, differences in teachers' understanding of a disability could lead to generalizations and the overlooking of a child's individual needs and strengths (see Lauchlan & Boyle, 2007). Gates (2010) emphasized the importance of educators considering the needs, challenges, and strengths of a child before considering his/her label. Though Kauffman and Brigham (2009) noted that labels can lead to incorrect labeling, social stigma, lowered expectations, social isolation or rejection, and the educational decline of the child while in special education, they explained that labeling a child with a disability when he/she is not disabled (a false positive) is not as problematic as failing to identify a student when he/she does have a disability (a false negative). The occurrences of school shooting have caused the public to be concerned about the prevention of emotional and behavior disorders, and for false positive labeling to be preferable to false negative labeling (Kauffman, 1999b). As a result, Kauffman and Brigham (2009) concluded that the reasons to forgo labeling are not as compelling as labeling a child. The question is, what does this premise mean to a CLD child or youth?

The prevention of emotional and behavior disorders is actually hampered by concerns over false negatives (Kauffman 1999b, 2004, 2005a, 2007b, 2010). The failure to label a child hampers prevention (Kauffman 2004, 2007a, 2010). According to Kauffman (2010), an inadequate reason for this hesitation to label a child is the unwillingness of educators to incorrectly label a child for a disability they do not have. This unwillingness is due to special education's closer alignment to a legal model and the resulting fear of stigma, poor outcomes, and legal reprisals (see Kauffman, 2007a). Trying to avoid labeling a child has two problems in reality; communication becomes complex or even unfeasible and creates increases stigma for whatever label may eventually be given to the child (see Kauffman, 2007b; Kauffman and Konold, 2007). On the other hand, Higgins, Raskind, Goldberg, and Herman (2002) conducted a 20-year longitudinal study on the effects of labels on 41 individuals with learning disabilities where they found that many of them felt that they had been labeled incorrectly. Once they were labeled with a learning disability, they experienced a period of coming to an understanding of the label before they were able to compartmentalize and accept the label of learning disability. Their difficulties were similar to those experienced by others labeled with a disability, especially in terms of dealing with the stigma from society. Many of the participants experienced problems daily because of the stigma attached to their disability and further described experiences of being bullied, teased, and ridiculed. In addition, they acknowledged that the stigmatization and abuse was far more difficult to cope with than the disability. Higgins, et al. (2002) believed general and special education teachers must work to discourage the teasing and abusing that currently labeled students experience. Professionals must be careful not to label students inappropriately and not provide misinformation about the disability to labeled students, as both practices force them to develop confused and negative self-images.

Some years ago, Kauffman and Pullen (1996) discussed some myths in special education; the given definition of myth for the purpose of the article was a partial truth that is accepted uncritically,

especially in the support of existing or proposed practices (p. 1). One myth is the elimination of labels in the provision of needed services to all students. Kauffman and Pullen (1996) alleged that this myth was one of the most pervasive myths in special education; it is a myth fueled by stigma, inappropriate descriptions of need, incorrect labeling and interventions, and the longevity of a label once given. They believed labels are required for communication even though these labels became attached to the child once services were rendered. It is critical to note that Kauffman (1999-2000) wrote several obituaries for the death of special education, including an obituary in which he listed the *ideas that proved fatal to special education, which depends on recognizing and labeling differences among children* (p. 65). In another version of the obituary, Kauffman spoke of the *evil practice* (p. 67) of labeling children and created the *Promise Keepers to Kids* (p. 67), a fictional organization that does not label children. He also issued a call for special educators to rebuild the identity of special education and explained that labeling is a *fantasy* (Kauffman, 2002). The need for labels is a reality, and *realities cannot be changed by political machinations, philosophical speculation, or wishful thinking* (Kauffman, 2007b, p. 246).

In one of his works, Kauffman (2003) made a comparison between clothing and the labeling of disabilities, using a cloak to describe the practice of educators not labeling a child. While labels may provide *fashionistas* with an elevated sense of self-worth, disability labels do not do the same for the labeled child. Although labels may assist in the classification of students, the labels usually do not assist students to receive the needed services (Hattie, 2009). Disability labels bear numerous negative effects which include inappropriate interventions, lower expectations, stigma, seeing the label and not the child, negative self-concept, and the disproportionate labeling of CLD students. The reality of labeling is this; giving a child a label should not and cannot be taken lightly. Despite Kauffman's (2002) statement that *some people have suggested that special treatment can be provided without labels, but that is clearly just a fantasy, not a possibility* (p. 95); students are best served when programming emphasizes the needed services, not the label (Obiakor, 2001). If we are to truly rebuild the identity of special education, labeling, when necessary, must be done with the almost care and sensitivity for students in our care.

# Standardized Testing: Reality or Fantasy for CLD Students?

Standardized testing goes hand-in-hand with labeling since schools label students based on the scores on standardized tests (Gates, 2010; Obiakor, 2001). Kauffman (2002) stated that while some standardized tests have been poorly written or have been misused, they have been a valuable resource for the measurement of student progress. In education, students with disabilities are those who score low on tests because of their disability (Kauffman, 2005b, p. 520). Not all educators have shared Kauffman's confidence in standardized testing. Over 250 million standardized tests have been given yearly to students in the United States: the intent of many of these tests has been to identify low-performing students (Ysseldyke, et al., 2000). Using IO tests to determine the labeling of students often results in the misclassification of students and the application of incorrect labels, leading to dissatisfaction with using these tests for the purpose of labeling (Lauchlan & Boyle, 2007). For example, although the diagnosis of a cognitive disability should be determined by taking into account both intelligence level and adaptive behaviors, IQ scores are overly relied upon (Artiles & Trent, 1994). In the Larry P. v. Riles case, the court ruled that tests used to determine an IQ for the purpose of identifying a child as EMR were biased against African Americans (Harry & Klingner, 2006). However, according to Kauffman (2005a), Standardized tests are the best single means we have to measure general intelligence (p. 206); and they are a fairly good predictor of a student's academic performance.

Those who criticize No Child Left Behind because it requires standardized testing are on the wrong track (Kauffman & Konold, 2007, pp. 80-81); without measurements of student and teacher educational performance, there cannot be any accountability. Unfortunately, one test score can change perceptions and expectations of a child' performance even though he/she has remained the same as before the testing (Gates, 2010).

Mehring (2010) argued that expecting students with disabilities to participate in district or state assessments has created student stress, increased *teacher-assisted* cheating, and an increased drop-out rate by students who have been held back a grade after failing one standardized test. Excessive reliance on standardized test scores as a predictor of future success is perilous; these tests lack reliability, validity, and common sense (Obiakor, 2001). It is no surprise that some educators have seen standardized tests a as type of institutionalized racism (Ferri & Connor, 2005). Test bias is a contributing factor to the disproportionate placement of CLD students into special education (Harry & Klingner, 2006; Metzger, et al., 2010; Salend, Garrick Duhaney, & Montgomery, 2002). For example, in a community with a history
of racial tensions, interactions between a White test examiner and an African American or Latino student may be affected (Artiles & Bal, 2008). Kauffman (2005a) did acknowledge that there is a possibility of bias towards some ethnic, cultural, or socioeconomic groups; but he noted that *a great deal of effort has gone into removing obvious sources of bias from assessments in the past few decades* (p. 135). In addition, he acknowledged the fact that more work was still required to further decrease bias. Not surprisingly, Patton (1998) found that the effect of test bias was actually magnified for African American students, as the majority of standardized tests are used to classify students, instead of diagnostic or prescriptive purposes.

Students can be misidentified and mislabeled when they are given discriminatory tests which produce discriminatory results (Obiakor, 2001). Test norming, examiner bias, and lack of examiner preparation have contributed to the underrating of English Language Learners' and other CLD learners' performance on standardized tests. As a result, the use of alternative forms of assessment to reliably measure students' actual abilities is recommended (Hart, 2009). Test scores are not always understood by professionals (Kauffman & Konold, 2007). Care must be taken to avoid problems of transition and interpretation when using the results of standardized tests (Kauffman, 2005a). The first problem Kauffman (2005a) cited is a failure to scrutinize the margin of error in test scores, which can lead to misinterpreting a measurement error as improvement in students; performance. Second, the lack of the ability to determine changes in scores over time after instruction does not allow for feedback regarding students' performance. Third, the failure to consider the match between an achievement test and the instructional expectations of the students' class can lead to senseless interpretation of test results (p. 135). Although most states have curriculum standards, there is still variability in methods of teaching the curriculum among teachers; and standardized tests do not measure individual teachers' instructional methods. Finally, the failure of standardized test scores to forecast significant student outcomes means that the scores cannot predict the results of specialized instruction that may be provided to the student. For instance, students with emotional or behavioral disorders may be more impacted by these issues, as their disabilities often impede their performance level during both classroom instruction at periods and during testing. As Kauffman (2005a) pointed out, these students often perform below their actual ability level on standardized tests. Therefore, he cautioned educators to be careful when evaluating the test scores of students with emotional or behavioral disorders to avoid making mistakes in setting expectations for students.

Testing has evolved from an assessment tool to the single determining factor of a school's success (Obi, 2010). Earlier, Kauffman (2002) alleged that educators want to know how their students' performance compares with other students from other schools and districts; and he argued that making these comparisons allows us to tackle the issues of teacher performance and equity. Not wanting to know how a child or group is doing compared to the norm, whether in education..., is a lapse of common sense and caring that most of us would consider to border on criminal stupidity (Kauffman, p. 239). As it appears, the reliance on standardized testing has produced negative outcomes including teaching to the test, using unethical test preparation methods, extending time limits, allowing students to respond directly on test booklets, and systemically excluding low-scoring students (Mehring, 2010 as cited in Haladyna, 2002). Kauffman (2002) did acknowledge that teaching to the test exists; but he stated this practice is possible with any method of assessment. Any type of testing can be used poorly, according to Kauffman (2002), and he questioned the extreme hostility that standardized testing evokes. Conversely, Harry and Klingner (2006) called for the reconsideration of the method of using standardized testing for the purpose of evaluating schools. As they found, standardized tests are disadvantageous to CLD students, especially in schools with large African American or Latino student populations. Teachers may be inclined to teach to a test, which often means teaching low-cognition skills, including how to correctly fill out a bubble test form, writing using a pre-established formula, and choosing answers through a process of eliminating incorrect choices. Schools are rewarded or punished based upon the results of testing. Community respect, financial resources, and voucher programs can all hinge on results of standardized test scores. Several school district personnel admitted that many of the lowest-achieving students are often CLD students and who are also at risk of inappropriate placement into special education in an effort to increase school test scores.

Summarily, standardized test are often used to label children and to determine school success. The emphasis on these tests has led to the incorrect labeling of children, student stress, increased drop-out rates, disproportionate placement of CLD students into special education, and unethical test preparation practices. Having a disability is not the sole reason for scoring low on a standardized test; student stress, test bias, and lack of understanding of the English language can be realistic reasons for low performance.

Standardized testing can affect teachers negatively, as well. Given these shortcomings in the use of standardized tests in schools, there is little reality in Kauffman's (2002) statement that noted, *I think we have yet to invent a better or more reliable way than standardized testing of finding out fairly what someone knows* (p. 189).

#### Culturally Responsive Education: A Reality or Fantasy?

As a nation, we are constantly undergoing a demographic shift due to accelerated immigration in the United States. The percentage of the population born in another country is the highest it has been nearly a century, currently about 12.1% of the population (Camarota, 2007). The demographic shift has created a more diverse student population in schools; schools that will need to make modifications to meet the needs of their changing students bodies (Ysseldyke, et al., 2000). In special education, many of these students have not been receiving a free, appropriate public education (Oswald et al., 1999). In other words, the education has been Eurocentric rather than multicultural. Multicultural education, according to Kauffman (2002), must emphasize the commonalities; between people in a manner that makes differences secondary to these commonalities; emphasizing cultural, religious, or ethnic differences leads to a lack of social justice. Many educators may not be able to indicate educational practices that are culturally responsive (Kauffman, Conroy, Gardner, & Oswald, 2008). Kauffman (2010) believed using more cultural sensitivity to solve problems in special education *is based on nothing more than fantasy* (p. 181).

Ysseldyke, et al. (2000) reported that almost a third of the residents of the United States are African American, Latino, Asian American, or Native American and schools must be willing to respond to the diversity within their buildings. Cartledge, Kea, and Ida (2000) agreed that understanding the diversity within and between cultures is critical (p. 3). Earlier, Patton (1998) stated that a new set of enlightened cultural filters and discourses is needed to replace the current language and narrative used to maintain the legitimacy of the current special education social and political arrangements (p. 28). In today's diverse society, educators and service providers cannot ignore cultural, religious, or ethnic differences of their students, if these children and youth are to be successful in school. For instance, in many states, the Latino population has grown by almost 100% in the years from 1990 to 2000 (Center for Family and Demographic Research, 2002). Within a generation, nearly 1 in 4 students in U.S. schools will be Latino (U.S. Bureau of the Census, 1993). Many of these Latino children may begin school without the literacy skills needed to become literate adults, if current trends in reading readiness persist in the United States (Perry, Kay, & Brown, 2008). Many of these children may be referred for special education services. Historically, CLD students have been disproportionately represented in special education (Liu, Ortiz, Wilkinson, Robertson, & Kushner, 2008; Oswald et al., 1999); however, the results of early interventions have been promising (see Liu, et al., 2008). De Valenzuel, Copeland, Oi, and Park (2006) found that Hispanics and ELL have a greater chance of placement into a more segregated educational setting than their peers. School-based family literacy programs have often failed to value diversity, and have attempted to force Eurocentric school values and needs onto CLD families (Abrego, Rubin, & Sutterby, 2006). Several studies have illustrated the benefits of using cultural sensitivity when working with Latino students and their families as well as highlighting the efforts being made by parents to help their children succeed in an educational setting with different expectations than the school they attended. For instance, Gillanders and Jimenez (2004) agreed that parents are actively seeking to understand these differences and to find ways to accommodate to best help their children (p. 265).

Latino families living in a neighborhood approximately one mile from the Texas-Mexico border where 99% of families are economically disadvantaged were the focus of the study conducted by Abrego, et al. (2006). Ninety family members completed surveys and 32 members participated in focus groups for four semesters primarily Spanish language. The families were part of an on-going partnership called the Evening Reading Improvement Program involving two components of tutoring and family literacy. These families felt more confident in dealing with school personnel and assisting their children at home with literacy activities. They expressed the desire to have their children maintain their Spanish culture and language; traditional Latino rhymes and finger plays were incorporated in the language lessons. The professionals involved worked with the families in their native language, understood the families' desire to maintain their native culture, and provided strategies to the families for assisting their children to learn literacy skills required for success in school. Clearly, culturally sensitive prevention and intervention strategies work. Even Kauffman (2004) acknowledged that, *If it were implemented well, prevention could help many children avoid the need for special education altogether* (p. 310). Unfortunately, the relationship between special education teachers and CLD families has not been optimal due to the over-

families, as their students have been most likely overrepresented in emotional behavior disorder programs and underrepresented in gifted programs (Cartledge, et al., 2000).

Kauffman (2002) boldly asserted that IDEA has cut most of the easy and unjustified identification (p. 261). While it has been recognized that disproportional placement of African American students exists in special education, the inequity has continued and it has raised concerns about violations of civil rights and racial discrimination (Patton, 1998). Kauffman and Hung (2009) argued that ... racial segregation and special education are built on completely different assumption s and placement of children for their special education is not the same as racial segregation (p. 455). Harry, Klingner, and Hart (2005) followed 12 African American families with a child with a disability attending school in one of the country's largest school districts and found that although some school personnel treated the parents with respect and sensitivity, others treated them with disdain, disrespect, and even rudeness. One teacher who very openly expressed that there was a lack of parenting by African American parents, had never visited the home of any students, and had no real clue as to the strengths of any of the families of her students. Some of the teachers' style of discipline contributed to the children's difficulties; however, this did not appear to be addressed by the school district. Earlier, Patton (1998) called for special educators to develop a good understanding of the African American culture and the African American experience, a paradigm shift from the current special education system which has not been just to African Americans, as evidenced by their over-representation in special education. Utley, Delquadri, Obiakor, and Mims (2000) reported that school districts outside of inner cities have had a higher percentage of African American and Hispanic students labeled as disabled than inner-city school districts per data from the Office of Civil Rights (OCR) and the Common Core of Data Public School Universe File (CCD). They developed the Multicultural and Special Education Survey (MSES) as a method to identify the areas of need for professional development training in multicultural education for general and special education teachers. Over 60% of teachers surveyed felt that knowledge of their students' ethnic, national, or cultural backgrounds would help their teaching in areas of planning curriculum, instructing students, selecting classroom materials, managing challenging behaviors, assessing students, and understanding expectations of both teachers and students. Similar percentages were cited for survey responses in areas of student performance of environment, peer interactions, motivation, classroom and test performance, and acquiring academic skills. Teachers and service providers must be willing to examine their own attitudes regarding culture, and be willing to commit to professional growth in multicultural education (Obiakor, 2001). In addition, they must be taught to value the differences in individuals and cultures (Obiakor & Utley, 1997).

Clearly, the use of several strategies allows educators to successfully teach students from CLD backgrounds in either the general or special education setting (Obiakor, 2001; Ysseldyke, et al., 2000). The strategies include (a) stimulating students intellectually by presenting new ideas, (b) helping them maximize their fullest potential by understanding their strengths as well as weaknesses, (c) focusing on their positive energies to prepare them for their futures, (d) empowering them within a nurturing environment, (e) collaborating and consulting with their parents as equal partners, and (f) becoming problem solvers to support their growth and development. According to Hattie (2009 as cited in Bishop, 2003).

What seems most important is that students have a positive view of their own racial group, and that educators do not engage in the language of deficit theorizing. Accepting that students come to school with different cultural heritages and that they can be allowed and encouraged to have a positive image of their own racial or cultural heritage is an acknowledgement of the importance of culture, and can show students that they are accepted and welcomed into the learning environment (pp. 57-58).

Cultural sensitivity is of absolute importance in general and special education. However, to Kauffman (2002, 2003b), multiculturalism that places its focus on differences between people and not commonalities is creating a new racism and sexism. In fact, the main point is for a person to take pride in something that he/she had no control over, including ethnicity (Kauffman, 2002). The gender, color, or nationality of people does not determine their personality or personal skills, such as sensitivity to others, intuitiveness, or their goodness and disabilities account for differences in learning far more than the skin color or ethnicity of students (Kauffman, 2002). Students do not do well when instruction is not matched to their prior knowledge or performance level. As a result, special education must be judged by the goodness of fit between instruction and the student's needs (Kauffman, Landrum, Mock, Sayeski, & Sayeski, 2005). The premise of individualized instruction has not existed for CLD students when they have been taught by educators who lack an understanding of their cultural values. When instruction is

lacking, students suffer (Ysseldyke, et al., 2000). Conversely, Kauffman, Conroy, Gardner, and Oswald (2008) stated that race, language, country of origin, religion, gender, or any single attribute of a person can lead to simplistic answers that do not provide clear information on the educational needs of individuals in the designed category (p. 244). This statement tends to ignore the reality that nearly 40% of African American and Latino children in the United States live in poverty. This creates a disproportionate risk of being identified with a disability; there is a strong link between poverty and disability (Fujiura & Yamaki, 2000). Manning and Gaudelli (2006) questioned the continued belief in the myth that public education is the greater equalizer when so many children live in poverty. Attempts to equalize education for children raised in poverty and social disadvantage (p. 141) to level of more financial and social status advantaged students may be doomed for failure, as the home environment has a big part in the academic achievement of students (Kauffman, 2002). Although poverty tends to increase the likelihood of African American students to be identified as having a learning disability (Salend, Garrick Duhaney, & Montgomery, 2002), it has not been the sole factor for the disproportionate placement of students in special education. Another reality is that African American students who attend school in the wealthiest districts have been identified and placed in special education for serious emotional behavior disorders at a higher rate than African American students attending school in the poorest districts (Oswald et al., 1999). African American students identified as having an emotional behavior disorder have also been more likely to be placed in a more restrictive placement (de Valenzuela, Copeland, Oi, & Park, 2006; Ferri & Connor, 2005; Harry, Hart, Klingner, & Cramer, 2009; Oswald, et al., 1999; Patton, 1998). The disproportionate identification of African American males as having a disability and then restrictive placement in special education have created a new form of segregation; it is a myth that school segregation no longer exists (Manning & Gaudelli, 2006). Sadly, Kauffman (2004) noted that African American children are actually underidentifed and underserviced for emotional and behavioral disorders. This logic is far-fetched.

The President's Commission on Excellence in Special Education (PCESE) found that CLD students were more likely to be identified as having an emotional or behavioral disorder due to the cultural environment of their home (Kauffman, 2004). Although children from CLD backgrounds may behave, talk, or look differently than their peers, teachers and service providers must avoid erroneous assumptions about them (Obiakor, 2014; Ysseldyke, et al., 2000). These professionals may lack the appropriate behavior management skills and make unneeded referrals when students have culturally based behaviors that are misinterpreted as an emotional or behavioral disorder. Logically, a student's lack of academic success or displays of behaviors that can be construed as violent or menacing puts a child at risk for poor social outcomes (Kauffman, 2004). Furthermore, Kauffman alleged that receiving special education services should not be seen as a disadvantage, or an intended means of denving CLD students opportunities. He believed there is speculation on whether educators are actually biased against CLD students or not. The reality is African Americans are overrepresented in the categories of emotional or behavior disorders and intellectual disabilities, but not learning disabilities; this percentage of overrepresentation varies from state to state. Latinos are overrepresented in some, but not all, states. The southern states have some of the highest rates of over-representation which leads to speculation about the continuation of racial segregation (Ferri & Conner, 2005). While the percentage of diagnosis for intellectual disabilities has decreased, the percentage of African American students identified is twice as high (Harry & Klingner, 2006). Although there are discrepancy criteria for determining a learning disability, the cultural bias contained in IQ tests, and the exclusion of environmental disadvantages all contribute to this disproportionality (see Harry & Klingner, 2006).

#### A Look at the Future

Kauffman has written extensively on many issues in the field of special education. While he acknowledged disproportionality as a serious issue in special education (Kauffman, 2004, 2010), he noted that African American students are actually underrepresented in the category of emotional and behavioral disorders. He criticized Patton (1998) as having postmodernist views and for backing away from the truth. Kauffman (2002) concluded that *in education, it's time to do what we can – make instruction as effective as possible for all children* (p. 284). Unfortunately, this has not been the case for many CLD students as they have been misidentified, misclassified, and placed into special education programs (Obiakor, 2001, 2014; Ysseldyke et al., 2000). Test bias, educator bias, failure to respond to diversity, and lack of understanding of students' cultural values have all contributed to less-than-effective instruction and the disproportionate representation of CLD students in special education. Although Kauffman believed the use of cultural sensitivity to improve special education is a fantasy, his belief is indeed more myth than reality.

The goal of educators, whether they are teaching in general or special education settings, must be to make all students successful to their fullest potential. The level of academic success for students with disabilities varies from school district to school district; the most successful students attend schools with high academic standards for al their students (West & Schaefer Whitby, 2008); and these high standards must be set for all students, including those from CLD backgrounds (Garcia & Ortiz, 2006; Obiakor, 2001, 2007a, 2007b). The reality is that the United States' public school system has been a success for middle and upper class children and a failure for African American, Latino, poor, urban, and rural students (Manning & Gaudelli, 2006). The issue of over-representation of CLD students in special education has been a bone of contention since the 1960s (Metzger, et al., 2010). Harry and Klingner (2006) found that racial separation can be a result of the disproportionate placement of CLD students in special education. As the United States' diverse population continues to expand, it is critical that all stakeholders seek social justice for all students in our schools.

The focus of multicultural education must be, according to Kauffman (2002), on our human commonalities in order to create equality in schools. The critical questions are. How does this bode for a child who comes from a cultural community that emphasizes the needs and wants of the family or community before the needs and wants of an individual? How does this bode the needs of a child with a disability whose culture dictates how that disability is perceived, especially if the beliefs are different from mainstream beliefs? Special education services must reflect the values of the user (Harry, 2002). Teachers and service providers must understand cultural values, traditions, communication styles, learning styles, and relationship patterns of different ethnic groups. Clearly, few teachers are appropriately prepared to teach CLD students (Gay, 2002). To avoid the continuation of myths about CLD students, pre-training programs for teacher preparation must produce well-trained educators who understand the interaction between cultural diversity, learning, and behavior (Obiakor & Utley, 1997). Good teaching is needed for special education (Kauffman, 2002). Scholars and educators must continue to search for better schooling strategies an of teacher effectiveness techniques (Obiakor, 1999, p. 47). Indeed, the future of special education will rely on high-quality educators and service providers who have the ability to correctly identify, assess, categorize, and place students according to their actual needs.

Consider Harry and Klingner's (2007) futuristic question: *Can we help students without undermining their self-confidence and stigmatizing them with a label?* (p. 16). Given all the negative consequences of labels, it is time to provide students with needed services without the stigma of labeling them. They are often labeled based upon the score received on standardized tests (Gates, 2010; Obiakor, 2001, 2014). Students with disabilities are not expected to participate in district and state tests; and alternative assessments are currently given to only about 1-2% of students. The balance of students identified with a disability is expected to participate in the same test with their non-disabled peers even though those tests were designed for non-disabled students (Thurlow & Johnson, 2000). Developing alternative methods of demonstrating what students with disabilities know without the stressor of the current test system should be explored, as accountability is being equated with test performance. According to Kauffman (2002), *One of the biggest favors we can do for each other, I think, is to point out statements that don't add up, no matter who makes them* (p. xiv).

#### Conclusion

After examining Kauffman's views on several current issues in special education, including the labeling of students, the use of standardized tests determining eligibility, and multicultural education, it became clear that his statements lack realities; they do not add up with the ultimate goal of improving special education services for all students. We agree with Kauffman (2002) that special education must be improved; not discontinued. Although he believes strongly in scientifically based practices, he stated that *we need and can have both science and values* (Kauffman, 2003b, p. 325). In fact, we agree with him again. Values can be defined as something of great worth. Every child is someone to value; and teaching requires integrity and the use of one's heart.

Finally, our true mission as educators is to provide every child the opportunity to reach his/her maximum potential, what ever that might be. We must provide those opportunities in a compassionate and caring manner, using the best methodology available. Overall, we agree with Kauffman on several points. For example, we agree that special education is an important facet of education that should be preserved. However, we disagree on the need for labeling students and the value placed in standardized testing. In addition, we disagree on how we value multiculturalism and cultural sensitivity in the identification, assessment, labeling, and placement of students, especially those students from CLD backgrounds.

Clearly, we do not believe CLD students should be indiscriminatively placed in special education programs. Kauffman's fantasies are very far from actual realities. Hopefully, in the near future, we will realize the detrimental effects of his fantasies on special education and work to improve special education in a manner that is just and equitable for all students.

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# JOB ATTITUDES OF SPECIAL EDUCATORS RELATED TO INCLUSION OF STUDENTS WITH SIGNIFICANT DISABILITIES

# Mary Pearson University of Central Arkansas

Beth Clavenna-Deane Kayla Supon Carter University of Kansas

This study measured the attitudes of teachers of students with significant disabilities using the Attitudes of Teachers of Students with Significant Disabilities about Aspects of Their Jobs survey. Teachers who worked with at least one student with significant disabilities were contacted via e-mail and other on-line means across four geographical areas in the United States. The survey results were compared with the teacher's reported rates of student inclusion and geographical areas. The post - hoc analysis produced significant results, displaying that teachers whose students were included in general education were more likely to display positive overall attitudes related to their jobs. Teachers in suburban and rural areas with students included more fully were more likely to display positive attitudes towards their job design. These results expand the field of inclusion research from having positive impact on students, to demonstrating a significant relationship between increased rates of inclusion and positive teacher attitudes toward aspects of their job

Inclusion, as defined by Gal, Schreur, and Engel-Yeger (2010), *is a philosophy of acceptance and belonging to the community so that a class is structured to meet the needs of all of its students* (p. 89). Yet, creating an environment accepting of inclusion can be met with resistance and *attitudinal barriers* (p. 91) that can be difficult to overcome. Indeed, for students with significant disabilities promoting inclusive practices often is met with resistance, resulting in the students being less included (Brandes & Crowson, 2009; U.S. Department of Education, National Center for Education Statistics, 2012). Furthermore, developing and promoting inclusive practices requires the special educator to understand the curricular demands of both general education and special education, presenting a daunting task for the educator (Goessling, 1994; Goessling, 1998; Olivier & Williams, 2005).

In the past, teachers of students with significant disabilities were rarely a part of the general education culture and only had to address the demands of special education (Goessling, 1994). As a result of recent movements toward more integrated education, special education teachers and students with more significant disabilities participate in the general education environment more frequently, but they are still not fully participating in that environment (Chung, Carter, & Sisco, 2012a; Chung, Carter, & Sisco, 2012b; Carter & Hughes, 2006). Teachers of students with significant disabilities are often seen as *saints and models of patience* and are coexisting in a school culture where students with severe disabilities *are invisible or nonexistent* (Goessling, 1998, p. 239). Unfortunately, such illusions about this group of educators may still exist making it even more difficult to promote inclusion and increase the beneficial educational experience of their students and their own job satisfaction.

As a result, the attitudes of special educators towards inclusive practices are often reported as mixed. Most studies aggregate the attitudinal data across all special educators instead of organizing the data by the population of students the teachers educate (Brandes & Crowson, 2009; Elhowens & Alsheikh, 2004; Martin, Johnson, Ireland, & Claxton, 2003). This technique presents a global picture of the attitude towards inclusion by special educators and raises the question as to why the attitudes are mixed. A few attrition studies have disaggregated the data by types of special educators and specifically categorizing

teachers serving students with significant disabilities (American Association for Employment in Education [AAEE], 2006; AAEE, 2008; Muller & Markowitz, 2003). Across these studies, the population of teachers who taught students with significant disabilities were often rated within the top three groups of special educators with high attrition resulting in positions left empty or filled with underqualified teachers (AAEE, 2006; 2008). Even though results were similar when disaggregated, the studies were inconsistent in categorizing special educators.

To adequately view the impact the demands of being a special educator of students with significant disabilities has on attrition, it is necessary to analyze the variety of services they provide. The job of a special educator working with students with significant disabilities may include challenges other teachers do not often experience (Olivier & Williams, 2005). Instead of teaching one grade level or one subject, teachers of students with significant disabilities must teach to various needs and levels: learning, physical, social, communication, and independence (Oliver & Williams, 2005). These daily job requirements present *unique challenges that go far beyond the normal requirements of teaching...[and] involve additional work and responsibility* (Olivier & Williams, 2005, p. 20, 24). Teachers of students with significant disabilities must be familiar with a large range of intellectual and communication abilities and must address behavior in a complex way to be effective (Billingsley, 2010; Conderman & Katsiyannis, 2002). Yet, teachers in these positions are often under-qualified to handle the complexities of the position (Billingsley 2010; Carlson, Brauen, Klein, Schroll, & Willig-Westat, 2002).

In addition to their under-qualifications for the position, most special education teachers are certified to work with students with specific disabilities, yet they may be teaching and providing services to multiple students with varying types of the IDEA classifications because some buildings and districts may have a multi-categorical system, which requires any certified special education teacher to serve any student with a disability regardless of category or the teacher's certification which can lead to role confusion (Billingsley 2010; Carlson, et al., 2002; Wrightslaw, 2009). This model may require each teacher to provide a continuum of services from resource and collaborative teaching services to functional curriculum services (Swanson, 2008). The struggle of providing a continuum of services can be further aggravated in a rural environment, where sometimes the special educator is the only special education teacher in the building or an urban environment, where the staff and financial resources are sparse (Albrecht, Johns, Mounsteven, & Orlorunda, 2009; Crawford, 2007; Romano & Chambliss, 2000).

Additionally, past studies have displayed that teacher's attitudes toward different aspects of their jobs may be influenced by the geographical areas in which they work (Bostelman, 1993; Crawford, 2007; Familia-Garcia, 2001; Romano & Chambliss, 2000). Research has indicated that differences in socioeconomic status and availability of resources related to geographical area have impacted educator's experiences and attitudes as well the quality of services such as inclusion (Short & Martin, 2005). With the additional responsibilities that special educators face when working with students with significant disabilities and the extra demands of sparse resources and support in urban and rural districts, it can be even more discouraging to break through the cultural barriers between special education and general education to help students obtain a successful and meaningful educational experience (Cochran-Smith & Dudley-Marling, 2012; McDonnell, 1998). Yet, a meaningful education experience often encompasses securing access for students with significant disabilities to the general education curriculum and population. Once students are within the general education environment, there remains a complex layer of social barriers they have to overcome to be successful in the inclusive environment (Trammell, 2009) Thus, special education teachers must have intimate knowledge of the school infrastructure to make the inclusion experience successful and prevent the social barriers. Unfortunately, special educators experience similar barriers, as most of their experiences have been through the lens of special education (Goessling, 1994).

It is necessary, then, when measuring the attitudes of special educators toward aspects of their job that studies compare data among the categories of students with which the educators work, the rate of inclusion of their student population, and the geographic representation of the student population. This method may better represent the complicated factors that affect teacher attrition and the relationship between successful inclusion and the attitudes of teachers of students with significant disabilities. This study's research questions asked the following:

1. what are the attitudes of teachers of students with significant disabilities toward various aspects of their job,

- 2. how are their attitudes influenced by rates of the inclusion of their students and the geographic area (i.e., urban, rural, or suburban) of their school, and
- 3. is there a relationship between rate of inclusion and geographic area (i.e. urban, rural, or suburban) on the attitudes of the teachers of students with significant disabilities .

#### Methods

This study used the survey, *Attitudes of Teachers of Students with Significant Disabilities about Aspects of Their Jobs* (Pearson, 2010) to examine the attitudes of teachers of students with significant disabilities and determine the relationship of geographic area and rate of inclusion to their attitudes. The survey used a Likert scale. Demographic information was collected on the grade range of students taught, the length of time teachers taught and the length of time teachers taught students with significant disabilities, and the percent of inclusion of students. Students with significant disabilities were defined as students with (a) an IQ of 70 or lower, (b) adaptive behavior skills ranging at least 2 standard deviations below the mean, and (c) a disability typically considered low-incidence as defined by IDEA 2004 (AAEE, 2006).

#### Survey Development

The researchers conducted a multi-step process to develop the valid and reliable instrument, *Attitudes of Teachers of Students with Significant Disabilities about Aspects of Their Jobs* (Pearson, 2010), which examined the hypotheses. Initially, two pilot studies were conducted to design the content of the survey. The survey was then tested by 92 teachers of students with significant disabilities from a Midwestern state. The resulting data informed improvements in content, criterion, and construct validity, and Cronbach's Alpha produced moderate to high results for reliability on each of the three dependent survey sub-domain variables:

- 1. Direct attitudes about position: 0.821
- 2. Attitudes about actions related to job design: 0.874
- 3. Attitudes about experiences related to actions of others: 0.787

Item analysis results indicated which items were to be eliminated, which strengthened the criterion validity. The survey items and sub-scale structure measured what they claimed to measure. Literature was reviewed and sub-scale theoretical premise was checked to ensure content validity. A sample set of questions from the survey is included in Appendix A.

## **Participants**

When gathering a large enough number of participants to complete a survey, Yun and Trumbo (2000) recommended gathering participants in more than one way. The researchers chose four participant gathering methods. First, researchers gathered e-mail addresses of special educators who likely worked with students with significant disabilities from district and school websites. These teachers were sent an initial e-mail requesting their participation with a direct link to the online survey and a request of them to forward the survey to other teachers they knew who worked with students with significant disabilities. This created the next participant gathering method called snowballing (Shriyan, 2008). Direct e-mails were sent to teachers who were verbally told about the study through interactions with the researchers. These teachers were also asked to pass on the opportunity to take the survey to their teaching peers creating further snowballing. Finally, two online support groups were accessed: one for parents of students with significant disabilities and the other for special education teachers of students with significant disabilities and the other for special education teachers of students with significant disabilities and the other for special education teachers of students with significant disabilities and the other for special education teachers of students with significant disabilities and the other for special education teachers of students with significant disabilities. A posting within the groups was sent to members of the groups, requesting that interested teachers contact the researcher and that interested parents contact their children's teachers to ask the teacher to take the survey.

Initial eligibility questions identified qualified participants as teachers who worked with at least one student who met the previously stated outlines for having a significant disability and were currently teaching at least 50% of the day (e.g. not in an administrative position). The final set of participants included 180 teachers of students with significant disabilities from states within the western, mid-western, and eastern United States. The teaching experience of the180 final participants ranged from 1 to 37 years with a mean of 11.93 years and a standard deviation of 9.74. The majority (87.2%) were fully certified to teach students with significant disabilities, 8.9% were certified in other classifications of special education, 2.2% held emergency certification waivers, 1.1% were certified in general education, and 0.6% were not certified at all. The vast majority of the participants reported being Caucasian. Table 1 organizes this demographic information.

Teacher's Certification Level			
Certification Level	Frequency		
Fully Certified	157		
Certified for other disability in special education	16		
Emergency waiver	4		
Certified in general education	2		
Not certified at all	1		
Ethnic Group			
Ethnicity	Frequency		
Caucasian	164		
Hispanic	6		
African American	3		
Asian	2		
Multi-Racial	2		
Native American	1		
Missing	2		
TOTAL	180		

Table 1. Participant Certification and Ethnicity Distribution

The geographic areas in which the participants were teaching were almost equally distributed across the three categories: rural, urban, and suburban. Figure 1 graphically represents the geographic area distribution of the participants. One third (33.3%) of the teachers were located at schools in suburban areas, 30.0% were in urban areas, 28.9% rural, and 7.8% of participants did not report any geographical area information.



Figure 1. Participant Geographic Area Distribution

Participants were asked the educational level of students they served and the primary disability categories of their students. For educational level, 83 reported elementary, 126 reported middle school, 89 reported high school, and 50 reported that they work with students that are at the post-high school level. This totals 348 responses indicating that many teachers served students across different educational levels. The primary disability categories of students that participants taught were distributed among the thirteen IDEA disability classifications as follows: Intellectual Disabilities at 34.4%, Learning Disabilities at 20.0%, Multiple Disabilities at 16.7%, Autism at 13.3%, Emotional Disabilities at 3.9%, Communication Disorders at 2.8%, Visual Impairments at 2.8%, Other Health Impairments at 1.7%,

Deafness at 0.6%, and 1.1% of participants did not indicate a primary disability category of their students. Each participant was asked if they taught at least 1 student who fell within the outline of significant disability for this study, but the teachers could potentially teach students with other disabilities, so those who reported primarily teaching students with classifications considered high incidence likely were those teachers who worked with a small number of students with low-incidence disabilities.

Participants were also surveyed on the rate of inclusion of their students by indicating the predominant educational setting of their classroom. Table 2 explains this distribution of educational setting. More than half the participants (57.8%) reported their students' educational setting as a self-contained special education classroom defined as more than 50% of the day in special education. A little more than forty percent of the participants' reported that their students were in general education more than 50% of the day with 18.9% in general education 51-80% of the time, 15.7% in general education 80% or more of the day, and 3.9% in general education 100% of the day. A few participants reported that students were in community-based classes (2.8%) or home-bound placements (0.6%), and one did not answer (0.6%).

Educational Setting	Frequency	Percent	Inclusion Code	Frequenc y	Percen t
self-contained special education	104	57.8%	self-contained special education	104	57.8%
mainstreamed gen ed 51- 80%	34	18.9%			
general education 80% or more	28	15.6%	inclusion general	74	41.1%
general education 100%	7	3.9%	culculon		
community-based class	5	2.8%			
home-bound	1	0.6%	notingludgd	r	1 10/
missing	1	0.6%	not included	Z	1.170
Total	180	100%	Total	180	100%

|--|

These six categories of educational setting were re-coded into a new variable called Inclusion Code, which consisted of 2 categories: self-contained and inclusion in general education. The original categories were combined in order to increase the number of subjects in groups being compared and obtain more statistical power for detecting group differences. The *self-contained* category remained the same as the previous variable with 104 participants. The inclusion in general education category collapsed the categories of general education 100% of the time, general education 80% or more of the time, mainstreamed 51 - 80% of the time, and community-based classes into a total of 74 participants. The participants missing educational setting information and those working with home-bound students were excluded from analysis.

# Data Analysis

One-Way Analysis of Variance (ANOVAs) were conducted to examine the main effects of the inclusion code and geographic area on the three survey sub-domain scores. Multiple independent t-test comparisons were utilized post - hoc to probe significant main effects for each survey sub-domain to identify the specific groups that were significantly different from each other. Then the variables of inclusion code and geographic area were combined to create six groups: inclusion urban, inclusion, rural, inclusion suburban, self-contained urban, self-contained rural, and self-contained suburban. A one-way ANOVA was conducted to examine the presence of group differences for each sub-domain of the survey, and a series of independent t-tests were utilized to probe for differences among the six groups within each survey sub-domain.

#### Results

The one-way ANOVA for inclusion code revealed a significant difference between the inclusion and selfcontained groups for survey sub-domain 1, overall attitudes about job, with F(1,175)=5.381 and a pvalue of 0.022. Table 3 indicates the results for survey sub-domain 1. Review of the group means showed that the inclusion group (M=3.573) scored significantly higher than did the self-contained group (M=3.307). However, sub-domain 2, attitudes about actions related to job design, with F(1,175)=1.671 and p=.198, and sub-domain 3, attitudes about experiences related to actions of others, with F(1,175)= 0.320 and p=0.572 did not result in significant differences between the inclusion and self-contained groups. Tables 4 and 5 organize the results for survey sub-domains 2 and 3. Table 4 shows that the one-way ANOVA for geographic setting revealed a significant difference among the urban, rural, and suburban groups for survey sub-domain 2 with F(2, 161)= 6.158 and a p-value of 0.003. Sub-domain 1 and sub-domain 3 did not result in significant group differences. Survey sub-domain 3 did not produce any significant effects as is noted in Table 5.

Three independent t-tests were conducted for survey sub-domain 2 means comparing the geographical area groups using the Bonferroni adjustment for multiple post - hoc tests. These results of this post- hoc are presented in Table 6. The comparison between urban and rural rendered a statistic of t(103)=-2.931 with p=0.005, and a review of the group means showed that rural participants (M=3.292) scored significantly higher on attitudes related to job design, sub-domain 2, than did urban participants (M=2.604). The comparison between urban and suburban rendered a statistic of t(110)=-3.076 with p=0.003, and a review of the group means showed that suburban participants (M=3.309) scored significantly higher on sub-domain 2 than did urban participants (M=2.604). The comparison between rural (M=3.292) and suburban (M=3.309) rendered a statistic of t(109)=-0.079 with p=1.000, which was not a significant difference. Thus, on survey sub-domain 2 both the rural and suburban groups had significantly higher means than did the urban group.

Table 3. Analysis of Variance Results for Sub-domain 1									
Group	N	Mean	Std Dev	df	F	р			
Educational Setting Main Effects									
Inclusion general education	74	3.573	0.075	1, 175	5.381	0.022			
Self-Contained	103	3.307	0.754						
Geographical Area Main Effects									
Urban	53	3.296	0.757	2, 162	0.986	0.375			
Rural	52	3.506	0.767						
Suburban	60	3.384	0.783						
Educational Setting by Geographic	al Area In	nteraction M	ain Effects						
Inclusion Urban	15	3.292	0.763	5, 159	1.603	0.162			
Inclusion Rural	33	3.631	0.735						
Inclusion Suburban	24	3.612	0.750						
Self-Contained Urban	38	3.297	0.764						
Self-Contained Rural	19	3.290	0.791						
Self-Contained Suburban	36	3.232	0.778						

Table 4. Analysis of Variance Results for Sub-domain 2									
Group	Ν	Mean	Std Dev	df	F	р			
Educational Setting Main Effect	cts								
Inclusion general education	73	3.249	1.102	1, 173	1.671	0.198			
Self-Contained	102	3.022	1.182						
Geographical Area Main Effec	ts								
Urban	52	2.604	1.141	2,160	7.109	0.001			
Rural	52	3.292	1.068						
Suburban	59	3.309	1.092						
Educational Setting by Geogra	phical A	rea Interactio	on Main Effect	\$					
Inclusion Urban	14	2.571	0.964	5, 157	2.991	0.013			
Inclusion Rural	33	3.339	1.113						
Inclusion Suburban	24	3.458	1.039						
Self-Contained Urban	38	2.616	1.211						
Self-Contained Rural	19	3.211	1.010						
Self-Contained Suburban	35	3.206	1.130						

Table 4. Analysis of Variance Results for Sub-domain 2

Table 5. Analysis of Variance Results for Sub-domain 3									
Group	N	Mean	Std Dev	df	F	р			
Educational Setting Main Effect	5								
Inclusion 80%	73	3.585	0.803	1, 172	0.320	0.572			
Self-Contained	101	3.658	0.857						
Geographical Area Main Effects	,								
Urban	52	3.474	0.811	2, 159	1.239	0.293			
Rural	52	3.664	0.813						
Suburban	58	3.717	0.889						
Educational Setting by Geograp	hical Area	Interaction M	lain Effects						
Inclusion Urban	14	3.143	0.802	5, 156	1.375	0.236			
Inclusion Rural	33	3.749	0.716						
Inclusion Suburban	24	3.630	0.862						
Self-Contained Urban	38	3.597	0.791						
Self-Contained Rural	19	3.517	0.963						
Self-Contained Suburban	34	3.779	0.916						

# Table 6. Geographical Area Group Post-Hoc Comparisons for Sub-domain 2

Group 1	Grp 2	Mean	Mean Dif	Std Err	р
Urban $(M=2.604)$	Rural	3.292	-0.688	0.216	0.005
010an (141–2.004)	Suburban	3.309	-0.705	0.209	0.003
$P_{ural}$ (M=3.202)	Urban	2.604	0.688	0.216	0.005
Kurar (WI-5.292)	Suburban	3.309	-0.016	0.209	1.000
Suburban $(M-2,200)$	Urban	2.604	0.705	0.209	0.003
Suburban (M-3.309)	Rural	3.292	0.016	0.209	1.000

The main effects of inclusion code and geographical area detected significant differences in survey subdomain 1 and sub-domain 2, respectively. The possible interaction between inclusion code and geographic area was investigated by conducting a one-way ANOVA comparing the inclusion urban, inclusion rural, inclusion suburban, self-contained urban, self-contained rural, and self-contained suburban group means for the three survey sub-domains. This analysis rendered a significant result in sub-domain 2 at F(5,157)= 3.668 with p=0.013. Results from sub-domains 1 and 3 did not show significance with F(5,159)= 1.603 with p=0.162 for sub-domain 1 and F(5,156)= 1.375 with p=0.236 for sub-domain 3.

This significant difference among groups for sub-domain 2 was followed by a series of all possible pairwise comparisons using the Bonferroni adjustment for multiple post - hoc tests. One comparison between inclusion suburban (M=3.458) and self-contained urban (M=2.616) approached significance for a post - hoc test with a p-value of 0.061. The ranked means in each survey sub-domain for all inclusion codes by geographic area comparison groups can be found in Table 7 and a graphical representation in Figure 2.

Domain	Group	Mean
Sub-domain1	Inclusion Rural	3.6307
	Inclusion Suburban	3.6122
	Self-Contained Urban	3.2974
	Inclusion Urban	3.2923
	Self-Contained Rural	3.2895
	Self-Contained Suburban	3.2315
Subdomain2	Inclusion Suburban	3.4583
	Inclusion Rural	3.3394
	Self-Contained Rural	3.2105
	Self-Contained Suburban	3.2057
	Self-Contained Urban	2.6158
	Inclusion Urban	2.5714
Subdomain3	Self-Contained Suburban	3.7790
	Inclusion Rural	3.7487
	Inclusion Suburban	3.6296
	Self-Contained Urban	3.5965
	Self-Contained Rural	3.5168
	Inclusion Urban	3.1429

Table 7. Ranked Means for Interaction Groups by Survey Sub-domain

# Discussion

Researchers have indicated that including students with significant disabilities presents challenges above and beyond those of including students with less severe disabilities and often results in decreased inclusionary opportunities for this population (Brandes & Crowson, 2009; Kitmitto, S., 2011). Furthermore, studies have noted that inclusion as a service delivery model presents a significant challenge to educators due to the extensive planning, modifying, and organizing of services as well as the daily problem solving and increased professional development required to adequately facilitate the service in the general education environment (DeBoer, Piji & Minnaert, 2010; King & Youngs, 2003; Gal, Schreur, & Engel-Yeger, 2010; Dickens-Smith, 1995). These added responsibilities can lead to negative teacher attitudes. Educators of students with significant disabilities have increased challenges due to the multiple variables that accompany working with this population from creating highly modified or alternate curricula to organizing multiple staff members to foster success across various environments (Oliver & Williams, 2005; Conderman & Katsiyannis, 2002).



Figure 2. Interaction Group Means by Survey Sub-domain

Hence, it was expected when conducting examinations and post - hoc testing during this study that the attitudes of special educators whose students with significant disabilities were fully included would have less than favorable opinions of their jobs and job designs, similar to other educators involved in an inclusive environment. Yet, this study yielded positive attitude results for teachers of students with significant disabilities who reported that their students were included in general education for 51% or more of the day. It is known that students with significant disabilities benefit from experiencing high quality, sustainable inclusive programs and practices (Carter & Hughes, 2006; Ernest, Heckaman, Thompson, Hull, & Carter, 2011). This study indicates that having students with significant disabilities involved in inclusive programs may result in a positive impact on the job satisfaction of their teachers as well, especially if compared to working in a self-contained setting. Overall, in this study teachers in selfcontained settings rated their attitudes towards their jobs significantly lower than those who had students included in general education, suggesting higher job satisfaction when students are included. If inclusion is provided with high quality and the teachers, both general and special educators, have co-decision making responsibilities as well as considerable training and support, their attitudes towards the program and towards their jobs may be higher as a result (King & Youngs, 2003; Ross-Hill, 2009; Dickens-Smith, 1995).

Historically, it has been shown that teachers in urban areas have significantly high attrition rates as compared to teachers in suburban or rural areas, often as a result of feeling under-supported and overwhelmed by the challenges faced in an urban setting (NCTAF, 2007; Cooper & Alvarado, 2006). Consequently, urban school districts often have difficulty initiating and sustaining viable, productive programs due to these high turnover rates (NCTAF, 2007; Waddell, 2010). According to Jiminez-Castellanos (2010), suburban districts have greater resources at their disposal from high teacher retention rates and new building structures to more instructional funds. It is possible that with these increased resources they have the ability to implement high quality inclusion programs. Short and Martin (2005) indicated that rural school teachers identified adequate training and resources as some of the most significant barriers to inclusion being successful. The authors presented proposed that training and resources need to be of the utmost priority in rural districts so the staff can be well-prepared for providing high-quality services to students with special needs. In this study, teachers of students with significant disabilities in both suburban and rural districts rated themselves higher in job satisfaction and positive attitudes towards job design if their students were included in general education 51% or more of the time than those in urban districts. It is possible from the current study results that the rural and suburban districts surveyed have focused their training and resources to provide high-quality inclusive practices.

This study provides additional data supporting the challenges special educators face in urban school districts and the need for further assistance to make programs sustainable and improve the job satisfaction of teachers of students with significant disabilities. In addition to the comparison to suburban

and rural district teachers, this study indicated that self-contained teachers in urban areas had higher positive rating means than their urban counterparts who had students included in general education settings, indicating that a self-contained setting may be more satisfying in an urban district than an inclusive setting for this population of educators. DeBoer, et al., (2010) focused primarily on the attitude and satisfaction of the general educator in the inclusive setting noting that their dissatisfaction was often a result of lack of training, experience, and knowledge. It is possible that a lack of training, experience, and knowledge for teachers in urban districts regarding inclusive practices, as supported in Waddell (2010) may be playing a part in the negative attitudes of teachers of students with significant disabilities included in urban school districts.

Inclusive settings increase the opportunities for students with significant disabilities to have access to content delivered in the general education setting as well as increased opportunities to interact with same-age peers without disabilities (McDonnell, 1998; Carter & Hughes, 2006). Past research shows that the geographical differences between urban, rural, and suburban communities can influence teacher's attitudes toward aspects of their jobs and inclusion (Bostelman, 1993; Carter & Hughes, 2006). The results from this study indicate that teachers from suburban and rural areas may rate their attitudes about aspects of their job design more positively than urban area teachers, especially if their students with significant disabilities are in high quality inclusive settings.

#### Limitations

The main limitations of the statistical analysis for the current study is in regards to the number of participants in each group, and the lack of statistical power for detecting significant differences between those groups. Perhaps if a larger sample had been achieved, significant differences would have been revealed between pairs of the six inclusion groups when paired with geographic area groups in survey Sub-domain 2, or even in Sub-domains 1 and 3 prior to conducting Post- Hoc tests. A further limitation involves the survey sub--domains. Although reliability was measured for each sub-domain and was significant enough for the measures to be considered quite reliable, no statistically significant findings were discovered via the analysis connected to Sub-domain 3. This could be related to the lack of higher number of participants, but could also be a sign of issues with the reliability in Sub-domain 3 as it was the lowest of the three.

Another limitation is that these data were gathered via an attitudinal survey, which involves selfreporting. Responses may not reflect the experiences of teachers regarding certain job aspects. For example, some teachers who took the survey did not work in a general education setting, therefore their experiences with general educators may have been limited, and their ratings on items about interactions with general educators may not be accurate. Further, the generalizability of these findings to all teachers of students with significant disabilities is limited, as participants were sampled using a convenience sample.

Washburn-Moses (2005) stated, *survey research is limited in that it provides a broad picture of the phenomenon being studied* (p. 157). One of the purposes of the survey used for this study was to discover more specific attitudinal data about job aspects for teachers of students with significant disabilities. Unfortunately, all aspects of these teacher's jobs cannot be included within such a survey, resulting in the data collected through the survey only being compared to limited independent variables, resulting in limiting the scope.

Defining, identifying, and locating specific groups of special educators who work with students with significant disabilities is difficult, and a limitation for this research study. As Goessling (1998) stated *the definition of a severe disability varies according to state regulations, federal guidelines, and medical interpretations* (p. 238). Thus, identifying the teachers who work with the variety of students who make up the national group of students with significant disabilities is also difficult, especially as more students with a variety of significant disabilities are included in general education classes or taught by educators certified in areas other than significant disabilities (Kleinert, Miracle, & Sheppard-Jones, 2007). Although defined for this study, it is difficult to identify all of the teachers who may work with students with significant disabilities, as each state utilizes different methods of special education services. Because many states and geographic areas utilize special educators of all different types of certifications to teach students with significant disabilities, another limitation of the study may be that any teacher who taught at least one student who had a significant disability could take the study. Although this likely increased participation in the study, special educators who primarily worked with students with more

high-incidence disabilities may be more likely to have differing attitudes than those who work primarily with students who have significant disabilities. Thus, the range of special educators who may have taken the survey must be considered when interpreting the results of the survey.

A final limitation involved the use of post - hoc testing, mainly because of the small participant groups. Although utilizing post - hoc testing in a study such as this is not a limitation, the use of post hoc testing means a higher level of difficulty to achieve significance because groups being compared must meet an increased significance level based on the number of comparisons being performed. This Bonferroni adjustment would lead to an alpha level of p=0.05 divided by the number of comparisons being made (i.e., p=0.025 for two comparisons, p=0.017 for three comparisons) to adjust for the increase in the Type I error rate. While post hoc tests are not actually a limitation, they make reaching a level of significance more difficult. More groups being compared means there are a fewer number of participants in each group. This may be part of the reason why smaller participation numbers in the post - hoc comparison groups resulted in means that were not found to be significantly different, yet were displaying a possibility of potential future significance if higher participation numbers were obtained.

#### Conclusion

The results of this study suggest a preliminary positive impact of including students with significant disabilities on the attitudes and job design satisfaction of special educators working with students with significant disabilities. It is important for the field to consider the benefits of inclusion for both the students involved as well as the teachers facilitating the program's daily activities. When considering these benefits, it is also critical for the field of special education, teacher recruitment and retention, and teacher education to contemplate the need for professional development, teacher support, and administrative guidance when designing and implementing an inclusive program for students with significant disabilities, especially in urban areas where attrition is so high. Inclusion can be a highly productive and motivating experience for students; with meaningful and ongoing support, it may also mean the increased job satisfaction of master teachers of students with significant disabilities.

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#### **Appendix A:**

Sample Questions from *Attitudes of Teachers of Students with Significant Disabilities about Aspects of Their Jobs* survey:

Sub-domain 1: Direct attitudes about position

- 1. I feel supported by the administrators I regularly work with.
- 1. I have felt frustrated with the amount of administrative support I have received related to working with paraeducators.

Sub-domain 2: Attitudes about actions teachers have taken related to their job design

1. When trying to gain the appropriate support I need in my classroom I have replaced paraeducators, been assigned unqualified paraeducators, or have been assigned paraeducators who have failed in other settings within the school.

Sub-domain 3: Attitudes about experiences related to actions of others

□ I have seen discriminatory behavior from adults (e.g. co-workers, faculty, staff, administrators, etc.) toward my students (i.e. a teacher has excluded a student from their classroom).

# MULTIMEDIA STORYBOOKS: SUPPORTING VOCABULARY FOR STUDENTS WHO ARE DEAF/HARD-OF-HEARING

# Vicki Donne

Robert Morris University

# Margaret L. Briley

Youngstown State University

A single case study examined the use of multimedia storybooks on the vocabulary acquisition of 7 preschool students who are deaf/hard of hearing in two classrooms at a school for the deaf in the U.S. Participants also included 3 speech-language pathologists. Students spent an average of 7.1 minutes daily working with the multimedia storybooks and results indicated that the average vocabulary words independently identified correctly in isolation and in the context of sentences doubled over the course of the study (5 weeks). Differentiated instruction was provided through the use of three levels of storybooks and 6 of the students benefited from this differentiated instruction. Results indicated that increased vocabulary development may be supported by the use of multimedia storybooks.

Early intervention for hearing children at risk for language difficulties helps many children to achieve once they reach school age. Despite early intervention, however, many children who are deaf/hard of hearing experience delayed language (Sarant, Holt, Dowell, Richards, & Blamey, 2009). The language levels of preschool children who are deaf/hard of hearing are delayed, often two to three years, behind their hearing peers (Marschark, 1997). They experience delays in developing their vocabulary knowledge, have smaller lexicons, and acquire new words at slower rates (Lederberg & Spencer, 2001). This becomes problematic in that for students who are deaf/hard of hearing, vocabulary is a strong predictor of performance in the early literacy skills of letter and word identification and passage comprehension (Easterbrooks, Lederberg, Miller, Bergeron, & Connor, 2008) and reading achievement (Connor & Zwolan, 2004). Furthermore, research suggests that explicit instruction is needed to improve their vocabulary (Lederberg & Spencer, 2009).

#### Vocabulary Instruction

Based on a review of effective instructional practices supported by scientifically based research with hearing students, the National Reading Panel (NRP) delineated five methods of vocabulary instruction: explicit instruction, indirect or implicit instruction, multimedia methods, capacity methods, and association methods (NRP, 2000). Multimedia instruction was described as the incorporation of *computer and multimedia technology to aid in the instruction of vocabulary words. Examples included CD-ROM, talking software, hypertext dictionary support, speech prompts, adaptive software, visual representations, and multisensory input (p. 4-34). Schirmer and McGough (2005) conducted a review of the research on instruction as defined by the NRP and their application with students who are deaf/hard of hearing. The reviewers found a limited research base supporting the multimedia method of vocabulary instruction. Easterbrooks and Stephenson (2006) also conducted a survey of best practices in deaf education and examined the supporting research base. The authors identified use of technology as a highly cited literacy practice but indicated that the research base on use of technology is still developing.* 

Gentry, Chinn, and Moulton (2005), investigated the effectiveness of various multimedia presentations and reading comprehension with students who were deaf/hard of hearing, 9-18 years of age, using sign language as their primary mode of communication, and reading at the third or fourth grade level. Using a

repeated-measure design for single subjects within groups, stories were presented by CD-ROM in four formats: print only, print plus pictures, print plus sign language, and print plus pictures plus sign. The effectiveness of the multimedia presentation was measured by student performance on story retellings. Results indicated that comprehension was strongest when stories were presented in print plus pictures and weakest when stories were presented in print only. Statistically significant differences were found between print only and print plus pictures.

A second study with younger students who were deaf/hard of hearing, ages 3 to 8 years, was conducted by Prinz and Nelson (1985). The researchers developed an Apple computer interactive language software system, ALPHA. Results indicated significant improvement in syntax and vocabulary. A third study, conducted by Reitsma (2008), reported that students 6 to 9 years of age learned printed words (12 out of 20 words) using a multimedia program.

Several multimedia programs included sign language videos, HandsOn (Hanson & Padden, 1990), Rosie's Walk, Aesops Fables (Pollard, 1995a and b), and PAWS Sign Stories series (Institute for Disabilities Research and Training, Inc., 1998). They have received positive reviews and/or student feedback, but no research on improved reading or vocabulary has been reported to date. Thus the research on the use of multimedia technology to support and improve vocabulary and reading comprehension is developing, but limited.

#### Implementing Technology Based Vocabulary Instruction

Guidelines on the use of technology were published by the National Association for the Education of Young Children (NAEYC) and suggest integrating technology into daily routines (1996). They issued a position statement on technology use with children, ages 3 through 8, supported by research, that *computers supplement and do not replace highly valued early childhood activities and materials* (p. 1). Researchers in deaf education support this position and consider technology *a best practice when it is used to support the teacher's skilled explanation and discussion of the subject being taught. It is not considered a best practice when used as a primary source of instruction.* (Easterbrooks & Stephenson, 2006, p. 386).

Several studies reported benefits with just 10 minutes/day spent on computer assisted instruction. For example, first grade hearing students who received 8 to 10 minutes/day of computer assisted instruction over five months scored higher in reading achievement tests than those not receiving computer assisted instruction (Fletcher & Atkinson, 1972). Chera and Wood (2003) reported that hearing students 4 to 6 years of age increased phonological awareness with ten 10 minute sessions of computer assisted instruction. Similar studies involving students who are deaf/hard of hearing were not available.

Moreover, technology has been used in various ways to individualize or differentiate instruction (Smith & Throne, 2009; Stanford, Crowe, & Flice, 2010). One way technology can differentiate instruction is to personalize the content based on the current ability level or the learning rate of the student(s) (Tomlinson, 2005). Through multimedia, the process of learning can also be differentiated to include pictures, videos, and text. Therefore, multimedia storybooks can be used to implement technology based differentiated vocabulary instruction.

#### Statement of the Problem

Examination of the research on use of multimedia for vocabulary instruction for students who are deaf/hard of hearing indicated that the research base is still emerging and there is a need for additional research. Based on what is known from studies involving hearing students, the present study was designed such that students who are deaf/hard of hearing would spend approximately 10 minutes/day working with multimedia storybooks that presented vocabulary coordinated with teacher vocabulary instruction.

Thus, the purpose of this study was to examine the following questions. Does the use of a PowerPoint multimedia storybook increase preschool deaf/hard of hearing students' receptive vocabulary isolated at the word level? Does the use of a PowerPoint multimedia storybook increase receptive vocabulary in context at the sentence level? Can PowerPoint multimedia storybooks effectively individualize or differentiate instruction?

#### Methodology

#### Participants

#### Students

All students who are deaf/hard of hearing in two preschool classrooms at a school for the deaf in the U.S. were recruited for participation and all students for whom consent was given were included in the study. Participants included 7 preschool students, two of which were identified with a concomitant disability (students 4 and 7). The mean age of students was 4 years 5 months with a range in age from 3 years 6 months to 5 years 1 month. Data on level of hearing loss were reported based on the hearing loss in the better ear (see Table 1). Data further indicated that 4 students experienced a pre-lingual hearing loss and for the remaining 3 students the onset of hearing loss was unknown. As seen in Table 1, students used various assistive listening devices and no students were implanted with a cochlear implant. Five students were reported to use American Sign Language and 2 students were reported to use sign supported speech as their primary method of communication.

Educational data indicated that the average length of time students were enrolled in the current placement was 1.1 years. Students were scheduled to attend school 7 hours per day, 5 days per week with the exception of 1 student who attended 4 days per week (student 3). Four students transitioned from early intervention programs, 2 students did not attend an early intervention program, and for 1 student early intervention services were unknown. Students received speech/language services for a mean of 50.7 minutes/week with a range of 25 to 75 minutes/week. Language assessment scores were available for 5 students and were based on the Carolina Picture Vocabulary Test (Layton & Holmes, 1985) or the Preschool Language Scale, fourth edition (Zimmerman, Steiner, & Pond, 2002) (see Table 1).

#### Professionals

Participants also included 3 speech-language pathologists who collected data on students during interaction with the multimedia storybooks and will be referred to as data collectors. All 3 data collectors were female, hearing, held masters degrees, and reported the use of sign supported speech as their primary method of communicating with students. The mean number of years of experience was 9 years (range of 8 to 10 years). Mean number of years working with students who are deaf/hard of hearing was 6.7 years (range of 3 to 10 years). Data collectors received no pay for participation in the study, but did receive the multimedia storybook template and multimedia storybooks upon completion of the study.

#### Setting & Materials

The study was conducted with two preschool classrooms at a school for the deaf in the U.S. that used a Montesorri curricular approach. The setting within the school was either the speech-language pathologists' classroom or the computer area within the preschool classrooms, whichever area was consistent with the routine setting of speech service delivery. Intervention occurred during regularly scheduled speech sessions with the speech-language pathologist(s) who typically provided speech services to the participant.

The materials and equipment included: a computer with Microsoft PowerPoint software installed along with the multimedia storybook files, student data collection forms, a clock, pencils, graphing charts, stickers or bingo markers, and folders. Preparatory material included a digital camera with video capabilities, computer cable, and shareware video conversion software.

Each multimedia storybook was designed as follows. The first slide contained the initial instructions presented in print and through a sign language video with audio. The instructions also directed the student to select an action button to advance to the next screen (positioning the cursor over the arrow and clicking the left mouse button). The multimedia storybook began by individually presenting the target vocabulary words; the printed word, a picture, and a sign/audio video of the word. Students looking at the picture, listening or watching the video, and then repeating the word in voice or sign were coded as imitating or expressing the vocabulary word independently. If the student looked at the picture, listened/watched the sign, but did not repeat the word in voice or sign until additionally prompted by the data collector, the interaction was coded as imitating or expressing the vocabulary word with prompting. If the student was distracted, looked at items around the room, or needed prompting to focus on the computer, the interaction was coded as not attending. Students used an action button to advance to the next word. This process continued for the presentation of five vocabulary words.

Receptive word identification in isolation was the second section of the multimedia storybook and directions were again provided in print and sign/audio video. The printed word and a sign/audio video of

the vocabulary word along with two pictures were presented. Students were to choose the picture which correctly matched the word. Receptive word identification in isolation was coded as correctly identified independently, correctly identified with prompting, incorrectly identified, or did not attend. After each picture selection, the multimedia storybook provided the correct reinforcement (praise for positive responses and a second presentation of the correct picture, word, and sign/audio video for incorrect responses). This process continued for the five vocabulary words.

The multimedia storybook then presented directions for the receptive word identification in context section. A video was presented in sign and voice of a sentence containing the target vocabulary word with accompanying text of the sentence. Students were to select the picture, from a set of two, which correctly matched the targeted word in the sentence. Receptive word identification in context was coded using the same guidelines as identification in isolation. The multimedia storybook again provided the appropriate reinforcement after each sentence. This process continued for five sentences which were sequenced to present a short story. At the completion of the multimedia storybook, the text *Great work! Finished*. with an accompanying picture and sign/audio video were presented.

Multimedia storybooks had four themes: Shapes, Playing in the Snow, Clothes, and Winter Activities. The present study differentiated vocabulary instruction for students by the use of three levels of multimedia storybooks for each theme or week (levels one, two, and three). Storybook level one consisted of five vocabulary words, typically including one word describing the theme or category, for example clothes, jacket, boots, sweater, and mittens. The next levels consisted of new vocabulary words and the category word, for example, clothes, scarf, hat, glove, and winter. Through the levels of each storybook, students had the possibility of exposure to a total of 36 vocabulary words.

Differentiated vocabulary instruction was provided based on student baseline scores and data collection scores throughout the week. Baseline data collection began at level one for each student. Students scoring a 4 or above independently correct in both the receptive word in isolation and context advanced to a level two storybook. Then baseline procedures were repeated. Differentiated instruction was also provided based on students' scores while working on the multimedia storybooks throughout the week. Students scoring 100% independently correct in both receptive word identification in isolation and context, moved onto the next storybook level. If, however, a student was absent on the day immediately following the 100%, the story level was presented again in order to ensure student achieved at 100% following absence.

#### Design

A single case design was used to examine the use of multimedia storybooks on vocabulary acquisition of preschool students who are deaf/hard of hearing. Single case design allows for the examination of the impact of the intervention on student functioning while making changes during evaluation to improve the intervention without the constraints of large samples, random assignment, and control conditions (Kennedy, 2005; Cooper, Heron, & Heward, 2007). An interview with the speech-language pathologists and a review of students' school records were conducted to collect demographic data. Also, the speech-language pathologists completed an exit survey, for social validation purposes, at the completion of all interventions. Results were graphed for visual comparison and data were analyzed to compare the pre- or baseline and post intervention means.

#### Procedures

#### Training

Researchers trained the speech-language pathologists to serve as data collectors through one formal training session which included verbal directions with accompanying documentation and computer presented storybooks. Data collectors observed the researchers coding student responses during baseline data collection. Then researchers observed data collectors coding during baseline data collection. Finally, researchers provided additional training, including systematic prompting procedures.

#### Data Collection

The data collector selected the student folder and accompanying data collection and graphing charts, turned on the computer, selected the PowerPoint program, opened the assigned multimedia storybook file, and began the slide show. Students entered the computer area and the data collector sat directly beside them. This seating arrangement provided optimal auditory and visual access to the computer screen and student communication. When researchers collected data for procedural and inter-rater reliability, they were also seated within direct visual view of student, data collector, and computer. The

data collector marked the beginning time and the student proceeded through the storybook with the data collector recording vocabulary responses. Upon completion, the data collector marked the ending time and totaled the responses for each section on the data collection form.

*Baseline*: Researchers and data collectors collected baseline data for each student and each of the four multimedia storybook themes following the procedures listed above (thus four baselines per participant).

*Intervention:* Five times a week, students spent time with one multimedia storybook theme. The following week, students were given a second multimedia storybook theme and the intervention procedures were repeated. This continued for a total of four storybook themes over a period of four weeks. If a student was absent for one day during the week, only four days of data were collected. In one instance a student was absent for an entire week and that week of data was made up when he/she returned to school.

Students graphed their correct responses on a graphing chart using stickers or bingo markers (selfgraphing is a recommended practice of the NRP, 2000). Data were recorded on three graphs per storybook (imitative or expressive vocabulary, receptive word identification in isolation, and receptive word identification in the context of a sentence) with the x axis representing the day of intervention (Monday through Friday) and the y axis representing the number of vocabulary words correct (with prompting plus independently correct).

Each week at the completion of the multimedia storybook, social validity data were collected from students. Data collectors asked, in voice and sign, and showed the accompanying text *Talking storybooks make me feel*. Students were presented with three response choices,  $\odot \oplus \odot$ , and asked to circle one response.

*Retention:* Retention data were collected during the fifth week of the study using the same procedures as baseline and intervention. Retention data on storybook theme one were taken on Monday, retention measures on storybook theme two were taken on Tuesday, etc. until retention data were collected on all storybook themes.

#### Procedural Reliability

Procedural reliability was defined as the ability of the data collectors to follow the agreed upon instructional intervention. The researchers collected procedural reliability for each data collector and each student. Data collectors were given a list of procedures during their training and for those steps in which they followed the guidelines the inter-rater marked a checkmark on the procedures. For those steps not observed by the inter-rater, a minus sign (–) was marked. Overall procedural reliability data was 96.1%. Procedural reliability for each data collector was 96.4%, 96.6%, and 95%. Procedural reliability by student ranged from 90% to 100%.

#### Target Behaviors

The independent variables were the use of a multimedia storybook and the use of differentiated instruction. The dependent variable was the number of vocabulary words correctly identified. The researchers collaborated among speech-language pathologists to identify 36 target vocabulary words. Targeted vocabulary words presented in the multimedia storybooks would supplement classroom language instruction occurring during the five week study period. The dependent variable, vocabulary, was measured in three areas: imitative/expressive vocabulary, receptive word identification in isolation, and receptive word identification in the context of a sentence. Assessment of the dependent variables was embedded as part of the intervention.

#### Inter-rater Reliability

The present study was conducted using the speech-language pathologists as data collectors with the two researchers conducting inter-rater reliability checks. Both researchers are certified deaf education teachers, skilled in sign language, and each has 15 years or more of teaching experience. Inter-rater reliability checks were conducted in 10% of data collections and were taken on all student responses. Overall inter-rater percentage agreement was 96.3%. Inter-rater for each of the data collectors was 94.6%, 100%, and 100%. Inter-rater agreement by student ranged from 89.3% to 100%.

#### Social Validation

In order to assess if the learned behavior, vocabulary, and the use of the multimedia storybooks, were valuable for the students, two measures of social validity were collected (Wolf, 1978). Students completed social validity checks during the four weeks of intervention and one week of retention data collection, 26 out of 35 possible occurrences (74%). Of these, 81% indicated that they liked using the multimedia storybooks. Two students circled sad faces once each; one student found the level of the storybook challenging and the second student circled a sad face when returning from an absence due to illness. On three occasions all three faces were circled and on these occasions, the students were having difficulties with behavior in general.

At the completion of the study, the speech-language pathologists, data collectors, were asked to complete a questionnaire indicating the degree to which they agreed/disagreed with several statements on a five-point Likert scale. There was an additional section for open-ended comments. All data collectors strongly agreed (5) that the multimedia storybooks were valuable tools to reinforce student vocabulary development and strongly agreed (5) that vocabulary development increased as a result of using the storybooks. One data collector responded that *the rate of learning has been incredible, especially for students who typically move around a lot.* An open-ended question asked respondents to provide any evidence that students had generalized vocabulary. Data collectors indicated that students used the vocabulary to participate in classroom discussion which had not previously been observed; students increased labeling objects through pointing and signing; and for one student when the materials were presented in a class activity, *the student wanted to answer all of the questions and signed everything perfectly*!

#### Results

#### Time Spent with Intervention

Students spent an average of 7.1 minutes/day on the multimedia storybooks. Time spent working on the storybooks ranged from 4 minutes to 11.5 minutes. The student spending the longest time to complete a storybook (student 7) was the least skilled using a computer and had difficulties making choices. In general, the time needed to complete a given storybook decreased from baseline to retention. For most students, the time needed to complete a storybook also decreased as they progressed from Monday to Friday within a storybook.

#### Vocabulary

At baseline, the mean vocabulary words in isolation identified independently was 13.8 words (range of 0 to 26 words). The mean vocabulary words identified independently in the context of sentences was 14 words (range of 0 to 25 words). The mean vocabulary words identified correctly in both isolation and context was 9.9 words (range of 0 to 20 words). Baseline stability was established for all students, except student 1, with stability defined as 80% of data within 20% of the median (Neuman & McCormick, 1995). Those students with above average language skills (students 1, 3, and 5) had higher number of words identified independently at baseline than those students with below average language skills or those with no available language scores.

Results obtained during data collection indicated that all students showed gains in vocabulary development. The average words identified independently in isolation was 28 words (with a range of 13 to 36 words) and the average words identified independently in the context of sentences was 26.6 words (range of 9 to 35 words). The mean vocabulary words identified correctly in both isolation and context was 25.4 words (range of 7 to 35 words). Vocabulary gains did not appear to be correlated with language levels; the two students with below average language levels (students 2 and 4) made substantial gains in vocabulary development (achieving a gain of 17 and 14 words identified in isolation and 15 and 20 words identified in context). A paired sample t-test indicated a significant difference in baseline vocabulary (identified correctly in both isolation and context) and post vocabulary, t(6)=-6.41, p=.001. These results suggest that multimedia storybooks significantly increased the vocabulary of preschool students who are deaf/hard of hearing. On average, these students gained 3.9 words per week, see Table 1 for detailed vocabulary data by individual student.

Studen t	Gende r	Level of Hearing Loss	Auditory Equipmen t Reportedl y Used	Languag e Level	Baseline Vocabular y n	Words Taught or Exposed to in Storybook	Post Vocabular y n	Gain in Vocabular y n	Retentio n %
						3			
1	F	Profound	None	Above average	11	35	35	24	91.3
2	F	Mild- moderate	Classroo m FM	Below average	2	26	17	15	85
3	F	Moderate -severe	Hearing Aids	Above average	20	31	29	9	100
4	М	Moderate -severe	Hearing Aids	Below average	12	36	35	23	100
5	F	Profound	None	Above average	20	36	34	14	95.3
6	F	Severe- profound	Hearing Aids and Classroo m FM	-	4	26	21	17	85
7	М	Profound	None	-	0	20	7	7	60
Mean					9.9	30	25.4	15.6	88.1

 Table 1. Individual Student Data

Note. Vocabulary responses independently identified correct in both isolation and context

Figures 1 and 2 graphically represent data on individual students. Researchers suggest that a minimum of three data points in the same direction are needed to establish a trend (Wolery, Dunlap, & Ledford, 2011; Gast, 2010). Graphic representation of data shows at least one ascending trend line for students 2-7 indicating a gain in vocabulary development. A closer examination of variability in student graphs indicated that for students 3 and 4, vocabulary scores after student absences varied. In addition, student 2 attended school four days/week, thus data were collected four times a week. Student 7 demonstrated inattentive behavior on academic tasks in general and this was seen during intervention as well. The student displayed difficulty making choices and needed prompting to scan all choices. As with other academic tasks, the student initially required hand-over-hand prompting to complete the storybook. As experience working with the storybook increased, the level of prompting decreased. In addition, anecdotal notes documented the spontaneous language of student 7 while working with the storybooks (asking for spelling, repeating vocabulary words, and identifying signers in the video). Although not specifically a research question, it should be noted that overall participant level of prompting provided by the data collectors decreased from baseline to day five of data collection while the level of total correct responses increased. Specifically, as the level of prompting decreased, the level of student independence attained in number of correct vocabulary words increased.







Figure 1. Vocabulary Words Identified Correctly in Isolation







Figure 2. Vocabulary Words Identified Correctly in Context

Retention data were collected as described in the procedures section. Table 1 provides retention data for individual students. Average percentage of words retained for all students was 88.1% (range of 60% to 100%). During storybook one, student 7 could not remain on task to finish the book, however, on retention measures he was able to finish the storybook and score 5 out of 5 correct on receptive word identification in isolation so clearly he was learning some vocabulary and appropriate on-task behaviors during the intervention. Students 3 and 4 achieved 100% retention in both receptive words identified independently in isolation and in context for all weeks. In addition, all students achieved 100% retention of words identified independently in isolation and in context for at least one week.

# Differentiated Instruction

The present study differentiated vocabulary instruction for students by the use of three levels of multimedia storybooks for each theme or week. Table 2 reports the advancement through storybook levels by student. At baseline, students were placed in a level one storybook 19 times (67.9%). Differentiated instruction was provided in 32.1% of the baselines with students placing in a level two storybook 5 times and in a level three storybook 4 times. Of the total 7 students, 4 students (students 1, 3, 4, and 5) placed in a level beyond level one during baseline thus were able to benefit from differentiated instruction at baseline.

Differentiated instruction was also achieved when data supported student achievement on vocabulary scores throughout the week. This occurred 12 times (42.9%) with 1 student (student 4) moving up two levels during one week of data collection. In these instances, students worked on the storybook an average of 2.2 times or days before moving to the next level. There was 1 student who was incorrectly advanced to a storybook level without mastery in both isolation and context (student 2, storybook 2). Only 1 student (student 7) did not advance in storybook level during data collection, the remaining 6 students were able to benefit from individualized instruction based on data collection (see Table 2).

Table 2. Differentiated Instruction												
	I	Week 1	1		Week	2		Week	3		Week 4	
		Shapes	3	Pla	ying in	Snow		Cloth	es	Win	ter Activ	vities
		Level			Level	1		Leve	el		Level	
Student	1	2	3	1	2	3	1	2	3	1	2	3
1	В	DC		В	DC				В			В
2	В			В	DC		В	DC		В		
3	В				В	DC		В				В
4		В		В		DC	В	DC		В	DC	
5	В	DC				В		В	DC		В	
6	В			В			В	DC		В	DC	
7	В			В			в			В		

Note. B represents baseline level; DC represents level achieved during data collection throughout the week

Examining factors when students did not move through levels during data collection revealed that in seven instances, students were already working with a storybook at a level two (3 students) or level three (4 students) based on their baseline scores. For the 4 students at a level three, these students could have advanced to a level four storybook but the study was only designed to provide three levels of differentiation. Only 1 student (student 7) did not advance beyond a level one during either baseline or data collection. Although the student did not move within levels of the storybooks, the student did increase in vocabulary words identified correctly and spontaneous language was recorded.

Overall, 3 students advanced through levels for all four multimedia storybooks (students 1, 4, and 5). These 3 students also demonstrated the largest number of words independently identified correctly in isolation. In summary, 6 of the 7 students were able to benefit from the use of multimedia storybooks to differentiate vocabulary instruction.

#### Anecdotal Notes

#### Computer Usage

Between baseline measures, data collection, and retention, the multimedia storybooks were run a total of 210 times throughout the course of the study. Technical difficulties were experienced three times (in one instance a video froze and the computer had to be rebooted; in a second incident, the audio was set to mute and the data collector changed the setting after beginning the program, and on the third incidence a technical difficulty was indicated but no notes provided on the problem). Overall, few technical difficulties were experienced.

Notes on computer usage indicated that 3 students consistently experienced difficulty navigating a mouse and needed assistance from the data collector. All students, at some point, chose to replay a video by selecting the video. One student liked the sentence *my mug is cool* and clicked on it six times to view and sign with the video. Many students, recognizing the signer on the incorrect response screen, tried to advance the slide very quickly. Students were able to successfully navigate to previous slides and repeat a sign video.

#### Language

Anecdotal notes also indicated that the use of the multimedia storybooks prompted spontaneous language from the students. Two students spontaneously signed or fingerspelled the reinforcement words *good job*, *wonderful*, and *uh-oh*. Additional sentences spontaneously signed by students were directed toward action on the screen, such as *sign it again*, *fingerspell it again*, *I want to go back and see if I missed one*, *fingerspell 'q' or 'p'?*, and *finished* or *bye*. Students would often sign the words for the two picture choices. Additional spontaneous sentences while watching the videos included *I like marshmallows*,

name of the signer?, signer not here, darn, and more. In addition, many students copied the signed sentences after watching the videos.

#### **Summary and Discussion**

Students indicated that they liked using the multimedia storybooks and spent an average of 7.1 minutes/day on the storybooks. These results were consistent with previous research with hearing students (Fletcher & Atkinson, 1972; Chera & Wood, 2003) in that students who were deaf/hard of hearing also benefited from as little as 10 minutes/day of computer instruction. Student vocabulary levels, trends, and variability were reported throughout the text, tables, and figures by storybook and participant. For research question one, does the use of Powerpoint multimedia storybooks increase receptive vocabulary at the word level, results indicated that they do. Baseline data revealed the average words independently identified correctly in isolation was 13.8 words and through interaction with the multimedia storybooks, the average words independently identified correctly in isolation was 28 words. Furthermore, baseline data reported the average vocabulary in the context of a sentence was 14 words and with intervention the average vocabulary identified in the context of a sentence was 26.6 words. Thus research question two, does the use of multimedia storybooks increase receptive vocabulary at the sentence level, the results indicated yes. In reference to research question three, can multimedia storybooks individualize or differentiate vocabulary instruction, results indicated that students were able to work with storybooks until mastery of vocabulary or proceed to work with new storybooks and new vocabulary. Through interaction with the multimedia storybooks, vocabulary identified correctly in both isolation and context more than doubled (mean was 25.4 words) and results were significant. In addition, retention was good. When working with the multimedia storybooks, prompting decreased, while correct responses increased. Also, exit survey data indicated that vocabulary increased as a result of using the storybooks, that the storybooks were a valuable tool, and that students generalized vocabulary.

#### Limitations

One of the limitations of the present study was the small sample size, which limits generalizing of the results. Small sample sizes are not unusual in research in deaf education or in single case designs. A second limitation may be that the increase in vocabulary may have been limited due to student exposure to only three levels of differentiation; we believe this is true for students 1 and 4. The vocabulary selected for storybooks was based on the collaborative efforts between researchers, speech-language pathologists, and the classroom teacher and was designed to coordinate with classroom instruction planned for the length of the present study. This benefit was determined by the researchers to outweigh any possible limitations.

A final limitation was discovered during data analysis. For computer usage, 3 students needed assistance with the mouse. The intervention procedures did not have protocol in place to address additional training for students' use of a mouse and a touch screen was not available at the school. Data collectors did not provide additional training in this area. This limitation was deemed minor as the tracking of computer knowledge was not one of the measures of the study design, however, additional computer training for students should be addressed in future investigations.

#### Implications for Teaching Practice and Future Research

Results of the study indicated that multimedia holds promise as a tool in vocabulary instruction for preschool students who are deaf/hard of hearing. More long-term and expanded research is needed to generalize these results. As this study used commercially available software, PowerPoint, this study could definitely be replicated. Multimedia storybooks could easily be created by teachers as all 3 speech-language pathologists were trained in the use of the template and at the completion of the study 1 speech-language pathologist created their own multimedia storybook.

Using multimedia storybooks provided differentiated, individualized instruction matching student needs and expanded these preschool students' vocabulary knowledge. Also, this study can add to the emerging research on the possibilities of technology enhancing vocabulary instruction for students who are deaf/hard of hearing. Given the language delays of preschool students who are deaf/hard of hearing (Marschark, 1997) and the influence of vocabulary on reading achievement (Connor & Zwolan, 2004), these findings are important.

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# PERCEPTIONS OF KOREAN PRE-SERVICE SPECIAL EDUCATORS REGARDING TEACHING COMPETENCIES FOR STUDENTS WITH DISABILITIES

## Yu-Ri Kim Jiyeon Park Suk-Hyang Lee Ewha Womans University

The purpose of this study is to develop a Teaching competency index in special education and to investigate Korean pre-service special educators (PSSEs)' perceptions regarding each item of the index. Based on a review of the literature on exemplary instruction in special education, we developed an index composed of 44 items. The six sub-domains of the index include 'Organizing content', 'Writing lesson plans', 'Considering individual characteristics', 'Encouraging student participation', 'Enhancing interactions', 'Practicing effective teaching strategies' and 'Reflecting on one's own teaching'. The survey participants included 37 PSSEs who just completed their practicum in special schools in Korea for four weeks. Results showed that there was a significant difference between the importance and implementation of the teaching competencies both in the total score and in the subtotal score of each domain. No significant difference was found across three certification areas (early childhood, elementary, and secondary) of PSSEs and across the disability types of the students who attend the practicum sites. Finally, discussions of the results and the implications of this study for personnel preparation practices in Korea are provided.

According to the 2013 Special Education Annual Report written by the Ministry of Education (2013) of the Republic of Korea, 86.633 students with special needs are provided with special education and related services in special schools and resource rooms located in general schools. About 17,500 certified special educators are in charge of the education of these students, which means that the approximate student-teacher ratio is 5:1. In Korea, there are three different types of special educator certifications (*i.e.*, early childhood, elementary, and secondary) based on the school level of the students that the special educators are taking care of. As of September 2013, a total of 37 universities (6 national universities and 31 private universities) have established personnel preparation programs (PPPs) for special education professionals and a total of 1,558 undergraduate students are enrolled in the programs at these 37 universities. In Korea, there are two ways to become certified as a special educator. One (and the most common) way is to graduate from a university with a major in special education. The other way is to enter a graduate school that established special educator preparation programs; however in this case, the applicant must have a teacher's certificate in other subject areas (e.g., social studies or general elementary education). Those who complete their bachelor's or master's degree in a special educator preparation program have to pass the national teacher examination to work at public special schools or public inclusive schools. Other graduates work at private schools, welfare centers for persons with disabilities, inclusive or special preschools, and private clinics, through agency-wide hiring procedures.

The number of credit hours for a special educator certificate is 102. As shown in Table 1, students have to take 21 credit hours in core special education courses, 21 credit hours in elective special education courses, and 38 credit hours in their certificate areas such as early childhood, elementary, and secondary (Ministry of Education, 2014). In addition to these 80 credit hours, all students who want to become certified as any type of teacher have to take 22 credit hours in required courses including two-credit hour practicum.

Most special education courses require students to spend some time in various special education settings as a part of course assignments, but the most intensive field training for PSSEs is a four-week practicum.

Although inclusive education in Korea has expanded tremendously during the last four decades and, as a result, about 70% of the students with special needs are educated in inclusive settings (Ministry of Education, 2013), this does not mean that the significance of special schools where only students with disabilities attend is diminished. As of 2014, there are 163 special schools in Korea and approximately 30% of students with special needs attend these schools. Approximately 43% of the certified Korean special educators are working at special schools. Therefore, special schools where a considerable number of special educators and students with special needs are concentrated in one place have been utilized as practicum sites by most universities that have PPPs for special educators.

	Table 1. Structure of Courses Required for Special Educator Certificate								
	Core SPED <sup>a</sup>	Elective SPED	GED <sup>b</sup> courses in each	Required courses					
	courses	courses	certificate area	required courses					
Description	Basics of special education	Specific themes in special education ( <i>e.g.</i> , transition, and family support)	Courses based on the school levels ( <i>e.g.</i> , early intervention, elementary math, Chinese history)	Courses required to all pre-service educators ( <i>e.g.</i> , practicum, introduction to education)					
Number of credit hours	21 (taking 7 courses among 15 core courses)	21	38	22					

Note. <sup>a</sup>SPED: special education. <sup>b</sup>GED: general education. <sup>c</sup>Introduction to Special Education, Special School Curriculum Development, Inclusive Education for Students with Disabilities, Assessment and Evaluation of Children with Disabilities, Special Education Technology, Instruction of Students with Visual Impairments, Instruction of Students with Hearing Impairments, Instruction of Students with Intellectual Disabilities, Instruction of Students with Physical Disabilities, Instruction of Students with Multiple and Severe Disabilities, Instruction of Students with Emotional/Behavioral Disorders, Instruction of Students with Autism, Instruction of Students with Communication Disorders, Instruction of Students with Learning Disabilities, Instruction of Students with Health Impairments

As attention has been given to the issue of *how to prepare highly qualified special educators who will meet the essential needs of the real-educational field*, much emphasis is placed on the importance of a practicum as an opportunity for developing the teaching competencies of PSSEs (Kim, Park, Lee, & Yoo, 2007). Kim *et al.*, (1997) conducted a survey of 176 undergraduate students who completed a special education practicum to find out to what extent these students were satisfied with their own preparedness for the practicum. The responses were quite negative. PSSEs were found to perceive that what they have learned before the practicum was far from sufficient in performing the practicum, which indicates the need to intensify classroom management capacities including teaching competency in PPPs for special educators in Korea. The role of the practicum is two-fold. On one hand, the practicum in itself is a part of the personnel preparation curriculum. On the other hand, the practicum is a chance to verify whether the personnel preparation curriculum makes a difference in the teaching competency of PSSEs.

Teaching competency is one of the most critical components for highly qualified teachers. Therefore, it is essential that the PPPs for special educators provide opportunities for PSSEs to reflect upon the meaning of effective teaching and to learn and realize pedagogical knowledge and skills. Discussions on teaching competency in special education began relatively recently in Korea (Baek, 2011; Han, 2013; Lee et al., 2012; Nah & Seo, 2012; Oh, 2011; Park, 2011). This increasing interest in the quality of instruction seems to be a natural consequence of rapid quantitative improvement in Korean special education. Recently, two studies have been conducted regarding perceptions of PSSEs in Korea. Oh (2011) conducted a survey composed of three open-ended questions (i.e., [a] desirable teaching practices in special education, [b] undesirable teaching practices in special education, and [c] the elements that should be added to the current PPPs for special educators to cultivate teaching competencies). From a content analysis of the responses, Oh (2011) found that the participants regarded individualization based on unique characteristics of each student, encouraging students' participation, and utilizing various *learning materials* as the most important factors when judging desirable or undesirable teaching practices. She also found that the most frequent suggestion of the participants regarding the elements to be added to the PPPs was provision of opportunities to accumulate practical knowledge and experiences in a variety of special education settings during their college years. In addition, Baek (2011) carried out focus group interviews with pre-service early childhood special education (ECSE) teachers after they completed a four-week practicum in order to discover their perceptions regarding quality instruction and their suggestions for the PPPs. From a qualitative analysis of the interview transcripts, it was found that
the characteristics of good instruction emphasized by the participants were (a) a functional and developmentally appropriate curriculum, (b) play-based, child-initiated, responsive, and individualized instruction, and (c) effective utilization of multimedia and natural environments. The participants also indicated that the current curriculum would need to be strengthened so that the pre-service ECSE teachers are equipped with more practical skills required in the field. These two studies laid the foundation of the present study in that the researchers asked PSSEs who completed a four-week practicum about their perceptions of instructional expertise and the ways to foster the expertise.

It is not an exaggeration to say that the practicum is the most intensive and the last opportunity for PSSEs to learn, practice, and reflect on their teaching competencies before they enter the real field. The PSSEs are entitled to observe students with disabilities, design individualized intervention, and practice classroom management under the supervision of veteran teachers, all of which are very precious experiences that cannot be obtained in other ways. In this sense, these PSSEs could be the richest informants for providing some clues about how to improve the PPPs for special educators. In this study, we developed a *Teaching competency index in special education* based on a review of the literature on exemplary instruction in special education and investigated the PSSEs' perceptions regarding each item of the index, especially in terms of the degree of importance and implementation. We assumed that the PSSEs' perceptions of the importance and implementation and the gap between the two would provide useful information and insights about ways to enhance teaching competencies before the PSSEs enter the real field. The research questions of this study are as follows. (1) Is there a significant difference between the degree of importance and implementation regarding teaching competencies perceived by PSSEs? (2) Is there a significant difference in importance and implementation across three certification areas (early childhood, elementary, and secondary) and across the disability types of the students who attend the practicum sites?

# Methods

# Participants

The participants of this study were 37 PSSEs attending a university located in Seoul, Korea. The survey was distributed to the participants after they completed a four-week practicum which was one of the requirements for the special education certificate. The practicum sites were special schools located in Seoul and Kyung-gi-do. These special schools were places where only students with specific disability types attended. The average age of the participants was 22.3-years-old (SD = .19). The certificate areas of the participants and the disability types of the students who attend their practicum sites are presented in Table 2.

Table 2. Respondent Demographics (N = 37)		
Variable	n	%
	Early Childhood Special Ed.	10
Certification areas	Elementary Special Ed.	13
	Secondary Special Ed.	14
	Intellectual disability	10
Disability type	Physical disability	5
registered stud	Autism	16
(practicum sites)	Visual impairment	4
	Hearing impairment	1
	Others	1

#### Measures

A survey for this study was developed in three stages.

First, a review of the literature was conducted in order to come up with a basic framework and list of items. An electronic database search using ERIC, PsychInfo, and Riss4U (Korean database) was conducted. The search focused on the studies published between 2000 and 2014. A combination of the following keywords was used for the search: disabilit\*, special education, competenc\*, student-teacher\*, practicum\*, pre-service, and teacher program. Consequently, 32 Korean articles and 44 English articles

# were identified.

Saction	fuble of Structure of the Su	Contont
Section		Content
Demographic information (7 items)		age, grade, certificate area, program types for practicum, disability type of registered students, teaching experience of practicum supervisor, students' field experiences prior to practicum
Teaching competency (44 items) <sup>a</sup>	Organizing content	Ability to organize content based on students' characteristics and generalization when planning lessons
	Writing lesson plans	Ability to consider students' individual learning objectives, and to include key content and learning activities when developing lesson plans
	Considering individual characteristics	Ability to use instructional methods and strategies appropriate to students' individual characteristics and diverse characteristics
	Encouraging student participation	Ability to encourage student participation and provide a variety of opportunities for participation
	Enhancing interactions	Ability to enhance interactions between a teacher and students, and between students
	Practicing effective teaching strategies	Ability to practice a variety of teaching strategies to enhance students' attention and learning
	Reflecting on ones' own teaching	Ability to reflect on ones' own teaching as a special educator

Table 3 Structure of the Survey

Note. <sup>a</sup>See Appendix 1

Second, a draft of the *Teaching competency index in special education* was developed based on a review of the literature on exemplary instruction in special education (Allinder, 2001; Baek, 2011; Conderman & Johnston-Rodriguez, 2009; Cooley-Nichols, 2004; Dingle, Falvey, Givner, & Haager, 2004; Dymond, 2008; 2013; Han, 2013; Lee *et al.*, 2012; Macy & Squires, 2009; McHatton & Daniel, 2008; Nah, 2012; Nonis, 2011; Oh, 2011; Park, 2011; Richards, Hunley, Weaver, & Landers, 2003; Rust 2010). The draft included 49 items regarding instructional content, instructional methods (*e.g.*, writing lesson plans, teaching strategies, and interaction), and instructional environments. The authors removed or revised any items that were unclear or failed to gather the intended information, which resulted in a 41-item index. Additionally, seven demographic questions were written.

Third, the content validity was tested by one elementary special educator with five years of teaching experience and one secondary special educator with 15 years of teaching experience. They provided intensive feedback on the clarity of items and the comprehensiveness of the index. Based on their feedback, some items were separated into two items and two or three similar items were compiled into one item. Through this process, the survey revision was completed, resulting in an index composed of

seven demographic questions and 44 teaching competency questions.

Finally, a pilot test of the draft survey was conducted. Two PSSEs who completed their practicum in the previous year participated in the pilot study. They were asked to review the clarity of the items and the ease of the survey format. Based on their feedback, minor adjustments were made to the index.

The survey was divided into two sections. The first section requested demographic information, including seven items. The second section composed of 44 items requested information on PSSEs' perceptions of the importance and implementation of teaching competencies. The PSSEs rated each item on a five-point Likert-type scale ranging from 1 (not at all) to 5 (most important) regarding the degree of importance and a corresponding five-point Likert-type scale ranging from 1 (not at all) to 5 (most successful) regarding the degree of implementation. Table 3 provides a summary of the survey.

#### Procedures and Data Analysis

Envelopes containing a survey and a small gift were distributed in person to 37 PSSEs within two weeks of completion of their practicum. It took approximately 15 minutes to complete the survey. The surveys were received from all of them within one week, indicating a 100% response rate.

The data collected were analyzed by SPSS 21 software. A Cronbach's alpha reliability measure resulted in an overall measure of .94, with the importance scale at .94 and the implementation scale at .94. Cronbach's alpha coefficients for seven sub-domains of teaching competencies ranged from .56 to .88 for the degree of importance and ranged from .54 to .87 for the degree of implementation. Mean and standard deviations were calculated for rating of the importance and the implementation. A paired *t*-test was performed to determine whether there was a difference between the importance and implementation perceived by PSSEs. Furthermore, one-way analysis of variance (ANOVA) was performed to determine whether there was a significant difference in the importance and implementation across three certification areas (early childhood, elementary, and secondary) of PSSEs and across the disability types of the students who attend the practicum sites.

	Importance M (SD)	Implementation M (SD)	t
Total	4.60 (.31)	3.72 (.53)	10.56***
Organizing content	4.67 (.29)	3.60 (.45)	13.20***
Writing lesson plans	4.31 (.54)	3.96 (.55)	5.20***
Considering individual characteristics	4.74 (.35)	3.78 (.72)	8.21***
Encouraging student participation	4.85 (.23)	4.08 (.64)	7.52***
Enhancing interactions	4.72 (.33)	3.69 (.73)	9.12***
Practicing effective teaching strategies	4.51 (.42)	3.54 (.72)	8.39***
Reflecting on one's own teaching	4.61 (.49)	3.80 (.82)	6.37***

\*\*\*p < .001 Tables 5 and 6 provide a summary of the five highest mean ratings and five lowest mean ratings in both the importance and the implementation of teaching competencies.

#### Results

#### Differences between the Importance and Implementation of Teaching Competencies

A comparison of the mean ratings of the two scales were made using the paired t-test to determine if a difference existed between the importance and the implementation that PSSEs perceived regarding

teaching competencies. The mean ratings of the importance and implementation were 4.60 (SD = .31) and 3.72 (SD = .53), respectively. The difference between the importance and the implementation was statistically significant (t = 10.56, p < .001). This indicates that the PSSEs rated the perceived degree of importance of teaching competencies higher than that of implementation. In addition, the mean ratings of the perceived importance for every sub-domain were higher than those of implementation. The differences between the importance and the implementation for every sub-domain were statistically significant. The means and standard deviations, and the results of the paired *t*-test are presented in Table 4.

The PSSEs awarded their highest importance ratings to item 1: *Take the present level of each student into account when planning lessons* (M = 4.97, SD = .03). Among the five highest ratings, three items (items 17, 18, and 21) were all related to the strategies for 'Enhancing student participation' and item 4 (Paying attention to the students' interests when planning lessons) was also related to student participation. This indicates that the PSSEs put a special emphasis on student participation. Although they placed higher importance ratings on teaching competencies related to considering students' present level during lesson planning, the skills under the sub-domains of both 'Considering individual characteristics' and 'Enhancing interactions' were not included in the five highest rated items.

	lable 5. 1	tive hignest Rati	ng Items		
Importance	M SD	Implementation	М	SD	_
1	1. Take the present level of each student into account when planning lessons.	4.97	.03	8. Differentiate the lesson objectives based on the present level of each student when writing lesson plans.	1.43
	17. Motivate students to learn during class.	4.92	.05	17. Motivate students to learn during class.	4.3 0
2	18. Encourage students to participate actively in class.	4.92	.05		
3				19. Provide students with opportunities for choices during class.	4.2 4
4	4. Pay attention to the students' interests when planning lessons.	4.86	.06	4. Pay attention to the students' interests when planning lessons.	4.2 2
	21. Use appropriate prompts to encourage students' participation and performance.	4.84	.06	29. Review the previous class lesson briefly.	4.1 9
5				10. Include core content when organizing the activities in lesson plans.	4.1 9

On the other hand, item 9 (including every necessary component in lesson plans) was given the lowest importance rating (M = 3.78, SD = .14). The participants also perceived item 12 (Considering connection with other subject areas when planning lessons) as less important. This indicates that they perceived items under the sub-domain of 'Writing lesson plans' as relatively less important.

With regard to the degree of implemention, the PSSEs awarded their highest ratings to item 8: *Differentiated the lesson objectives based on the present level of each student when writing lesson plans* (M = 4.33, SD = .13) Item 10 under the sub-domain of *Writing lesson* plans also received high ratings. This indicates that although they perceived the skills related to *Writing lesson plans* as less important, they successfully implemented the skills. Items 17 and 4 were included in the five highest rated items regarding the degree of the importance and that of the implementation. Additionally, item 19 under the sub-domain of *Encouraging student participation* was included in the five highest rated items. The findings indicate that the PSSEs perceived student participation as important and made efforts to enhance student participation. However, although item 8 (Differentiating the lesson objectives based on the present level of each student when writing lesson plans) received the highest implementation ratings, the items under the sub-domains of *Considering individual characteristics* and *Enhancing interactions* were not included in the five highest ranking items. This suggests that the participants perceived the skills under the two sub-domains as relatively less important and implemented the skills under the two sub-domains as relatively less important and implemented them relatively less successfully.

The PSSEs awarded their lowest importance ratings to item 2: *Take the goals and their objectives in the IEP of each student into account when planning lessons* (M = 2.73, SD = .20). Item 44 (Monitoring whether knowledge and theory learned at a university were applied in the process from lesson preparation to the actual lesson in class) received low mean ratings in both the degree of the importance and that of the implementation. This indicates that they were less likely to perceive the importance of reflective teaching and were also less likely to examine and evaluate their teaching.

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	Table 6. Five Lowest Rating Items				
	Importance M SD	Implementation	M SD		
	<ol> <li>Make sure that everynecessary component is included in lessonplans.</li> </ol>	3.78 .14	<ol> <li>Take the goals and their objectives in the IEP<sup>a</sup> of each student intoaccount when planninglessons.</li> </ol>	2.73	
2	12. Consider the connection with other subject areas when writing lesson plans.	4.11 .13	32. Plan transition time to naturally transit between activities duing class.	2.86	
3	44. Monitor whetherknowledge and theory learned at a university were applied in the process from lesson preparation to actual lesson in class.	4.14 .14	40. Evaluate whether all of students who participated in class met their own learning goals.	3.00	
4	5. Include the activities that can enhance basic academic skills ( <i>e.g.</i> , reading, writing, speaking, listening, and math) when planning lessons.	4.19 .13	44. Monitor whetherknowledge and theorylearned at a university were applied in the process from lesson preparation to actual lesson in class.	3.06	
5	30. Walk around classroom instead ofstanding at one site during class.	4.22 .15	28. Use a variety of instructional forms ( <i>e.g.</i> , one-to-one instruction, small group instruction, large group instruction, etc.) considering students' characteristics and lesson content.	3.16	

Note. <sup>a</sup>Individualized Education Program

Differences in the Importance and Implementation of Teaching Competencies

Table 7 indicates the differences among the responses of early childhood, elementary, and secondary

PSSEs in the perceived importance and implementation. The early childhood PSSEs (M = 4.70) rated the teaching competencies as more important than elementary (M = 4.68) and secondary PSSEs (M = 4.44). However, there was no significant difference among the three groups (F = 2.95, p > .05).

	Early childhood SPED ( <i>n</i> =10)	Elementary SPED ( <i>n</i> =13)	Secondary SPED ( <i>n</i> =14)	F
	M (SD)	M (SD)	M (SD)	- 1
Importance	4.70 (.22)	4.68 (.23)	4.44 (.39)	2.95
Implementation	3.78 (.34)	3.83 (.49)	3.59 (.66)	.79
Difference between importance and implementation	.91 (.38)	.85 (.37)	.86 (.69)	.05

With regard to the degree of implementation, elementary PSSEs (M = 3.83) implemented the teaching competency items more successfully than early childhood (M = 3.78) and secondary PSSEs (M = 3.95). However, there was no significant difference among the three groups (F=.79, p > .05).

The three groups all rated the degree of importance of the teaching competencies higher than that of implementation. In particular, the mean differences of the scores between the importance and implementation were .91, .85, and .86 for early childhood, elementary, and secondary PSSEs, respectively. However, the differences were not statistically significant (F = .05, p > .05).

Table 8 indicates the differences among the responses of PSSEs who completed their practicum in special schools for intellectual disability, autism, and others. As noted in Table 8, PSSEs who completed their practicum in special schools for others (M = 4.63) rated the teaching competencies as more important than those who completed the practicum in the schools for autism (M = 4.61) and intellectual disability (M = 4.54). However, there was no significant difference among the three groups (F = .23, p > .05).

Students who Attend the Fracticum Sites				
	Intellectual disability (n=10)	Autism ( <i>n</i> =16)	Others <sup>a</sup> ( <i>n</i> =11)	F
	M (SD)	M (SD)	M (SD)	Г
Importance	4.54 (.34)	4.61 (.25)	4.63 (.38)	.23
Implementation	3.63 (.71)	3.83 (.42)	3.66 (.51)	.52
Difference between importance and implementation	.91 (.64)	.78 (.45)	.97 (.46)	.51

 Table 8. Differences in the Importance and Implementation across Disability Types of the

 Students Who Attend the Practicum Sites

Note. <sup>a</sup>Physical disability, heating impairment, visual impairment, and others

With regard to the degree of implementation, PSSEs who completed the practicum in special schools for autism (M = 3.83) performed much more successfully than those who completed the practicum in the schools for others (M = 3.66) and intellectual disability (M = 3.63). However, there was no significant difference among the three groups (F=.52, p > .05).

The three groups all rated the degree of importance of the teaching competencies higher than that of implementation. In particular, the mean differences of the scores between the importance and the implementation were .97, .91 and .78 for PSSEs who completed the practicum for the school for others, intellectual disability, and autism, respectively. However, the differences were not statistically significant (F = .51, p > .05).

### Discussion

This study investigated perceptions of PSSEs who completed their practicum on the importance and implementation of teaching competencies in order to analyze a difference between the degree of importance and implementation, and the factors that might cause the difference. As a result of the analysis, the degree of importance of teaching competencies was significantly higher than that of implementation. In other words, PSSEs perceived that they didn't implement the items of teaching competencies in comparison to the degree of importance that they perceived them to have. Furthermore, there was a significant difference between the importance and implementation in all of the sub-domains including *Organizing content*, *Writing lesson plans*, *Considering individual characteristics*, *Encouraging student participation*, *Enhancing interactions*, *Practicing effective teaching strategies* and *Reflecting on one's own teaching*.

Based on the descriptive statistical analysis of data on each item of the index, the five highest and five lowest rated items were identified. Characteristics of these items can be summarized as follows. 1) The items regarding 'Considering individual characteristics', or 'Enhancing interactions' were rated relatively low in both importance and implementation although items regarding taking the present level of each student into account when planning or writing lesson plans were given high ratings in both importance and implementation. Furthermore, the item, *Take goals and objectives in the IEP of each student into account when planning lessons*, was perceived to be the least implemented one. 2) The items regarding 'Encouraging student participation' were considered to be the most important and the most implemented ones. 3) The items regarding 'Writing lesson plans' were perceived as being relatively low in the degree of importance but high in the degree of implementation, and 4) The item regarding monitoring whether knowledge and theory learned at a university were applied in a real classroom was ranked low in both importance and implementation.

In addition, we analyzed the differences across certification areas and disability types of the students who attend the practicum sites. In terms of the certification areas, the mean score of pre-service secondary special educators was the lowest in both importance and implementation of teaching competencies. In terms of disability types of the students who attend the practicum sites, it was indicated that PSSEs whose practicum sites were the special schools for students with intellectual disabilities showed the lowest mean score in both importance and implementation. In terms of the difference between the degree of importance and implementation regardless of the certification areas or disability types of registered students. Those who majored in early childhood education and took a practicum at special schools for students with other disability types showed the largest gap between the importance and implementation. However, the difference in the degree of importance, the difference in the degree of implementation, and the difference in the gap between the two were not statistically significant across the certification areas and disability types.

The result indicating that the degree of implementation of teaching competencies was significantly low compared to the degree of importance implies that the current PPPs for special educators have not prepared the pre-service students sufficiently. Consistent with this result, Bouck (2005) found that only 48.3% of secondary special education teachers were satisfied with their pre-service special education programs. This indicates the need to provide PSSEs with more opportunities to learn and practice the components of *good teaching* through regular courses and extra-curricular programs before they take a practicum. Below are some suggestions to make this happen in Korean PPPs for special educators.

First, it is essential to reform the curriculum of pre-service special education programs which enable students in the programs to enhance their teaching competencies in connecting theory with practice. The course sequence in particular should be considered in the process of reforming the curriculum so that students systematically improve their teaching competencies. For example, it would be helpful for freshmen to enhance their capacities to identify individual characteristics of students with disabilities by providing them with opportunities to meet diverse students with different disability types. Sophomores could focus on promoting competencies that enable them to develop an IEP based on the results of a variety of formal and informal assessments designed to identify individual characteristics or present levels of the students with disabilities. It is necessary to give juniors a lot of opportunities to improve teaching skills through mock lesson experiences using various teaching strategies for considering the present levels and IEP goals and objectives of students with disabilities. Seniors need to have an opportunity to monitor their own capacities as a teacher by taking a more intensive practicum that allows them to practice classroom management and leading lessons in real classes based on what they learned in

pre-service special education programs.

Second, the university faculties in the pre-service special education programs need to reorganize their own teaching styles and class activities considering the components of teaching competencies. The most important task is to introduce real cases in university classes and develop a variety of assignments linked to the practices in the real field. For example, mock lesson assignments would be conducive to strengthen the teaching capacities of PSSEs, especially in learning the components of good lessons, disability characteristics, instructional strategies across the characteristics, and strategies to encourage interactions with others. Furthermore, team teaching with practicing special education professionals or inviting special educators to university classes as guest speakers would be helpful for enhancing practical teaching capacities for PSSEs, especially in terms of writing IEPs and lesson plans. In addition, opportunities to share and discuss the experiences and reflections during observation and volunteer activities in the field among PSSEs would be useful in refining their knowledge and skills.

Third, pre-service special education programs should establish systematic and ongoing collaboration relationships with a wide range of special education organizations. It is necessary not only to set aside a number of organizations that allow PSSEs to meet students with different disability types and characteristics during their college years, but also to appoint veteran teachers of each organization as practicum supervisors. In this way, PSSEs will be able to learn from the practicum supervisors about core skills which they should obtain and experience at each organization instead of just visiting many organizations. Given that stable funding needs to be planned to appoint and use practicum supervisors, it is necessary to have administrative support from university headquarters. Moreover, as educational organizations in the field provide practicum sites and veteran teachers for training PSSEs, it is important for universities to establish substantive win-win collaborative relationships with the organizations by providing them with support such as consulting and technical assistance from university faculties.

This study contributes to suggesting directions for improving Korean pre-service special education programs by developing a *Teaching competency index in special education* composed of core components identified in the literature regarding good lessons in special education and by investigating perceptions of PSSEs on the importance and implementation of the teaching competency index. However, this study has several limitations in that the survey was conducted at only one university and the degree of implementation was measured using only self-reported data of PSSEs.

As the number of students with disabilities in the inclusive education settings increases, one of the most important duties of special education teachers is to provide support for the inclusion of students with disabilities and consultation for general education teachers (Dingle *et al.*, 2004). However, given the field of Korean special education in which special schools and self-contained special education classrooms still exist, the teaching competency of special educators is a critical factor that affects the quality of special education and positive outcome of students with disabilities. In Korea, the number of universities with pre-service special education programs has dramatically increased and great changes have been made in the quality of curriculums and program management (Kim, 2009). However, there are some problems to be solved, including insufficient credit hours assigned to practicum and a limited number of courses related to practicing teaching skills. Therefore, the university faculties in Korean PPPs for special educators should make the effort to restructure the classes in order to balance theory and practice. At the program level, endeavors should be made to reform the curriculum and to establish partnerships with various educational agencies. Furthermore, university headquarters should provide administrative support such as funding and human resources in order to realize the solutions.

We expect there to be international discussions and sharing on how the teaching competencies can be best addressed in special education teacher preparation programs.

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# **Appendix 1. Survey Items**

1. Take the present level of each student into account when planning lessons.

- 2. Take the goals and their objectives in the IEP of each student into account when planning lessons.
- 3. Take the chronological age of the students into account when planning lessons.
- 4. Pay attention to the students' interests when planning lessons.
- 5. Include the activities that can enhance basic academic skills (*e.g.*, reading, writing, speaking, listening, and math) when planning lessons.
- 6. Include functional activities that are conducive to daily life when planning lessons.
- 7. Plan for generalization of what students have learned in class when planning lessons.
- 8. Differentiate the lesson objectives based on the present level of each student when writing lesson plans.
- 9. Make sure that every necessary component is included in lesson plans.
- 10. Include core content when organizing the activities in lesson plans.
- 11. Refer to various resources and information related to the content of the lessons when writing lesson plans.
- 12. Consider the connection with other subject areas when writing lesson plans.
- 13. Apply a variety of instructional strategies considering the contents and features of the subject.
- 14. Apply a variety of instructional strategies in class based on students' individual characteristics.
- 15. Modify instructional content and strategies considering various difficulties the students may experience in class.
- 16. Utilize the learning materials that are appropriate for students' individual characteristics.
- 17. Motivate students to learn during class.
- 18. Encourage students to participate actively in class.
- 19. Provide students with opportunities for choice during class.
- 20. Provide all students with equal opportunities to participate in class activities during class.
- 21. Use appropriate prompts to encourage students' participation and performance.
- 22. Ask questions considering the present level and response mode of each student during class.
- 23. Answer students' questions sincerely during class.
- 24. Be aware of students' behaviors and speech, and respond to them sensitively during class.
- 25. Provide concrete feedback and reinforce students' performance during class.
- 26. Provide opportunities for interactions between students during class.
- 27. Arrange students' desks considering students' participation and interactions.
- 28. Use a variety of instructional forms (*e.g.*, one-to-one instruction, small group instruction, large group instruction, etc.) considering students' characteristics and lesson content.
- 29. Review the previous class lesson briefly.
- 30. Walk around classroom instead of standing in one place during class.
- 31. Introduce instructional objective(s) and lesson content after students pay attention to the class.
- 32. Plan transition time to naturally transit between activities during class.
- 33. Adjust instruction and learning pace to keep instructional time.
- 34. Provide students with opportunities to practice what they learned during class.
- 35. Use strategies to prevent problem behaviors during class.
- 36. Deal with problem behaviors calmly during class.
- 37. Assign appropriate roles to assistant staff (*e.g.*, paraprofessional, social service personnel, and volunteer) during class.
- 38. Remind students of roles (expected behaviors) that they should follow them in class.
- 39. Pay attention to whether students joyfully participate in class.
- 40. Evaluate whether all of students who participated in class met their own learning goals.
- 41. Take time after class to reflect on anything that should be improved related to the preparation and use of lesson materials.
- 42. Take time after class to reflect on whether lesson components were fully presented just as they were planned.
- 43. Take time after class to reflect on whether the teaching capacity was improved based on selfmonitoring or supervisor's advice about previous lesson.
- 44. Monitor whether knowledge and theory learned at a university were applied in the process from lesson preparation to the actual lesson in class.

# SUPPORTING INCLUSIVE EDUCATION: NEGOTIATING HOME-SCHOOL PARTNERSHIP IN SINGAPORE

Meng Ee Wong Zi Jia NG Kenneth Poon National Institute of Education

While there has been growing theoretical and policy interest in the areas of homeschool partnership and inclusive education, relatively little work has linked the two fields. Where there have been studies, these have focused primarily on parent or school perspective. With inclusive education in its nascent stage in Singapore, this study examines the different roles emerging from home and school as well as factors underpinning this partnership. Data was drawn from interviews with 13 parents and 30 school staff. Our findings indicate that home-school partnership is a work in progress that is continually subject to home and school dynamics. The expectations and perceptions of parents and educators must be taken into consideration if the partnership is to succeed and sustain. Support from the wider community creates a synergy which reinforces home-school partnership and increases the visibility of children with disabilities by turning a private concern into a shared societal issue.

In 2004, Lee Hsien Loong set out his vision for Singapore by declaring in his inaugural speech as prime minister to build a nation leaving none behind. Lee (2004) explicitly stated, *We will look after the less educated and the elderly who have helped build Singapore. And we must also have a place in our hearts and our lives for the disabled, who are our brothers and sisters too* (para. 17). Lee (2004) went on to articulate: *Ours must be an open and inclusive Singapore* (para. 26).

Without any legislation providing for special or inclusive education in Singapore (Wong, Poon, Kaur, & Ng, 2014), this explicit declaration to support persons with disabilities has been a watershed, leading to the introduction of two key initiatives to include and support students with mild disabilities in mainstream schools (Lim, Wong, & Tan, 2014). All primary schools and 52 secondary schools are resourced with at least one allied educator (AED[LBS]) trained to meet the learning and behavioural needs of students with disabilities through the provision of in-class support, individual or small group intervention (e.g. literacy skills, social skills, and study skills), transition support and case management (Ministry of Education, 2013). In addition, 10% to 20% of teachers in each primary and secondary school received in-service training in special needs. They provide individual or small group support within classrooms, monitor academic progress of students with disabilities, and share expertise and resources with other teachers and parents (Ministry of Education, 2013). Following the introduction of these support structures, there has been greater presence of students with disabilities in mainstream schools. Today, students with disabilities who are cognitively able to access mainstream curriculum are part of the general education system, and are supported mainly by the AED (LBS) and teachers trained in special needs. An estimated 2.5% of school going children (or about 13,000) aged between 7 and 18 vears are reported with disabilities (Enabling Masterplan, 2012). Of these, about 7,600 are in mainstream schools and 5,400 in special schools.

Home-school partnership generally describes a collaborative relationship between parents and educators where the underlying goal is to maximize the full potential of students with and without disabilities in schools (Deslandes, 2001; Henley, Ramsey & Algozzine, 2006). In this relationship, parents are viewed as experts on their children while teachers are seen as experts on education (O'Connor, 2007; Olsen, & Fuller, 2012). The benefits of home-school partnership such as improved academic performance, reduced classroom misbehaviour, more positive attitudes toward learning, and better school attendance have been

widely discussed in the literature (Fan & Chen, 2001; Henderson & Mapp, 2002; Desforges & Abouchaar, 2003; Levy, Kim, & Olive, 2006). While there has been growing theoretical and policy interest in the areas of home-school partnership and inclusive education, relatively little work has linked the two fields (Vincent, 2003; Norwich, Griffiths, & Burden, 2005). This is surprising given that the planning and provision of inclusive education hinges on the combined forces of parents and educators to understand the unique needs of children with disabilities and secure appropriate support within the mainstream setting to alleviate those needs. Where there have been studies connecting the fields, these have focused primarily on parental or school perspective which rarely paints a complete picture of homeschool partnership. The National Center for Educational Statistics (NCES) conducted surveys to examine the level of agreement between parents' and schools' perceptions of home-school partnership. Discrepancies were apparent in their reports on school practices to involve parents and parent participation in school activities (NCES, 2001). For example, 78 percent of schools shared that they involved parents in the decision-making process to a great or moderate extent, but only 64 percent of parents affirmed this practice. While 81 percent of parents indicated their attendance at parent-teacher conferences, only 57 percent of schools confirmed high parental attendance (NCES, 2001). Such discrepant reports suggest the need to study the views and voices of parents and educators to paint a complete picture of home-school partnership.

This study seeks to understand the current state of home-school partnership in inclusive education in Singapore and identify factors underpinning this collaborative relationship through the multiple voices of parents and educators. This is of particular significance as Singapore is at a turning point in its efforts to recognize and work towards supporting individuals with disabilities, having signed the United Nations Convention of the Rights of Persons with Disabilities (UNCRPD) in 2012 (Ministry of Social and Family Development, 2012). The espousal of the UNCRPD will set the stage for greater visibility and representation of individuals with disabilities in school and the wider community.

#### Home-School Partnership Models

The changing paradigm of home-school partnership can be described as a shift in power and control among stakeholders. In the first quarter of last century, the partnership was marked by unilateral decision-making of educators whose professional competence to achieve desired learning outcomes for children was indubitable (Olsen, & Fuller, 2012). Parents were cast as clients who were potentially inadequate and dependent, and therefore had passive and marginal involvement in schools (Wolfendale, 1983; Fine, 1993). Since the 1970s, there has been growing recognition of parents as collaborative partners and equal allies in education (Ainscow, Howes, Farrell, & Frankham, 2003; De Boer, Pijl, & Minnaert, 2010; Olsen, & Fuller, 2012). Home-school partnership has since been characterized by joint decision-making between parents and educators who pool and share their knowledge and experiences to secure optimum education for children (Griffiths, Norwich & Burden, 2004). In recent years, this partnership has extended to the wider community. While educational provisions have conventionally been limited to the existing resources and capacities of home and school systems, emerging partnership draws on the wealth of expertise and resources within the community to ease the pressures and demands on parents and educators (Khong & Ng, 2005; Epstein, 2007).

Epstein (1992) adopts a holistic approach to home-school partnership by depicting home, school, and community as overlapping spheres of influence on children's learning and development. The model emphasizes the separate but complementary influence of home and school, and promotes alliance between the two spheres (Deslandes, 2001). Collaboration between home and school reaches the apex when parents and educators function as genuine partners in shared activities. The model also captures six classic types of parent involvement that encourage and strengthen home-school partnership (Epstein, 2007): (a) parenting (type 1), such as supervision of child's behaviour; (b) communication (type 2), such as teachers keeping parents informed about students' progress; (c) volunteering (type 3), such as parental assistance in school events; (d) learning at home (type 4), such as parental support in homework; (e) decision making (type 5), such as inclusion of parental voices in the development of mission statements; and (f) collaborating with the community (type 6), such as support networks for parents and afterschool recreation for students. Notably, the typology indicates a two-way partnership and makes a distinction between school-based and home-based involvement. School-based involvement includes activities like volunteering (type 3) and decision making (type 5) where parents support the school by assisting teachers in school programs and events or voicing their opinions and ideas in the evaluation and review of school policies and practices. Home-based involvement, on the other hand, encompasses activities like parenting (type 1) and learning at home (type 4) where the school supports parents by sharing information on child development and parenting skills or providing ideas on creating a conducive and nurturing home environment for learning.

Hoover-Dempsey and Sandler (1995, 1997) expand on Epstein (1992, 2007)'s model by examining parents' decision to become involved in their children's education. Hoover-Dempsey and Sandler (1995, 1997) propose that parental (a) role construction, (b) sense of efficacy, and (C) perception of opportunities, invitations, and demands for involvement predict parental participation in their children's education. More specifically, parents tend to become involved when they see personal involvement as part of their obligation as parents, when they believe they are competent at helping their children, and when they perceive their children's and the school's desire for them to be involved. Accordingly, parents are less inclined to become involved if they expect teachers to shoulder all the responsibility for their children's education (Ritter, Mont-Reynaud & Dornbusch, 1993), if they have low self-efficacy in supporting their children's learning and development (Deslandes, 2001), and if they perceive their adolescents' wish for more independence and less overt parental involvement (Eccles & Harold, 1993).

#### Home-School Partnership in Singapore

Until late 1990s, the primary focus for the education system in Singapore was to stay au courant with the latest developments in curriculum and pedagogy to maintain its leading edge in the global educational landscape, and thus the degree of parental involvement in education was marginal (Khong & Ng, 2005). The establishment of the advisory council COMmunity and PArents in Support of Schools (COMPASS) in 1998 turned the spotlight on the passive and peripheral involvement of parents in mainstream education (Teo, 2000; Khong & Ng, 2005; Ministry of Education, 2012). All mainstream schools were, and still are, encouraged to develop policies and programs to promote and strengthen home-school-community collaborations. Since the inception of the COMPASS, 96 percent of mainstream schools have set up parent support groups which serve as a social platform for parents to volunteer for school activities, develop closer relationships with teachers, and network with other parents (Masagos, 2009; Ministry of Education, 2012). The parent support groups also serve as a communication channel for parents to seek information, raise questions, and voice concerns on school policy and practice (Fu, 2009; Ministry of Education, 2012). Recently, the Parents in Education website was launched to engage parents in education and child development at home by providing information and resources on parenting, school curriculum, and home learning activities (Ministry of Education, 2012).

While these efforts to foster and strengthen home-school partnership serves parents of typically developing children, no such platforms are available for parents of children with disabilities in mainstream or special schools who require additional support (Enabling Masterplan, 2012). To date, there are few studies on home-school partnership in Singapore. Given the gaps in research literature, this study seeks to examine the different roles emerging from home and school to support inclusion and identify factors underpinning this partnership which can augment the educational experiences of students with disabilities in mainstream schools.

#### Method

#### Sample

Thirteen parents participated in this study. In four cases the child's mother and father were interviewed together. In other five cases the child's mother was interviewed alone. One child's parents declined to be interviewed. Of the 13 parents, three obtained a bachelor's degree; three held a post-secondary diploma; four received a certificate of secondary education; and three had below secondary education qualifications. The parent sample was made up of lower to upper middle income households, reflecting a good representation of the larger population. Children discussed in the interviews included seven boys and three girls aged 14 to 17 years with mild disabilities such as autism spectrum disorder, dyslexia, attention deficit hyperactivity disorder, visual impairment, and complex medical condition (e.g., lupus, rickets). Of the ten children, seven were Chinese, two were Malay, and one was Indian. All of them were students from two mainstream secondary schools which were purposefully sampled for our study.

Both secondary schools were nominated by professionals (i.e., teachers, psychologists, and psychiatrists) and other parents of children with disabilities as an exemplary school that has shown good support for students with disabilities. The first school is a government-funded, co-educational secondary school resourced by the Ministry of Education to support students with autism spectrum disorders. The second school is a government-aided missionary all-boys secondary school resourced by the Ministry of Education to support students with dyslexia. Thirty school staff (15 male and 15 female) involved in the education of the ten children with disabilities also participated in this study. The school sample was made

up of 20 subject teachers, four department heads, two allied educators, two counsellors, and two principals. Of the 30 school staff aged 26 to 55 years, 21 were Chinese, six were Malay, and three were Indian. Majority of the staff obtained a bachelor's degree; only one held a post-secondary diploma.

#### Data Collection and Analysis

A semi-structured interview guide was constructed to provide insight into home-school partnership in inclusive education. To ensure consistency and comparability of data, all participants were asked the following questions: (a) how is your child/student coping emotionally in school, (b) how is your child/student doing academically, (c) how is your child/student supported in school, and (d) to what extent do you collaborate with your child's teachers/student's parent to support him/her better? Additional questions were posed to elicit more in-depth responses. Unlike the lead questions, probe questions were not asked verbatim and were adapted to facilitate the flow of the interview and enhance participant reflection.

Ethical approval was obtained from the Institutional Review Board of Nanyang Technological University and the Ministry of Education for this study. Participants were provided with written and verbal explanations of the nature and purpose of the study, and assured of the confidentiality and anonymity of data to encourage candour and open sharing of information. Thirty-nine face-to-face interviews were conducted with parents and school staff, with each interview lasting 90 to 120 minutes. In addition, four staff focus groups were organized to fill information gaps and gather feedback on the authors' interpretations of participants' perceptions of home-school partnership. Each focus group discussion lasted 45 to 75 minutes. All interviews and discussions were conducted in English, audio-taped, and transcribed verbatim for subsequent analysis. Pseudonyms were used for each participant to ensure confidentiality and anonymity.

The authors analysed the transcripts independently for emergent themes relevant to home-school partnership using the constant comparative method introduced by Glaser and Strauss (1967). Inductive coding was subjected to repeated refinement as more data were analyzed, and related codes were clustered into core themes. All discrepancies and redundancies were resolved through a discursive process. Themes were determined to be valid when they were endorsed by at least one-third of the participants (four or more of 13 parents and ten or more of 30 educators).

#### Findings

Six major themes emerged during the interviews: (a) endorsement of home-school partnership, (b) homeschool communication on a needed basis, (c) constraints on home-school partnership, (d) supplementary provisions to home-school partnership, (e) challenges in home-school partnership, and (f) community support in home-school partnership.

#### Endorsement of Home-School Partnership

Both parents and educators see partnership as a desired and desirable outcome for the betterment of children's education. Educators recognize the critical role parents play in the learning and personal development of children within and beyond the classroom (Peters, 2002):

I think parental support is very important in every child's life. If parents are involved in their child's life, the child will be more resilient. They will be more attentive in class. They will have a better attitude towards learning, towards teachers, [and] towards peers. (Teacher B)

With the partnership of parents, the school vision will be achieved because the parents are there to support the school. What we can do is within school. Beyond that, the parents got to come in. (Department Head A)

Parents concur that the responsibility of children's education should not rest solely on the shoulders of the school. They construe parental role as including personal involvement in their children's education:

We cannot expect the school to give him everything on a single platter... We believe that the key to success is how closely parents actually work with the school... I do not believe that education is dependent on the school. It has to involve the parents as well. (Calvin's Father)

# INTERNATIONAL JOURNAL OF SPECIAL EDUCATION

#### Home-School Communication on a Needed Basis

Both parents and educators report that the only time they contact each other is when students are in trouble despite acknowledging the importance of home-school partnership. This disconnection between rhetoric and practice is echoed by Epstein (2007). Aside from the biannual parent-teacher conferences, parents see no need to step into the boundaries of the school unless their children are struggling at school. Parents perceive the lack of contact from school as an indication that their children are coping well in school or educators are managing the needs of their children:

I hardly contact unless problems come up... No contact is good. Smooth. (Quinn's Mother)

In secondary one and two, we didn't [meet the teacher]. There was no necessity because he was doing so well. The teacher didn't need to meet us. (Wayne's Father)

Some parents feel that their children are not receptive to their overt involvement as they are going through adolescence and desire greater autonomy (Eccles & Harold, 1996). Parents may perceive that their children do not want them to interfere in school, as evidenced by common adolescent pleas for independence from parental control:

She has this attitude now... I guess she is growing up. I mean as a teenager, you don't like people to be over your shoulder looking at what you do. (Elise's Father)

I normally do not like to intrude... when you talk to the teachers, the kids will be like 'Oh, what the teacher tell my mom?' I don't want to spoil that openness that he shares with his teachers in school. (Jason's Mother)

Educators themselves see communication with parents as a last resort to remediate outstanding problems. They hardly meet individually with parents unless exigent circumstances occur (Khong, 2004):

*I keep in touch with most of the parents quite often unless the student does not have many problems. Then I meet them like once a term. (AED [LBS] D)* 

Parent contact is minimal because we usually call them when something bad happens. (Teacher E)

This practice is likely to be determined by constraints on educators' time and energy. Educators are continuously confronted by various demands and responsibilities (Griffiths, Norwich & Burden, 2004). Given that they need to grapple with lesson planning, curriculum teaching, co-curricular activities, administrative duties, and multiple initiatives instigated by the Ministry of Education, constant communication with parents of all their students may appear to be a laborious task.

#### Constraints on Home-School Partnership

The literatures has drawn attention to a prominent difference between home and school in the education of children, that is, the care of a single child versus all pupils (Power & Clark, 2000; Griffiths, Norwich & Burden, 2004). This feature takes increased significance for children with disabilities who require additional learning and socio-emotional support. Educators are working at full stretch. At the same time, they are responsible for the academic achievement of all students under their tutelage. They cannot afford individual attention or lessons that children with disabilities genuinely need:

Our responsibility is the whole student body. It is not just looking after one small selected group of students. But by looking after this small selected group of students, we want to benefit the rest.(Principal K)

Some parents fail to understand that teachers themselves have a very big commitment. They do have to take care of rest of the kids. (AED [LBS] C)

Furthermore, schools do not have the expertise to adequately support the socio-emotional and behavioural development of children with disabilities. This is of particular importance during the adolescent period of storm and stress where they go through puberty and face increased academic demands and pressures:

On our side we could not provide the regular therapy that they [students with disabilities] need. Our teachers are not trained to be therapists... So we have to tell the parents that we are sorry but their child needs help in areas that we are unable to provide.(Principal K)

Lance is like an active volcano and we won't know when it will erupt... We are trying to look for professionals outside who can work with him on a one-to-one basis. The school does not have the calibre to support, so the experts really need to come in and help address his issues. (AED [LBS] C)

Although parents demonstrate empathy and understanding towards the schools, it does not mean that they lower their expectations of school support. They expect existing support to continue even though it may be minimal:

The school provides remedial lessons for all students, not especially for Sarah... cannot because not only she has difficulties. I mean other students also have problems. The teacher cannot spend time on her only. (Sarah's Mother)

We have home tuition because he cannot see a lot of things in class and we don't expect every teacher to give him one-to-one lesson. (Calvin's Mother)

Parents themselves lack confidence in their ability to support their children in schoolwork. Parents with little formal education believe that they do not possess the necessary knowledge and skills to help their children with homework (Dauber & Epstein, 1993). The greater specialization of subject areas and corresponding complexity of schoolwork at the secondary level further diminishes parental sense of efficacy (Eccles & Harold, 1996). Parental sense of competence is also tempered by the unique learning difficulties associated with their children's disability:

Last time, I could help with primary school homework, but at secondary school, I can't help. (Quinn's Mother)

*I* can speak English, but when it comes to writing *I* really can't help. *I* rely on DAS [Dyslexia Association of Singapore], school and tutor. (Samuel's Mother)

# Supplementary Provisions to Home-School Partnership

Parents thus actively seek private tuition and professional therapy to supplement the inadequacies of school and home support and give their children with disabilities the best chance for mainstream school success:

Samuel goes to DAS [Dyslexia Association of Singapore] every Tuesday for two hours. Now the DAS teacher mainly teaches him composition writing because he is struggling... I rely on the DAS teacher to see how they can help. (Samuel's Mother)

We do have one educational psychologist. Whenever I have issues with Elise, I will get her advice. So we fall back on her to help us with certain issues that we cannot handle. (Elise' Mother)

The tripartite partnership brings together home, school, and external agencies in an effort to alleviate the needs and difficulties of children with disabilities. Parents gather feedback on their children's academic performance and classroom behaviour from the school, and work on the areas of concern with private tutors and psychologists, as evidenced in Ivan's case:

The subject teachers will feedback on the areas he is not doing very well and I would feedback to his mother who will work things out at home together with the tutors. (AED [LBS] D)

The psychologist is working very closely with Mrs Karen [AED (LBS)] to tackle those issues that Ivan have in school. I hope that he can learn coping skills. (Ivan's Mother)

The supplementary support of private tutors and psychologists, however, comes at an exorbitant price:

We thank God that at this point in time we can afford to support Calvin financially, but up to what level? There is a limit to what we can really support him. How about other parents who are financially not able to support? It is even worse. (Calvin's Father)

By extension, parents who can afford supplementary provisions for their children with disabilities, which in turn relieves the demands and pressures on school. Parents who do not have excess income at their disposal, on the other hand, are confined to more passive roles and rely upon school to provide extra support:

To hire a tutor is quite expensive. If we can, we will. It depends on our finances. (Sarah's Mother)

I hope his subject teachers have extra time to coach him. I want to put him through Math tuition. It is a bit expensive so he does not want to go. Now my hope is that the school can give extra lessons to students with special needs, maybe after school extra remedial or something like that. (Samuel's Mother)

# Challenges in Home-School Partnership

While educators affirm the importance of home-school partnership, they find it a challenge to secure parental involvement. Congruent findings were reported by Markow and Scheer (2005) in their survey of mainstream secondary school teachers:

At this moment, partnership with parents is our weak link. It is a challenge. Last year, we organized a parenting workshop... It was very sad because on paper I had 50 parents who signed up, but on the night itself we only had three. (Department Head A)

To maintain a middle-class standard of living today, most families consist of dual working parents (Olsen & Fuller, 2012). Even though parents see personal involvement as part of their parental role and want to be more actively involved, this desire is complicated by layers of responsibilities which prevent them from being responsive to educator's overtures for greater involvement:

So far, no [have not volunteered in school]. Although we were approached, we have no time. (Elise's Father)

Other than communicating to them that there is going to be such an activity, we don't really get parents involve that much. Due to their work commitments and stuff like that, it makes it very difficult for them but they are very supportive of their child to attend. (AED [LBS] C)

In addition, educators described parental denial as a particular bugbear in home-school partnership. Parents of children with disabilities can be defensive about their children's condition. Some parents are resistant to educators' referral for evaluation given the stigma associated with disability:

Some parents do not want diagnosis. We cannot do anything if the child is not diagnosed. The parents are saying that their child is normal, so who are we to question that? If the parents say no or feel uncomfortable, that is where it ends. (Department Head A)

We spoke to a mother who does not seem to be willing to get her child a diagnosis for autism. Is there some form of support? Somewhere we can refer to or get external help, even if the parents refuse to? (Principal G)

Another cluster of parents have difficulties coming to terms with their children's disability. They believe that their children will outgrow their disability with the course of time, and refuse to seek or accept help:

Parents are always hoping for a miracle although some of them are very educated. They read a lot and they know that this disorder is not going to go away. It is how you manage as the child grows up. Many parents are still in denial because it has been a tiring journey for them and the journey goes on. (Counsellor F)

Although educators understand that raising a child with disability is a daunting prospect to parents, they are concerned that parental disbelief may deprive their children of early and appropriate intervention (Olsen, & Fuller, 2012).

# Community Support in Home-School Partnership

Educators are unequivocal in their belief that children with disabilities who can cognitively access general curriculum should be given the opportunity to attend mainstream schools, but they are inundated with numerous initiatives and varied demands. They question their capacity to provide quality support to an increasing number of students with disabilities:

I am not against the idea that more spaces should be opened up for students with special needs. They should be given the opportunity but... there must be some benchmark. For example, every year the intake should not be more than 30 students with special needs. There is a cap and the rest go to other schools. Support is only workable when there is quality in it. If not, it is as good as not doing it. (AED [LBS] C)

I feel that the support is not quite there for students with special needs. I must admit. It is there because my teachers have the heart. But if you are talking about real professional help, I must admit, as a leader, it is not quite there because my teachers are really, really stretched. (Principal G)

Educators emphasize that inclusive education should not be the sole responsibility of individual schools. They perceive a need for more resources and support from the Ministry of Education to fully address the educational needs of children with disabilities:

Each of them [educational psychologists from the Ministry] serves like sixteen schools. And primary schools only. They support secondary schools on a consultancy basis, so they won't even go down to our school. I think that is the extent of support we have for now. (Teacher H)

We would love to have a psychologist be attached to every school. In Australia, therapy work is part of the mainstream school. Therapy does not belong in our world, that's the issue. (Principal K)

They also contend that effective inclusion requires an orchestrated network of synergistic support within and across education, health, and social services at the societal level as it is clear that the expertise and resources of a community exceed those of a single family or school (Khong & Ng, 2005; Epstein, 2007; Olsen & Fuller, 2012):

We feel that there is a need for greater collaboration, not only from school but the society... from grassroots leaders, from the Ministry of Social and Family Development, from religious organizations. I think it must be a multifaceted approach... They play a part because we can only do so much here and the damage can be done outside. (Department Head M)

# Discussion

According to Hoover-Dempsey and Sandler (1995, 1997), parents' decision to become involved in their children's education is influenced by their construction of parental role, sense of efficacy, and perceptions of opportunities, invitations, and demands for involvement from children and schools. Hoover-Dempsey and Sandler (1995) further pointed out that role construction is a necessary but insufficient condition for involvement. To translate the role construction into action, parents must have a sense of efficacy for helping their children succeed in school. In this study, parents recognize the crucial role they play in the learning and development of children with disabilities within and beyond the classroom, but feel they do not have the knowledge and skills necessary to handle the complexity of schoolwork at the secondary level as well as the unique learning difficulties associated with their child's disability (Eccles & Harold, 1996). This does not automatically translate to a low sense of self-efficacy as parents actively seek alternative sources of support to help their children succeed in school.

In Singapore, private tuition has become commonplace due to the prominence placed on academic excellence (Cheo & Quah, 2005). Most parents hire experienced tutors to get individualized attention and

lessons that their children with disabilities genuinely need. Furthermore, they engage licensed practitioners such as psychologists, speech and language therapists, and occupational therapists to address the socio-emotional needs of children. Private tuition and professional therapy serve to supplement areas not adequately provided for in mainstream school and augment home-based involvement activities like parenting (type 1) and learning at home (type 4).

School-based parental involvement, on the other hand, is negligible. Most parents are not involved in volunteer activities (type 3) or decision-making processes (type 5). They fit the image of a good parent who does not intervene and support school efforts from a distance as painted by Lortie (2002) in his study of teachers. This is consistent with the literature that parental involvement is still largely seen as unnecessary interference in school governance and policy matters in Singapore (Khong & Ng, 2005). Even communication between home and school is sporadic; it occurs as and when it is necessary. Given that successful students have parents who stay informed and involved in their children's education (Epstein, 2007), it is good practice for schools to update parents on a continual basis for both positive and negative events throughout the school year (Montgomery, 2005). Regular two-way communication enables parents and educators to promptly nip problems in the bud before issues become severe (Olsen & Fuller, 2012). As few parents are likely to become involved without encouragement from the school, schools need to take a proactive role in spurring parental involvement (Eccles & Harold, 1993; Epstein, 2007; Olsen & Fuller, 2012). Parents are more inclined to be involved when they think the schools are receptive to their involvement (Hoover-Dempsey & Sandler, 1995). In fact, Anderson and Minke (2007) reported that specific invitations from teachers were a stronger predictor of parental involvement than parental sense of efficacy and level of family resources.

Parents have layers of responsibility. They have the onerous task of juggling career with parenthood. For parents of adolescents with disabilities, the task is further compounded by age-specific and disability-specific issues (Singer & Powers, 1993). Apart from everyday stressors, parents need to manage the academic and socio-emotional needs of their children with disabilities. While private tuition and professional therapy are covetable provisions of support, they are extortionately expensive. It is also an exhausting and endless pursuit for parents to find the best services and newest information regarding their child's disabilities from being responsive to schools' overtures for contact. Schools need to understand the stresses and vulnerabilities of parents of children with disabilities to design strategies for more effective parental involvement.

Together with upward trends in dual working parents, nuclear families, and income inequality (National Family Council, 2011; Urban Redevelopment Authority, 2012), parents are increasingly confronted with financial and emotional squeezes such as rise in the cost of living, absence of extended families for support, and double responsibilities of the sandwich generation (Olsen & Fuller, 2012). This implies that more homes, particularly working class parents, will struggle to fulfil their parental responsibilities (Khong & Ng, 2005). Neither will they be able to afford costly private tuition and professional therapy to support the educational needs of their children with disabilities. Schools will need to step in and augment home support in the learning and personal development of children. On the other hand, with rising trends in parental education and involvement, schools are subject to greater scrutiny and accountability than ever before (Khong & Ng, 2005). Educators must manage the different and higher expectations of middle class parents who are well-educated and want the best for their children. Given these two countervailing trends in parenting, schools need to learn how to engage diverse populations of parents in a constructive partnership.

Nonetheless, schools cannot be expected to shoulder all the responsibility of inclusive education. Neither educators nor parents can face the challenge of supporting children with disabilities alone (Khong, 2005). Parents and educators must see each other as collaborative partners and equal allies in their common journey to realize the full potential of children with disabilities (Teo, 2000). The wider community can reinforce home-school partnership by providing wraparound services and creating richer educational experiences tailored to the needs of children with disabilities (Epstein, 1992). This includes collaborating with service agencies, faith-based organizations or businesses to seek professional help, support networks or structured work placements for students with disabilities. Moreover, an orchestrated network of synergistic support within and across education, health, and social services at the societal level increases the visibility of children with disabilities and turns a private concern into a shared issue (Griffiths, Norwich & Burden, 2004).

# Conclusion

While both home and school embrace the concept of partnership, it is an arduous task that requires a commitment of time, energy, and resources (Mortier, Hunt, Desimpel & Hove, 2009). The expectations, perceptions, and opinions of parents and educators involved in the education of children with disabilities must be taken into consideration if the partnership is to succeed and sustain (Olsen & Fuller, 2012). Home-school partnership is a work in progress that is continually subject to home and school dynamics. The success and sustainability of partnership necessitates an understanding of the difficulties homes and schools face. The phrase *the spirit is willing, but the flesh is weak* is an apt description of the current state of home-school partnership in a meritocratic Singapore society. Cooperation and support from the larger society is imperative to bridge the gap between rhetoric and practice (Epstein, 2007).

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# TECHNOLOGIES THAT FACILITATE THE STUDY OF ADVANCED MATHEMATICS BY STUDENTS WHO ARE BLIND: TEACHERS' PERSPECTIVES

Vicki M. DePountis Rona L. Pogrund Nora Griffin-Shirley William Y. Lan Texas Tech University

This research examined the perspectives of teachers of students with visual impairments (TVIs) regarding the use and effectiveness of electronic assistive technology (EAT) purported to assist students who are blind in advanced mathematics subjects. The data for this study were collected via an online survey distributed to a convenience sample of teachers with experience teaching or supporting students who are braille readers in advanced mathematics classes. Questions were designed to gain information regarding which of 35 tools presented in the instrument were used to aid students, how were they used and perceived effectiveness. Open-ended response areas provided space for addition of tools not already listed, as well as other feedback. A total of 82 surveys were analyzed. Results indicated that 20 of the 35 devices were used; of these, 13 were used regardless of specific subject, while different sets were used for different subjects and tasks. Participants recommended another seven hightech devices in the open response question. Limitations of the study were the small sample size and possible survey fatigue. Implications for practitioners: This research provides a foundation for additional work on how to best equip teachers of students with visual impairments so they can support their students.

In the last 30 years the technology boom has produced an abundance of tools to assist with learning and teaching, including those useful to teachers of students with visual impairments (TVIs). However, facilitating the study of mathematics for students who are blind, specifically braille readers, requires that TVIs engage in the arduous process of sifting through a growing number of continuously evolving products. Often, itinerant TVIs may have only one such student in their entire careers, and will have very little time to tackle a trial-and-error process (Zhou, Parker, Smith, & Griffin-Shirley, 2011).

High-quality teaching incorporates tools to help students with and without vision to access and understand advanced mathematics to the best of their ability. For classroom teachers who have a student who is blind, the presence of technology in the classroom is not optional, but necessary. Yet, according to Pierce and Ball (2009), 24% of teachers agreed or strongly agreed with the following statement: *If I use more technology, I won't have time to cover the course*. With this sort of pre-existing paradigm, any enthusiasm a classroom teacher may have felt at the prospect of teaching a braille reader will be quickly extinguished.

Many mathematicians, such as Buteau, Marshall, Jarvis, and Lavicza (2010), now believe that being proficient in advanced mathematics has become synonymous with being proficient in corresponding technology. Technology can eliminate the tediousness of calculations, allowing students to focus more on conceptual understanding. Students who are blind must have technology that provides these same supports. Schweikhardt (2000) noted that requirements for the successful integration of students who are blind into regular education mathematics environments include notation simultaneously accessible by both people who are braille readers and those who are print readers. Numerous projects that focus on this aspect of learning—MathGenie and Lambda systems, for example—incorporate other technologies, such as MathML and MathType. Other various audio and speech capabilities projects are in development around the world (Karshmer, Gupta, & Pontelli, 2009). At this time, none of these projects have resulted

in a single, streamlined solution.

Reed and Curtis (2011) conducted a study attempting to understand the issues teachers encountered when students with visual impairments transitioned to higher education. Difficulties identified were in students' abilities to access accommodations, getting accessible materials in time, and late arrival and poor quality of books transcribed into braille. In some cases, teachers indicated students who did not have enough training in using technology efficiently avoided its use altogether so as not to draw attention to themselves.

Smith, Kelley, Maushak, Griffin-Shirley, and Lan's (2009) Delphi study attempted to define a set of appropriate assistive technology competencies and corresponding levels of expertise for TVIs. After five rounds of deliberations, a list of 111 competencies emerged. Of those, 74 competencies were included in the Zhou, et al., (2011) study, which attempted to determine what level of expertise in each competency TVIs perceived as necessary to perform their jobs, and whether it aligned with what the expert panelists perceived as optimal in the Delphi study (Smith et al., 2009). Results indicated discrepancies in the priority ranking of some of the competencies between what panelists versus TVIs deemed important. Open-response items (Zhou et al., 2011) yielded insights from TVIs who said they just *cannot attend to every technology available* until a student actually needs it.

#### Purpose

The purpose of this study was to determine the current state—as perceived by TVIs—of electronic assistive technology (EAT) being used in advanced mathematics classes to support students who are blind, in an attempt to begin to uncover whether a mathematics toolkit for braille readers can be identified. The research questions addressed were:

- 1. Which devices are currently being used in secondary school advanced mathematics courses to support students who are blind?
- 2. Is there a core set of devices that is perceived as beneficial for supporting advanced mathematics students who are blind, regardless of specific subject?
- 3. Are there variations of the core set of devices, depending on the particular advanced mathematics subject being taught?
- 4. How effective are the tools listed in ensuring access and supporting learning by braille readers throughout typical lesson plan steps?
- 5. Are there gaps between technologies being used and teaching activities (i.e., lesson plan steps that are not supported, either overall or in specific subjects)?
- 6. What themes emerge from TVIs' recommendations of devices that were not listed or used in ways not indicated?

Ultimately, this research attempts to begin to uncover whether a mathematics for braille readers TVI *tool kit* can be developed.

#### Methodology

#### Participants and Procedure

The target population for this study was a sample of TVIs with experience in facilitating the study of advanced mathematics by students who are blind. Out of an estimated 6,700 certified TVIs (Mason, McNerney, Davidson, & McNear, 2000), only a small number would have worked with students who were exclusively braille readers and who had taken advanced mathematics. Furthermore, contacting that target while maintaining anonymity of participants was not feasible. As a result, a convenience sample was used.

Four sources—APH field-testers, *APH News* readers, state residential schools for students who are blind, and APH Ex Officio Trustees (appointed professionals in charge of administering Federal Quota accounts)—provided the convenience sample. Participants received the online survey instrument regarding their perceptions of use of EATs via e-mail or by going to the link indicated in the *APH News* announcement. Respondent criteria were TVIs with experience in facilitating the study of advanced mathematics by students who were braille readers. Advanced mathematics was defined as algebra and beyond. Potential participants were asked not to respond if they did not meet these criteria.

APH forwarded the link via e-mail to its field-testing volunteers and Ex Officio Trustees. Additionally, an announcement was placed in the January 2012 issue of the APH newsletter, with a link to the online

survey. The president of the Council of Schools for the Blind (COSB) agreed to send the survey link to residential schools for the blind and ask that it be forwarded to their TVIs teaching advanced mathematics.

## Instrumentation

The survey instrument to gather information in order to answer the research questions was developed using SurveyMonkey.com. The first seven items collected participants' descriptive information. In item 8, participants rated their perceived proficiency in integrating technology for the purpose of supporting braille readers with no vision in advanced mathematics courses, on a scale from zero to five where 5 would indicate very high perceived proficiency. Respondents were asked to rate their technological proficiency in six secondary school subjects; algebra, algebra 2, geometry, trigonometry, pre-calculus, and calculus. Items 9 through 11 had respondents determine the three subjects in which they had the highest technological proficiency. Using conditional branching (Alreck & Settle, 2004), answers to these questions were inserted into further questions about specific EAT usage in each identified course.

# Instrumentation

The crux of the survey was a device matrix. The EAT list was generated during the literature review, but their appropriateness for this student population was unclear. Many tools were available for mathematics-related professionals who were blind or for individuals with limited vision. Two EAT expert TVIs in Austin, TX, one itinerant with over 25 years experience, and the other, a math classroom teacher at Texas School for the Blind and Visually Impaired, each reviewed this initial version of the survey. Their insight led to some changes in the EAT list included in the survey, and the addition of open-response space. Participants went down the list until reaching a device with which they had experience. They then consulted column headers to determine which step(s) of the lesson plan the device supported. Lesson plans steps were defined as:

- Preparation of lessons the device was used by a faculty or staff member to prepare the mathematics lesson, notes, and/or materials for the lesson, before the lesson itself took place.
- Student lesson access the device was used by the student during the lesson, on the actual day of the lesson, in order to access the notes or demonstration his or her peers were accessing visually.
- Teacher/student guided practice the device was used by the student and classroom teacher or TVI, so they could simultaneously study, discuss, or work on mathematics problems.
- Student independent practice the device was used by the student in or out of the classroom to work on problems independently.
- Student work submission the device was used by the student or staff member to create a print document that could be read by the classroom teacher.

Finally, they rated the device on a 1- (lowest) to-5 (highest) scale for its effectiveness in supporting the student in each lesson plan step for that subject. If the teacher believed the EAT used or the ratings given depended on the subject, the TVI repeated the matrix for the next subject.

Data collected via the device matrix addressed the first five research questions. Criteria for *beneficial* were established through collaboration with two experts in the field, with the intent of identifying as many devices as possible for further research. EAT reported as being used by more than 50% of participating TVIs, or having a mean rating of  $\geq 3$  in any of the lesson plan steps, met *beneficial* criteria. Following the device matrix was the first open-response space for TVIs to list any other EAT they perceived as facilitating the study of a particular subject by students who were blind. A second space was provided for addition information participants deemed important regarding the integration of high-tech tools for educating students who are blind.

This instrument was approved by Texas Tech University's Institutional Review Board's (IRB) for exempt review. Settings in the instrument's web page prevented obtaining IP addresses and TVIs were notified that participation was voluntary and anonymous. A \$50 Amazon.com gift card was offered as incentive. SurveyMonkey did not share survey results or participant contact information with researchers.

#### Data Analysis

The analysis of the interrelationship of subject, effectiveness of technology, and each step of the lesson plan was done through visual examination of the results. Cross-tabulation analysis was not performed because the purpose of the research was to be inclusive of all EAT, even those with very low relationships to the independent variables. This survey was a starting point, and each device identified warranted further examination. Microsoft's Excel<sup>TM</sup> program was used to sort data, create graphs and tables, and calculate means and standard deviations.

# Results

A total of 157 surveys were returned, eighty-two surveys (52%) of were complete through the device matrix item. The data reported in this research are from the 82 completed surveys.

# Descriptive Data

The population for the study was TVIs who had experience teaching and supporting braille readers in advanced mathematics courses, as listed in Table 1. Thirty-one of the 82 respondents, the highest percentage (38%), indicated over 10 years experience working with students who are blind in advanced mathematics, with 54 (66%) respondents selected 2011-2012 as their most recent year. Note that 60 (73%) of respondents listed their current positions as itinerant TVIs.

Table 1. Descriptive Data of Respondents (N = 82)			
Descriptive Data	n	%	
Age			
		4	
< 28	4	9	
		1	
29–36	9	1	
		0	
		9	
37–44	8	8	
		1	
45.52	12	1 5	
45-52	13		
		9	
		4 7	
53–60	39		
		5	
		1	
61–68	9	1	
		0	
		0	
> 68	0	0	
Geographic			

region

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n	%
15	1 8
	3
27	3 2
21	9
	3
27	2 0
	9
13	5
	9
24	2 9
24	2
	2
19	
	1
6	3
	3
31	7
	8
2	2
	4
	6
54	5
	n 15 27 27 13 24 19 6 31 2 54

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Descriptive Data	n	%
2010–2011	7	8
		5
2009–2010	8	9
		8
2008–2009	5	1
		0
2007–2008	0	0
2006–2007	3	3
2000 2007	5	7
2005–2006	2	2
		4
2004–2005	2	2
		0
1998–2004	0	0
Defere 1007	1	1
Belole 1997	1	2
Current position		
		1
teacher at a residential school for the blind	9	1
		1 7
itinerant TVI	60	3
		1
resource room or self-contained classroom teacher	8	9

Descriptive Data	a	п	%
region	al education service center or school district	3	3 7
rehabi	ilitation center	0	0 0
TVI a	nd working in a supervisory or administrative role	0	00
indepe	endent consultant	0	00
Other		2	2
NA		1	1 2
Other			
Descriptive Data		n	%
Previous positions			
	teacher at a residential school for the blind	14	17 .0
	itinerant TVI	66	80 .5
	resource room or self-contained classroom teacher	18	22 .0
	regional education service center or school district	9	11 .1
	rehabilitation center	1	1. 2
	independent consultant	5	6. 1

1. Total number of years of experience working with students who are blind in advanced mathematics courses.

# Participants' Perceived Proficiency

As shown in Table 2, many participants indicated proficiency in more than one subject, and nine participants added *statistics* or *statistics and probability* to the *other* subject for an average rating of 2.11.

Table 2. Participants' Perceived Proficiency – Scale of 1 to 5 with 1 Being Lowest							
Answer options	1	2	3	4	5	Average	п
Algebra 1	12	9	35	15	11	3.02	82
Algebra 2	15	15	21	18	6	2.80	75
Geometry	18	10	26	13	8	2.77	75
Trigonometry	28	10	13	7	4	2.18	62
Pre-calculus	31	10	17	3	3	2.02	64
Calculus	38	12	8	2	1	1.62	61
Other	4	1	3	1	0	2.11	9
Other (please specify) 4						4	

Once participants determined the relative technological proficiency for the various subjects, they were asked in which subject they perceived themselves to be the most proficient in supporting a student who was blind in an advanced mathematics subject (Table 3). In order to minimize the effects of survey fatigue, participants would enter responses to the device matrix based on the subject in which they perceived themselves most proficient first. Teachers were then asked to determine in which subject they had the second highest technological proficiency or to indicate experience in only one subject. Finally, teachers were asked in which subject they had the third highest technological proficiency.

Table 3. Perceived Proficiencies						
	Highest		Second	Second Highest		Iighest
Subjects	n	%	п	%	п	%
Algebra 1	57	69.9%	16	20.5%	1	1.4%
Algebra 2	11	13.3%	34	41.0%	19	25.7%
Geometry	11	13.3%	19	22.9%	25	33.8%
Trigonometry	1	1.2%	2	2.4%	6	8.1%
Precalculus	2	2.4%	0	0.0%	3	4.1%
Calculus	0	0.0%	1	1.2%	1	1.4%
Other (please specify)	0	0.0%	0	0.0%	0	0.0%

# Answers to Research Questions

Device Usage

In determining which of the 35 EAT was being used, the data were analyzed in two ways. First, each device received a score based on the total number of times the tool was selected for use in various subjects and lesson plan steps, regardless of the number of participants who selected it. According to this

analysis, all of the devices presented were used by at least one teacher, in one subject, for one lesson plan step.

The second analysis counted how many participants said they used each device without regard to the number of subjects or lesson plan steps. Every single one of the 35 devices was used by at least nine teachers. That is, not a single device was used by less than nine teachers. Individual examination of the completed surveys revealed these nine participants entered a *I* in all of the Likert ratings for every part of the lesson plan in which they didn't enter a higher rating. It is possible that participants did not realize ratings should be left blank for unused EAT. Since some of the devices did rate higher than 1, it is impossible to eliminate entire surveys. It can be concluded that 20 devices—the number selected by at least 10 participants—were used by between 1 and 62 teachers.

# Perceived as Beneficial

Research questions two through four involved perceptions of EAT as *beneficial*. That is, the device must either have been reported as being used by more than 50% of participating TVIs, or have a mean rating of 3 or more in any of the lesson plan steps. Question two focused on identification of a core set of EAT perceived as beneficial in supporting the study of advanced mathematics by students who are blind, regardless of specific subject. The 13 devices that met criteria are:

- Personal Computers (PCs)
- Scanner/Reader
- Electronic Refreshable Braille Notetakers (ERBN)
- MathFlash
- Talking Calculators
- Excel
- Talking Scientific Calculators (TSC)
- Audio Recording
- Duxbury's DBT WIN
- OCR Software
- Scientific Notebook
- Graph-It
- Accessible Graphing Calculator (AGC)

The third research question looked more intently at EAT use for specific subjects. In this case, more devices met the beneficial criteria based on number of participants who selected them. The results are shown in Table 4.

Device	Algebra 1	Algebra 2	Geometry	Trigonome	Precalculu
	( <i>N</i> = 57	( <i>N</i> = 11)	( <i>N</i> = 11)	try $(N = 1)$	s ( <i>N</i> = 2)
PC	41	8	10	1	2
ERBN	42	7	9	1	1
Audio Recording	19	4	5	0	1
Talking Calculator	35	7	10	0	1
Talking Scientific Calculator	38	9	6	0	2
AGC	22	5	6	0	2
OCR Software	15	2	2	0	0
Scanner/Reader	18	4	7	1	1
Nomad Pad/Tablet	5	2	2	0	0

Table 4. Number of Participants Who Selected Devices by Subject

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Talking Tactile Tablet	5	2	2	0	0
Talking Tactile Pen	6	2	2	0	0
Tactile AudioGraphics TagPad	5	2	2	0	0
MathPlayer (Design Science)	5	2	2	0	0
MathSpeak	6	2	2	0	0
ReadHear	5	2	2	0	0
ClickHear	5	2	2	0	0
TRIANGLE	5	2	2	0	0
AudioMath	5	2	2	0	0
Graph-It	6	4	3	1	0
GRAPH	6	3	2	0	0
AsTeR	5	2	2	0	0
MathTalk with MathPad	5	2	2	0	0
MathTalk with Scientific Notebook	6	2	2	0	0
AudioCAD	5	2	2	0	0
AudioPIX	5	2	2	0	0
MegaMath	5	2	2	0	0
Duxbury's DBT WIN	33	6	8	1	2
IVEO	6	2	2	0	0
Math Program	7	2	3	0	0
Scientific Notebook	26	5	5	1	2
MathTalk	6	2	2	0	0
MathFlow	5	2	2	0	0
MathDaisy	5	2	2	0	0
MathFlash	9	2	3	0	0
Excel	11	2	5	0	0

# Gaps in Supporting Tasks

Four devices met the criteria for beneficial in three out of the five lesson plan steps; the PC, ERBN, talking calculator, and TSC. More tools met the mean score criteria than the 50% participant criteria, and no lesson plan tasks were completely unsupported (see Table 5).

Table 5. Devices With Mean $\geq$ 3 in at Least One Lesson Plan Task						
Preparation of	Student lesson	Teacher/student-guided	Student independent	Student		
materials	plan access	practice	practice	work		
				submission		
PC	PC	PC	ERBN	PC		
Audio recording	ERBN	ERBN	Talking calculator	ERBN		
Talking calculator	Audio recording	Talking calculator	TSC	Talking calculator		
TSC	Talking calculator	TSC	AGC	TSC		
AGC	TSC	AGC	Scanner/reader	AGC		
OCR Software	AGC	DBT WIN	Graph-It	DBT WIN		
Scanner/reader	Scanner/reader	Scientific Notebook	DBT WIN	Excel		
Graph-It	DBT WIN	MathFlash				
DBT WIN	Scientific Notebook	Excel				
Scientific Notebook	Excel					
Excel						

# Themes

Table 6 summarizes additional devices not included in the matrix that were recommended by participants in the open response question. Half of the 14 devices listed are low-tech. Open coding analysis of the 37 clauses provided as information deemed important is provided in Table 7. The table shows four major categories emerged; low-tech devices, teacher training, mathematics complexity, and high-tech (EAT) devices. All of the nine clauses regarding low-tech devices regard their benefits. Six clauses have to do with teacher training. Math characteristics and EAT each have 11 clauses related to them.

# **Discussion and Implications**

The device matrix and open-ended questions were designed to determine which devices were being used, which were considered beneficial, in what subjects they were being used, and how and when they were being used. A large portion of the devices were used very infrequently. The number of braille readers in advanced mathematics courses is small. Therefore, the use of a device, even by one teacher, warrants further investigation of the tool's potential benefits. It is possible for one teacher working with one student to discover a technological solution beneficial to other educators working with similar students (Maneki, 2010).

Of those 20 devices identified as being used, a core set of thirteen met the criteria for beneficial, regardless of specific subject. Each of these devices is a candidate for inclusion in a TVI tool kit used to support braille readers in advanced mathematics. In addition, results indicate that this core set of beneficial tools varied depending on subject. In geometry, seven of the devices met the beneficial criteria,

whereas in algebra only four devices did. Practical implications are that school districts or regions can maintain a core set, or sets, and make relevant devices available to students according to subject. Because blindness is considered a low-incidence disability and a small number of these students function at academic levels, it is feasible that school districts could anticipate in what year a student would take each advanced mathematics subject. A corresponding tool kit could then be prepared.

Table 6. Open-Ended Responses to Tech	Table 6. Open-Ended Responses to Technologies				
Device	n	High-Tech?			
Software					
MathType	3	Y			
MathTrax	1	Y			
Notetakers					
Refreshable braille notetaker with display	1	Y			
Perkins braillewriter	7	Ν			
Embossers/thermal printers					
Tiger Embosser	3	Y			
Picture In A Flash	4	Y			
ViewPlus	1	Y			
Tactile boards					
APH Graph Board	2	Ν			
APH Draftsman	6	Ν			
APH Magnetic Board	1	Ν			
Other manipulatives					
Math Window® Braille Basic Math Kit	2	Ν			
Geometric manipulatives	5	Ν			
Other					
Abacus	2	Ν			
Digital cameras	3	Y			

# Table 7. Open-Response Categories and Concepts

Major categories	Associated concepts
Low-tech devices	Simpler, most effective, concept development
Teacher training	Unfamiliar, need training, training unavailable
Math characteristics	Need many tools, need immediate tactile representation, need real- time transcription, students not interested in math
High-tech devices	Inadequate graphing calculators, unavailable technology, too expensive, glitches.

Breaking down the typical lesson plan into component parts enables understanding of how EAT were used and by whom. Results displayed in Table 7 indicate preparation of materials, which entails converting print to braille or Nemeth, is perceived by TVIs as supported by 11 devices. As the tasks incorporate more and more back translation and student involvement, fewer EAT meet the beneficial criteria. Student independent practice and submission of work are perceived by TVIs as supported by the fewest EAT with seven each. One participant commented, *The general problem which applies to all the math areas is that there isn't a Nemeth back translator so students can write their math in Nemeth braille and translate it back to print*. Translation between Nemeth and print continues to hinder many parts of the learning process. This finding was supported by the open response answers and reflects the shortage of technology that allows for real time back translation from braille and Nemeth into print (Karshmer, et

#### al., 2009).

It is interesting to note that despite the high-tech boom, all open-response clauses regarding low-tech devices are positive, whereas all clauses within the teacher and EAT categories are negative. Three TVIs indicated that they are open to training and would like to integrate more EAT. In some cases, devices and/or training are not available due to expense, and school districts cannot keep up with what may be the latest devices (Zhou et al., 2011). The possibility that the perception of the time necessary to get training is inaccurate must be considered. Rapid evolution of technology in general may lead TVIs to resist integrating EAT because they assume there are many more relevant tools to sift through than there actually are. This study shows that the devices identified as beneficial specifically for braille readers in advanced mathematics classes were all developed over five years ago, and most are at least familiar to TVIs.

Unlike other subjects, such as history and english where topics grow and evolve with time, the topics in advanced mathematics do not change. Therefore, one possible solution is to develop a tool kit that integrates both high- and low-tech devices along with a manual that describes when and how to use each one. They may not always be the most up-to-date, but the kit and manual would provide a single source of information on a limited number of tools and how to use them for each topic.

#### Limitations and Recommendations for Future Research

Several limitations in this study should be considered when interpreting the findings. The list of devices created for the data-collection instrument was derived from the review of literature plus input from two VI professionals and may not be comprehensive. The matrix consisted of a long list of devices, potentially leading to order bias through routine answering strategies or respondent fatigue (Alreck & Settle, 2004). While the instrument uses objective measures, there is a degree of participant interpretation of the meaning of questions.

With regard to participants, the sample size was small and respondents self-selected. It is possible that TVIs with more expertise using EAT did not participate. In addition, the higher level subjects had extremely low response rates.

Additional in-depth research to identify newer EAT and detailed information on exactly who uses it, when, how, and for what purpose is necessary to integrate it into each lesson. Results of this research should lead to the development of user-friendly, subject-specific manuals for TVIs, classroom teachers, and students. TVIs identified as working in advanced mathematics with students who are blind may be equipped with a prototype EAT tool kit and a manual. Ideally, training on each device would be provided to all key persons, and qualitative data would be collected regarding practical applications and effectiveness.

At this time, there is no multipurpose device or system that translates print to braille and Nemeth (or Nemeth into print), and allows for simultaneous visual and tactile viewing, or mathematical manipulation. It is critical that research into development of electronic assistive technology designed for supporting braille readers in advanced mathematics continues. These study results provide a starting point for the development of a plan ensuring students who are blind obtain the maximum benefits from our high-tech world.

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# WHERE DO MEXICO AND CHILE STAND ON INCLUSIVE EDUCATION? SHORT TITLE: INCLUSION IN MEXICO AND CHILE

Ismael García-Cedillo Silvia Romero-Contreras Universidad Autónoma de San Luis Potosí

# Liliana Ramos-Abadie

Universidad Diego Portales

This paper discusses the background, current situation and challenges of educational integration and inclusive education in Mexico and Chile. These countries obtained similar low results on the academic achievement of their students (Mexico last and Chile second last) among OECD countries; and above average scores, among Latin-American countries. In both countries educational integration began as a consequence of legal changes mandating that students with special educational needs (SEN) be attended in regular schools. School financial systems in Mexico and Chile are very different. In Mexico, educational services are predominantly public, while in Chile the state provides subsidies for students to attend both public and private schools. These differences have had an impact in educational integration procedures. In Mexico, students with special educational needs are served by special education professionals affiliated to the schools. In Chile, school principals hire, with the subvention provided by the government, specialists to offer support to the students enrolled. In both countries, educational integration has benefited integrated students. However, many adjustments still need to be made in both countries in order to install more adequate inclusive processes.

# Introduction

This paper offers a comparative perspective on the evolution of inclusive education in Mexico and Chile. Main issues addressed include: the challenges these countries face to meet the needs of diverse students, particularly those with special educational needs (SEN), and the steps needed to advance towards providing quality education to all students.

The theoretical framework for this study is the evolution of the concept of inclusive education (IE), which originated in the Netherlands in the 70s, first as educational integration. In the late 1970's, the Warnock Report (1978) proposed a more positive approach to label students, softening the line between handicapped and non-handicapped students, and adopted the concept of special educational needs. Later the World Conferences in Jomtien (UNESCO, 1990) and Salamanca (UNESCO, 1994) declared that students with SEN had the right to study in general schools. More recently, the Convention on the Rights of Persons with Disabilities (United Nations, 2006) called for the inclusion in general school systems of all students with disabilities and for the provision of the necessary supports and accommodations so that they accomplish full quality and free primary and secondary education.

The idea of educational integration has extended rapidly with some good results. Nevertheless, many children from vulnerable groups still remain out of general schools; others have been integrated but their special educational needs remained unattended. The concept of inclusive education emphasizes the right of diverse students not only to study in the general school setting, but to adequately address their needs in order to secure their personal development and academic achievement (Ainscow, et al. 2006; Ainscow & Miles, 2008). In the process towards inclusion, countries have modified their educational systems. In particular, Mexico and Chile have taken different routes achieving some good results, but still facing complex challenges.

This study addresses two specific questions: How has IE been implemented in Mexico and Chile? What are the main challenges faced by these countries to fully implement IE?

In order to answer these questions, we drew on our own experience in these countries as active participants in the inclusion movement, as well as on the legislation pertaining IE, teacher training programs and various other documents produced on this topic in each country. The analysis of the Mexican and Chilean advancements towards inclusive education is presented in five sections: the general characteristics of the educational systems, school financing, legal framework for inclusion, the onset of inclusive education and the transformation of special education services, and the outstanding challenges towards full inclusion.

# *General characteristics of the educational system México*

Mexico has a population of approximately 112 million people (INEGI, National Institute for Statistics and Geography, 2010), over 26 million are students in the basic or mandatory educational system which includes from preschool to middle school (ages 3 to 15). Even though in 2012 high school became mandatory, this has not been yet implemented.

There are 224,194 schools, half of which have one teacher per grade (school with complete organization), and the rest are multigrade, this means that the same teacher teaches two or more grades at the same time (SEP, Secretariat of Public Education, 2012b). In the Mexican educational system, public schools serve the majority of the students and only 9% of the schools are private, which serve mostly middle and high SES students, as all are tuition-based. There is no government financial program to support private schools or to provide financial support to parents to send their children to private schools.

The Mexican educational system has been ineffective in reducing social gaps. The precarious pedagogical and organizational conditions of non-urban schools (rural schools, community schools for indigenous populations and tele-secondary (audiovisual based education provided mostly in rural areas for students in grades 7<sup>th</sup> through 9<sup>th</sup>), reproduce social inequalities, as many of these schools lack basic materials, are multigrade (one teacher serving two or more grades), and do not have a principal (INEE, National Institute for the Evaluation of Education, 2014). In 2012, Mexico's students ranked at the bottom of OECD countries in the PISA assessment in math, reading and science, with a mean score of 417. Mexico's results are determined by the socio-economic composition of the country, characterized by inequality and high poverty. Nevertheless, some improvements have occurred. In 2009, 58% of the Mexican students participating in PISA were in the most disadvantaged group (of all participating countries) when considering a series of socioeconomic and demographic conditions (OECD, 2010). In 2012, Mexico showed improvement in the levels of equity in education (OECD, 2014).

When compared to other Latin American countries, Mexican students perform above average (less than one standard deviation) both in mathematics and reading. Socio-cultural inequalities are evidenced by significant differences between urban and rural students; Mexico is among the fourth highest countries regarding such differences (OREALC/UNESCO, 2008).

Mexican special education serves a total of 655 thousand students; 143 thousand have a disability. These services are delivered in two settings: Multiple Attention Special Education Schools (*CAM*, *Centros de Atención Múltiple*) and Support Services for General Education Units (*USAER*, *Unidades de Servicios de Apoyo a la Educación Regular*). Currently, there are 2,400 CAM and 3,700 USAER which serve approximately 28,000 schools (SEP, Secretariat of Public Education, 2011). There is no official information as to how many students are served in each service: general and special education schools. Moreover, it is not possible to offer an accurate idea of the proportion of children with special needs served by special education services, as the total number of such children in the country is undetermined; the only indicator we have is the total number of people with disability, as measured by the last Census, which is 5 million 740 thousand (SEP, Secretariat of Public Education, 2012a). Figure 1 shows the general characteristics of the Mexican educational system and how they compare to the Chilean's.



Figure 1. General characteristics –Mexico vs. Chile

# Chile

As of 2012, Chile had a population slightly over 16 million 600 inhabitants (INE, National Institute for Statistics, 2012) this is about 15% of the Mexican population. According to the General Education Law (LGE, *Ley General de Educación*) promulgated in 2009, elementary and high-school education are mandatory and the State must ensure access to all through a public financing system (MINEDUC, Ministry of Education, 2009b). The Chilean basic educational system serves 3,252,040 students (MINEDUC, Ministry of Education, 2012). In 2009, there were 229,163 preschool students, 2,028,454 elementary and middle school students, 979,108 high school students, and 130, 410 adults. These students were served in a total of 10,190 schools (MINEDUC, Ministry of Education, 2009a). In Chile, in contrast with Mexico, preschool education is not mandatory, however, according to the LGE the State must promote this educational level and grant free access and public financing for the first and second grades (ages 4 and 5). Nevertheless, preschool education is not a pre-requisite for elementary education.

Regarding students' achievement, according to the 2012 PISA test, Chilean students rank the second lowest among OECD countries in the areas of math, reading and science, with an average score of 436. In 2009, a high proportion of participating Chilean students, over 20%, belonged to the internationally most disadvantaged group, which reveals high inequality in the Chilean society (OECD, 2010).

Within the Latin American region, Chilean students rank above average (less than one standard deviation from the mean) in both mathematics and reading. Socio-cultural inequalities are evidenced by significant differences between urban and rural students in mathematics and reading (OREALC/UNESCO, 2008).

Chile has 2.05 million people with disability (FND, National Foundation for People with Disabilities, 2012), the most common being of sensory origin (visual and auditory, 70.4%), followed by physical disability (16.5%), intellectual disability (9%) and psychiatric problems (4.1%). As of 2010, there were 75,683 students with SEN integrated in general schools; 3,365 of these children had some kind of disability, and over 150 thousand students were in special education schools.

In the Chilean legislation, special education is an educational modality which includes the following options: special education school to serve sensory, intellectual, motor, communication and language impaired students; general education schools with educational integration projects for students with disabilities and special groups for students with learning disabilities; and in-hospital schools and classrooms for students undergoing medical treatment (MINEDUC, Ministry of Education, 2005). Special education services are coordinated by a central unit within the Ministry of Education. As of 2012, some 300,000 students with special education needs received financial support (MINEDUC, Ministry of Education, 2012).

# School financing system

# México

Mexico's school financing system is predominantly public. About 91% of Mexican schools are public, most of which are administered by the Secretariat of Public Education of each state and some by the Secretariat of Public Education at the federal level. These schools provide free education to the majority of the children in the country (93%, as of 2012) (SEP, Secretariat of Public Education, 2012b). Despite the fact that public schools do not charge tuition, parents normally pay a fee to the parents' association or the school principal to make improvements to school facilities and to pay for expenses not covered by the state. Moreover, parents are responsible for buying school supplies, for taking their children to school or paying transportation, and for other associated expenses, such as meals consumed during school hours.

## Chile

Chile has a mixed educational system regarding the administration, ownership and financing of schools. In contrast to Mexico, only a small proportion of the schools are public, most of these are financed by the municipalities and in some cases public schools are administered by private corporations (*corporaciones de administración delegada*) which receive state funds for each student to cover educational costs. The private school system includes three financing modalities for privately owned schools: fully subsidized by the state, partly or shared subsidized (parents pay part of the costs) and fully private (paid fully by parents).

The majority of students (46.7%) attend private-voucher schools (39.4%); also a high proportion (46%) attends public schools (54%) administered by the municipalities; and a minority of the students (10%) attends fully private schools (6.6%) (Elacqua & Santos, 2013). The Chilean educational system has evolved towards privatization as private-voucher schools increased their share from slightly over 10% in 1971 to almost 50% in 2010 (Elacqua & Santos, 2013). For a comparison of Mexican and Chilean school financing systems see Figure 2.



Figure 2. School financing system

# Legal framework for inclusive education *Mexico*

Mexico signed and ratified in 2007 the Convention on the Rights of Persons with Disabilities (United Nations, 2013). Nevertheless, the legislation on the topic of inclusive education is rather general and non-specific in terms of methods, procedures and goals. In 1992, the federal government and the teachers' union signed the National Agreement for the Modernization of Education (DOF, Official Gazette of the Federation, 1992) which resulted, among other things, in the modification of Article 41 of the General Education Law which for the first time referred to the integration of students with special educational needs to the general classroom. Article 41 is the most important and most comprehensive, and yet very general, legal framework to advance towards inclusive education in Mexico. In this article, special education is defined as an educational subsystem devoted to serving students with temporary or

permanent disabilities supporting their educational integration through *the use of specific methods*, *techniques and materials*; it also considers serving students with outstanding capacities (DOF, Official Gazette of the Federation, 1993/2014: 18)

The General Law for People with Disabilities was promulgated in 2005 and modified in 2008 (DOF, Official Gazette of the Federation, 2005-2008). In Article 10, this law establishes that the State is obligated to create and strengthen special education and inclusive education, to guarantee the integration of people with special needs to the National Educational System, as well as to grant access to child care centers, to train teachers and other educational professionals and to establish programs to provide scholarships and other resources specifically for people with disabilities. In 2011, the Law was modified and renamed: General Law for the Inclusion of People with Disability (DOF, Official Gazette of the Federation, 2011). The specific regulation for this law was issued in 2012, it defines four formally recognized disabilities (sensory, physical, mental and intellectual), mandates that the Secretariat of Public Education defines the criteria for student placement (in general or special education schools) and offers scholarships for students with disabilities, mainly those from disadvantaged homes. It also mandates the coordination between the Secretariats of Education and Health to provide prosthesis, orthopedic braces and technical supports for students with disabilities (DOF, Official Gazette of the Federation, 2012). The main legislation changes towards inclusion are shown in figure 3.

							LAW FOR THE
							INCLUSION OF
							PEOPLE WITH
							DISABILITY.
				GENERAL			Scholarships
Marian				LAW FOR			(SEN –
Mexico		GENERAL		PEOPLE WITH			Disadvantaged
		EDUCATION		DISABILITIES			homes).
		LAW-		-child care,			Coordination
		SEN in		teacher			between Min. of
		general		training,			Education and
		classroom		scholarships			Min. Health
		1992		2005			2011
	1990		1993		2009	2010	
	DECREE		LAW 19.284.		DECREE	LAW 20.422.	
	490.		Social		170.	Equal	
Į	School		Integration		Eligibility	opportunities	
	School projects –		Integration of Persons		Eligibility criteria for	opportunities for persons	
Chile	School projects – SEN in		Integration of Persons with		Eligibility criteria for SEN	opportunities for persons with	
Chile	School projects – SEN in general		Integration of Persons with Disabilities.		Eligibility criteria for SEN financial	opportunities for persons with disabilities	
Chile	School projects – SEN in general classrooms		Integration of Persons with Disabilities.		Eligibility criteria for SEN financial support	opportunities for persons with disabilities	

Figure 3. Legislation changes towards inclusion

Chile

Chile also signed (2007) and ratified (2008) the Convention on the Rights of Persons with Disability (United Nations, 2013). In Chile, the beginning of inclusive education is marked by two legal instruments issued in the early 1990s. First, Decree 490 issued in 1990 allowed for the implementation of school projects to integrate students with disabilities in general classroom; later, Law 19.284 on the Social Integration of Persons with Disabilities, issued in 1993, further supported the access of students with SEN to general education.

Law 20.422 (MINEDUC, Ministry of Education, 2009c) provides specific norms to grant equality of opportunities and the social integration of persons with disabilities. This legislation states that:

General schools should incorporate the necessary innovations and curricular adaptations, infrastructure and support to allow and facilitate the access of persons with disabilities to courses or existing educational levels, offering them the additional resources they require to assure their permanence and progress in the system. (Title IV, paragraph 2, article 38). (MINEDUC, Ministry of Education, 2009c)

Decree N°170 issued in 2009, provides eligibility criteria to offer financial support for students with special needs, defines government support fees by type of disability or condition (auditory, visual,

intellectual, autism, multiple, language and learning), specifies the procedures that need to be followed in order to identify a disability as well as the professional profile of the examiner.

Even though the UN Convention on the Rights of Persons with Disabilities (United Nations, 2006) establishes that students with a permanent or temporal disability should study in general inclusive schools, Chilean legislation continues to promote special education schools. In fact, Law No 20.422 defines special education as a modality within the educational system that provides services in general education and special education schools (MINEDUC, Ministry of Education, 2009c).

# *The onset of inclusive education and the transformation of special education services Mexico*

In 1995, two years after the promulgation of the General Education Law, a large research project was requested by the Undersecretary of Basic Education to learn about how educational integration was implemented throughout the country and what kind of support was being given to educational integration by the state governments. The results of this study showed that in most states a great confusion prevailed regarding the philosophy and procedures of educational integration and very few actions if any had been made to implement it (García-Cedillo, 2009).

Based on the aforementioned study, the National Project for Educational Integration with the support of the Spanish Agency for International Cooperation initiated the formal process of educational integration in the country through training and follow up in small groups of schools and teachers throughout the country. The project grew from three states and 46 schools in 1997 to 28 states and 642 schools in the school year 2001-2002 when the project became the National Program for the Strengthening of Special Education and Educational Integration (PNFEEIE) (SEP, Secretariat of Public Education, 2002).

Transitioning from the segregation model of special education to educational integration with the ultimate goal of achieving inclusion has been a difficult and is still an incomplete task in Mexico. Prior to 1992, special education services were delivered following more the medical model than the educational-social model, and were organized in two areas: indispensible and complementary services. The first category included *special education schools* for early childhood and basic education children in four areas: intellectual, motor, auditory and vision, *special education labor training centers* and the so-called *integrated groups* within general schools for students with mild intellectual disability and auditory impairment (Escandón, 2007). Complementary services were provided by several institutions that supported students with learning problems, low school achievement, speech, language and/or behavioral problems, as well as gifted and talented students (SEP, Secretariat of Public Education, 2006).

The major changes in the organization and the delivery of services have been the creation of the Support Services for General Education Units (USAER, Unidades de Servicios de Apoyo a la Educación Regular) and the transformation of special education schools into Multiple Attention Special Education Schools (CAM, Centros de Atención Múltiple). USAER units are groups of professionals serving normally more than one school to support educational integration. The common structure of USAER is a director or coordinator, various support teachers (ideally one per school, oftentimes however, one teacher serves more than one school), a psychologist, a communication teacher and a social worker.

The now Multiple Attention Special Education Schools (CAM) were given some general guidelines to serve in the same school children with special education needs with different profiles and to use the general curriculum instead of the special curriculum used in the old special education schools. These guidelines were not clear enough which originated confusion and lack of organization across these schools (García-Cedillo, 2009).

The National Program for the Strengthening of Special Education and Educational Integration should provide guidelines and some resources to the states to implement educational integration state programs which should be additionally funded by the states (SEP, Secretariat of Public Education, 2002). From the onset, the Program did not have the necessary human resources (experts in the field of educational integration) and its financial resources were very limited, by the same token, the heads of special education at the state level had very little power and resources to make important contributions to improve educational integration (García-Cedillo, 2009). At the end of 2013, this program subsumed into a larger one called the National Program for Educational Inclusion and Equity, nevertheless only general operation guidelines have been published (DOF, Official Gazette of the Federation, 2013).

	SPECIAL EDUCATION SERVICES			
	BEFORE THE ONSET OF	CURRENTLY		
	EDUCATIONAL INTEGRATION			
Mexico	Medical model	Educational model		
Chile	<ul> <li>Labor training centers</li> <li>Integrated groups within general schools</li> <li>Support services institutions</li> <li>Special Ed. Schools by disability Special curriculum</li> <li>Deficit approach</li> </ul>	<ul> <li>Diagnosis and educational support</li> <li>USAER –Support services for general education units, within general schools</li> <li>CAM – Multiple attention special education centers General curriculum</li> <li>Bio-psychosocial approach</li> </ul>		
	Diagnosis	Diagnosis		
2	• Multi-professional groups	• Multi-professional groups		
	Treatment	Treatment-Education		
	• Special Ed. Schools Special curriculum	<ul> <li>Special Ed. Schools Special curriculum</li> <li>General schools Educational integration projects</li> </ul>		

Figure 4, shows the organization of special education services before and after the onset of educational integration in Mexico and Chile.

Figure 4. Special education services before and after the onset of educational integration

Chile

The legal framework for special and inclusive education described above has been instrumental in promoting educational integration in Chile. In 1998, Decree 490 for the first time supported the educational integration of students with disabilities in general classrooms. This initiative is advanced by other laws and regulations that followed. Currently, the Chilean educational system has a very clear set of procedures to provide education in general education and special education schools to people with disabilities. Public schools have a maximum quota for students with disabilities, while private institutions are not obligated to receive students with disabilities, as having an integration project for them is optional.

Before 1990, when inclusive education was formally fostered in Chile, the so called multi-professional groups conducted diagnosis for students with disabilities who were educated in special education schools under special curricula focusing on their habilitation or rehabilitation. In the 1980s, some students with sensory disability were integrated (MINEDUC, Ministry of Education, 2005).

With the Decree 490, a new type of service was created, as educational integration projects were fostered. This fundamental change required other services and provisions to accommodate to this new modality, but the structure of the educational system remained almost the same. Special education schools were not modified, they have evolved as any other institution would have; multi-professional groups have also evolved, as well as general schools. The theoretical perspective of special education has moved towards a bio-psychosocial approach, leaving behind, at least at the policy level, the deficit approach. Many special education teachers have developed new competencies and created innovative ways to work with students with special needs in the general classroom as well as to work collaboratively with other teachers and professionals. It is worth noting that Decree 170 has been especially useful in promoting the integration of students with temporary or permanent special education needs to general

schools, as it provides detailed and updated guidelines to implement integration projects in general schools.

Nowadays, following Decree 170, when a student with SEN is identified, his/her parents have the option of registering their child in a general or special school. In any case, the student is eligible for financial support which is given to the school administrators, so that they hire the support professionals and services according to the specification of the case. Eligibility is revised once a year for temporary conditions and twice a year for permanent ones.

# Results on inclusive education

# Mexico

The provision of services and teacher training are among the most important positive results of educational integration. Currently 28,000 schools have the support of USAER. Special education serves 650 thousand students (143 thousand have a disability) (SEP, Secretariat of Public Education, 2012a). No data however is available on the number of students with SEN in regular classrooms. Several courses, seminars, and certificates on the topic of inclusive education have been offered to teachers across the country. One such course, consisting of three modules, was developed by the first author of this paper and has been delivered to over 40 thousand teachers. Overall, there is a positive attitude towards educational integration as many schools accept students with disabilities even without the support of USAER (García-Cedillo, Romero-Contreras y Fletcher, 2014).

# Chile

The integration of students with disabilities in the general classrooms in Chile is still lagging. Nevertheless, in 2005 the Ministry of Education promulgated the National Policy on Special Education 2006-2010 and reported that: (1) Special education subsidy had increased 330% between 1990 and 2005; (2) The policy for the integration of students with disability in the general classroom had been implemented; (3) The number of children and youth with special education needs integrated in general classroom increased from 3,365 in 1997 to 29,473 in 2005; (4) Textbooks for the first cycle of elementary education had been adapted to Braille; (5) Over 20,000 teachers had been trained in educational integration; (6) One hundred and eighty teachers were trained abroad (Spain, Israel and Canada) on educational integration between 1998 and 2005; (7) Two hundred and eighty teachers specialized in the integration of elementary and high-school students with visual impairment; (8) Didactic materials to support educational integration were produced for the different educational levels (MINEDUC, Ministry of Education, 2005).

In Chile, there is a positive attitude towards people with disabilities. However, in the last few years, the implementation of Decree 170 has promoted a new way of understanding and practicing educational integration, as it has encouraged the increase of integration projects to benefit students with special education needs without a disability, for example, those with language delay. Moreover, the increase in subsidies to support special education schools and the growing number of such schools have delayed the process of integrating students with disabilities in general schools.

# Challenges to achieve full inclusion *México*

# In service teachers still need more training to provide quality education to students with special educational needs. Professional development strategies need to focus more on the principles and strategies of inclusion and offer both theory and guided practice to teachers. Pre-service general teachers would benefit from a more inclusive approach program. Currently, preschool and elementary teacher training programs only include two courses on inclusive education (DOF, Official Gazette of the Federation, 2012b, Official Gazette of the Federation, 2012c), which leaves teachers with little preparation for effective inclusion.

School financial resources are insufficient to meet the needs of students with SEN. Currently, the schools with USAER support get some materials such as books in Braille. However, there are no additional supports to make other necessary adjustments to school conditions (i.e. reduce noise in classroom) or to students learning materials or other professional supports (i.e. sign language interpreter). More importantly, there is no specific mechanism to apply for such resources.

USAER tend to replicate the segregation model within the school as support teachers take the students into the resource room to work with them individually or in groups. Teacher collaboration is still a major

issue, as general and special education teachers are not always prepared to work together and support each other (García-Cedillo, Romero-Contreras y Fletcher, 2014).

Legal provisions are far from reality in Mexico, so one of the major challenges is to take the printed word to the real world. For example, a recent Regulation states that the Secretariats of Education and Health must coordinate to provide the necessary equipment (prosthesis and the like) to students with SEN (DOF, Official Gazette of the Federation, 2012), this measure has not yet been implemented and there is no indication that it will be in the near future.

## Chile

Regarding educational integration, Chile faces structural challenges. The first one is to align educational policies with a human rights approach. This is not an easy task; given that the country's educational system is highly influenced by the market. Therefore, the right of inclusive education is subordinated to educational freedom, which promotes the maintenance and expansion of special education schools as state subsidies privilege educational settings with less than eight students per each student with disability. This student ratio can only be sustained in special education schools.

While regulations implemented in the 1990s have increased the likelihood of students with SEN to study in general education settings, special education policies have kept educational integration only as one option and not as a right. Thus, not all students with disabilities have a real opportunity to study in an inclusive setting; because of this, many families end up sending their kids to special education schools. Moreover, with the implementation of the Decree 170, issued in 2009, the idea that inclusive education is best suited for students with transitory or minor disabilities, such as language delay or attention deficit disorder, is expanding. Educational norms indicate that in each general classroom only five students with transitory SEN and two with permanent SEN can be integrated, however, data on integrated students does not include this classification, therefore it is impossible to know how this quota plays out in reality. Therefore, another challenge is to provide more specific statistics in order to measure the magnitude and direction of the impact of Decree 170.

In summary, the Chilean educational system presents a perspective oriented by inclusive values; however there is not a coherent system to support an inclusive approach mainly because the educational system is based on the voucher system which has deepened inequalities. Moreover, this practice has caused an increase in over diagnosis. For example, the population of students with language impairment has increased dramatically and the number of special education schools serving these students has also grown inexplicably (Heusser, 2012, January 16).

# Conclusions

Mexico and Chile have very different educational systems. In Mexico most students attend public education schools, and private education only serves 10% of students. In Chile there are three systems: public, subsidized and private. The subsidized system has grown (serving now over 50% of students) while the public system has downsized; the private system serves less than 10% of students. Both countries ranked the lowest among OECD members in the last PISA assessment (OECD, 2010); and ranked above other Latin American non-member countries. At the onset, Mexico and Chile implemented similar educational integration policies; in the last few years, each has followed different paths. In Mexico, educational integration depends on the support of special education teams (USAER) each serving five general schools on average; while in Chile, the State provides economic support to schools to hire special education services depending on the amount of students with SEN enrolled.

In Mexico, two thirds of special education professionals had received some training on educational integration, as opposed to a third of general teachers. Most special education professionals still favor the strategy to work with students with SEN in the resource room (SEP, Secretariat of Public Education, 2004). In the school year 2010-2011, less than 15% of the general schools received support from special education teams (USAER) (SEP, Secretariat of Public Education, 2011).

In Chile, the number of students with non-permanent SEN and of part-time special education schools has increased. This has been favored by the financial structure of the educational system, as schools with more students with SEN receive more financial support to hire special education services. As of 2005, only 23% of general schools had integrated students with SEN (Aznar, 2005).

These data show that both countries still face enormous challenges to reach full inclusion. The proportion of schools integrating students with SEN, in both countries, is still very low, so the expansion of services constitutes a major challenge. To expand and improve services, Mexico requires intense and well organized training programs for general and special education professionals, as well as the opening of working positions for special education staff. Chile, in turn, needs to revise the financial structure of the educational system to avoid over diagnosing students and granting attention to students with permanent SEN. Both countries have made progress in implementing educational integration policies; however they need to advance in their understanding of inclusion and the promotion of inclusive school and social practices.

Comparative research on inclusive education is still scarce, as there are mayor methodological challenges such as the definition of terms (inclusive education, SEN, barriers for learning and participation, among others) in each country or region, service delivery modalities, professional profiles and so on (García-Cedillo, 2009). We believe that analyzing and discussing how different countries face the challenge of providing inclusive education can contribute to more creative ways to promote more successful experiences.

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# THE LEARNING EXPERIENCES OF STUDENTS WITH DYSLEXIA IN A GREEK HIGHER EDUCATION INSTITUTION

**Dr. Aglaia Stampoltzis** Special Education Teacher Department of Pedagogical Studies ASPETE

> **Elisavet Tsitsou** Primary School Teacher

#### Helen Plesti Headteacher

# Rani Kalouri Professor Department of Pedagogical Studies ASPETE

Dyslexia is the most common declared disability at universities which primarily affects reading, writing, speed of processing and organization. Many students with dyslexia have 'invisible' difficulties that require different types of accommodations. The aim of this study is to give voice to the learning experiences of ten students with dyslexia in a Greek university. In depth interviews were conducted to record students' views and perceptions about teaching, learning and assessment in higher education. Five areas were identified as being the source of most concern for participants: disclosure of dyslexia, access to information, implementation of the law, awareness of staff, lack of inclusive instructional practices. The present research lends insight into how individuals with dyslexia will be able to fulfill their intellectual potential and participate in higher education as any other able and motivated adult with the adoption of a 'social model' of dyslexia.

#### Introduction

Participation of students with 'learning difficulties' in higher education is an issue of equal opportunities for the students concerned. Many countries (i.e UK, Australia, United States of America, Canada, Israel) have officially recognized the rights and needs of these students as learners in higher education. Legislative changes force universities to develop written policy and practice. Despite the definite signs of progress in provision for the students with 'learning difficulties', there are still social and organizational barriers which prevent their full participation and inclusion in higher education (Fuller, Bradley & Healey 2004; Denhart, 2008).

Dyslexia is the most common declared disability at university (Thomas 2000; Richardson & Wydell, 2003). Comparisons between the UK and other countries are hard to be made because the latter typically subsume dyslexia under the broader category of 'learning disabilities'. However, dyslexia is a 'hidden disability' because it interferes with academic and day-to-day functioning but does not have a physical manifestation (Matthews, 2009). According to Mullins and Preyde (2013, p. 147), 'having a disability that is invisible can make it easier for these students to be treated as normally; it also means, however, that the validity of the disability can be disputed and that others may not understand the full extent of their limitations''.

There is an ongoing debate in the literature regarding the nature and definition of dyslexia. Even if it is easier to give a definition of dyslexia for children of school age, lack of available screening and assessment tests for the adult population makes more difficult to define the condition in students and adults. Michail (2011) adopts a definition of dyslexia relevant to students in higher education. She suggests that dyslexia manifests itself as an imbalance of skills whereby the dyslexic is unable to commit to paper ideas and information which are commensurate with their intellectual ability as evidenced by spoken understanding. Dyslexia is a human variation with many different aspects and degrees of severity. Apart from the weaknesses, students with dyslexia have strengths and talents in many areas (arts, sports, business, engineering etc).

According to Richardson and Wydell (2003), students with dyslexia have been admitted to higher education on the basis of lower qualifications than those with no reported disability. Students with dyslexia are also disproportionately represented within particular academic subjects (such as languages, law, education, medicine and subjects allied to medicine), they are more likely to withdraw during their first year of study and less likely to complete their programs of study. What is sure is that people with dyslexia are under-represented in higher education internationally (MacCullagh, 2004). Although dyslexia may have adverse effects for progression and achievement in higher education, it is 'by no means incompatible with a high level of success, given appropriate commitment on the part of the students and appropriate resources on the part of institutions' (Richardson & Wydell 2003, p. 475; Stampoltzis & Polychronopoulou, 2008).

Several researchers outlined the key areas where dyslexic students face great difficulties. Cameron and Nunkoosing (2011), Holloway (2001) and Mortimore and Crozier (2006) underline that students with dyslexia had communication problems with academic staff who were at times indifferent or dismissive to students with regard to their dyslexia. Academic staff seemed to have a lack of knowledge, understanding and training about dyslexia (Riddell & Weedon 2006). Assessment methods or accommodations for dyslexic students were sometimes unsatisfactory or late applied during their studies (Hanafin, Shevlin, Kenny & McNeela, 2007). Keeping notes in lectures, writing assignments, spelling, organizing time and work, using the library and giving written exams are some of the weaknesses of dyslexic students (Fuller et al. 2004; Mortimore & Crozier 2006).

Madriaga (2007) explored the experiences of sixteen students with dyslexia from one area in UK. She found that students got insufficient available information to make their transition from secondary to tertiary education, they have high stress and anxiety to be prepared for higher education and poor confidence in staff and other students to understand their needs. It may be that low participation rates of students with dyslexia in higher education may be at least attributable to these factors (MacGullagh, 2014).

A dominant theme appearing in the literature is the issue of disclosure. Jones and Hopkins (2003, p.102-103) emphasize that people surviving in a disabling society make decisions about disclosure based on their previous experiences. Students with mild dyslexia do not consider that they need extra support in their studies and so do not declare their dyslexia. Another possibility, however, is the fear of being stigmatized or being denied the admission to certain courses because of the dyslexia. Harrison (1998, p.3) suggested that there was a dilemma for some students in deciding that the advantages of 'coming out' in terms of access to services and support outweighed the possible disadvantages of labeling or social discrimination. It has been found that students with disabilities often want to be treated as normal students, and they will often not disclose their dyslexia in order to appear normal.

According to Denhart (2008) three issues appear in the autobiographical literature concerning the students with 'dyslexia type' difficulties: a) being misunderstood, b) needing to work harder than their peers and c) seeking out their own strategies for success in higher education. Students with dyslexia are misunderstood both intrapersonally as well as interpersonally (Rodis, Garrod & Boscarding 2001). Intrapersonally (self) misunderstanding appears commonly in the use of the term 'stupid' by themselves. The different way of thinking in dyslexia is transforming in disability. In addition, some students with dyslexia believe that they 'cheat' the system when they ask for accommodations in higher education (McNulty, 2003; Riddell & Widdon, 2006). Interpersonal misunderstanding includes classmmates and staff who are unaware or dismissive of dyslexia and judge students with dyslexia as intellectually 'inferior' or 'lazy'. Several students recall that some professors have a really negative attitude towards them, even though they don't know them (Rodis, Garrod & Boscarding, 2001).

Another important theme in higher education comes from the heavy workload students with dyslexia experience well beyond the scope of their non-labeled peers. Because of the nature of their difficulties, they need much more time for reading papers and textbooks, writing assignments, studying for the exams, searching books in the library, preparing a presentation etc. Richards et al. (2000) underlines that "dyslexics not only require more brain lactate for the same reading task but they do so for longer period of time" (p.4).

Fuller et al. (2004) exploring the learning and assessment experiences of sixty students with dyslexia found that more than a quarter of them reported choosing courses according to features such as little written work, more practical elements and few or no exams. Two thirds reported difficulties learning in

lectures, including lecturers talking too quickly, visual material being removed too quickly, unwillingness of staff to allow them to tape-record the lectures or make for them 'reasonable adjustments'.

Few authors have reported the strengths that people with dyslexia bring with them in higher education. These include creativity, high-level reasoning skills, critical thinking skills, problem solving skills, lateral thinking, patience, volition and determination (Lock & Layton, 2001; Madriaga, 2007; MacCullag, 2014). There are also autobiographical accounts about people with dyslexia who succeed in their chosen field despite the difficulties they have faced along the way (Collinson & Penketh, 2010).

Several authors summarize the practices which created a positive experience for students with learning disabilities in higher education and those which resulted in a negative experience (Holloway, 2001; Mullins & Preyde, 2013; MacCullagh, 2014). Positive experiences occurred when students have adequate funding for learning support needs, receive information at their entrance at university, have special advice and access to dyslexia tutor, receive assistance with getting exam arrangements in place, learn how to use the library systems. Academic staff must be aware of dyslexia and prepared to adapt the learning material to the learning needs arising from a student's disability. In addition, staff should be highly motivated to teach their subject.

Positive experiences for students with dyslexia in higher education are connected with the abandonment of the medical/deficit model of dyslexia to the adoption of an alternative 'social model' where dyslexia is increasingly recognized as a difference in cognition and learning (Michail, 2011). According to the social model of disability (Riddick 2001; Terzi, 2004), individuals may have impairments, but these are transformed into disabilities by the negative attitudes of the society they live in. Disability cannot be understood outside of the context where it arises because it is the result of social interaction. From this perspective, dyslexia has become a major difficulty only because of the move towards mass literacy and the consequent negative connotations attached to being 'illiterate'.

According to Halloway (2001), dyslexia in higher education can also be seen as the result from the limitations of the systems available for accessing course information. Thus, the learning needs of students with dyslexia are different and they should be viewed as part of a range of learning needs of all students. This perspective would be in contrast to the present *ad hoc* type of individual response, which resulted in students' feelings of frustration, exclusion and stress. Educational environments must be restructured so that all kinds of students can flourish within them, rather than being disabled by them (Matthews, 2009).

#### Dyslexia in Greek higher education

Dyslexia is a recognised disability in Greece from the 1990's. A recent law (3699/2008) legally recognizes students with specific learning difficulties (dyslexia) as a distinct category of students who need special educational support and teaching. Students with a formal diagnosis of dyslexia can enter higher education after special examination arrangements. An estimation of the prevalence of dyslexia in the Greek public universities was below 0.5% which means that students with dyslexia are vastly under-represented in higher education (Stampoltzis & Polychronopoulou, 2008).

In almost all Greek universities, provision takes place in the form of oral examinations. The needs of students with dyslexia are addressed on an individual basis, making provision reactive rather than proactive. Disparities exist between universities in relation to awareness of dyslexia. As a result, Greek institutions are in the very beginning of recognising the existence of dyslexic students in their population and they have not developed institutional policy to address the needs of these students (Stampoltzis & Polychronopoulou 2008).

An interview study by Stampoltzis and Polychronopouloy (2009) exploring the personal and educational experiences of sixteen students with dyslexia in Greek universities revealed that family support (especially their mother's help throughout the school years), peer relationships, extra private tuition and hard work were the factors that lead them to 'success'. Negative school experiences at the first years lowered their self-esteem but 'after school activities' (such as sports, arts etc.) and parental support help them to improve their self-image. The majority of the sixteen students had a difficult

academic time at university which means that Greek universities are not yet 'dyslexia friendly' presenting 'social and learning' barriers for students with different learning needs such as dyslexia.

#### Rationale of the study

Oliver (1996) suggests that research about people with learning disabilities (including dyslexia) has failed to involve them or reflect their perspectives seriously. Oliver and Barnes (1998) pointed out that the lived experience of dyslexic students has been missing from the literature. To date there has been limited research on dyslexic students' views and perceptions about teaching, learning and assessment in higher education. In order to support them, their voices need to be heard. This research aims to give voice to the learning experiences of students with dyslexia in a Greek university. It seeks their perceptions as to obstacles they face and how to overcome them in order to move effectively through higher education.

#### Method

The research was a small-scale study conducted within a university located in Athens, Greece. The university consists of four faculties including engineering courses and education. The chosen method was in-depth semi-structured interviews (Daly, Willis, Small, Green, Welch, Kealy & Hughes, 2007). The development of the interview was based on the review of the literature regarding students' experiences of dyslexia (Holloway 2001; Mullins & Preyde 2013). Each interview lasted 40-50 minutes and was audio-taped.

#### **Participants**

A convenience sample of students with dyslexia (seven males and three females) was recruited through posters distributed across the university in areas often used by students. Interested students contacted the researchers and an interview was arranged. The participants included were undergraduate students (n=8) and graduate students (n=2). Two students (n=2) was freshman, four students (n=4) were at the second year of study, two students (n=2) was in the third year and two students (n=2) were at the last year of their studies. At the time of the study 37 students have been formally declared their dyslexia within the university. The total student population in the specific academic year was 2,787 students, so the estimated prevalence of dyslexia was 1.33%.

#### Data collection and analysis

Data were collected through individual interviews. A qualitative data analysis was carried out. Interview data were transcribed verbatim and analysed using thematic analysis and constructivist grounded theory (Smith, 2004; Charmaz 2006; Corden & Sainsbury, 2006). The researcher identified the issues that needed to be discussed in the interview to encourage the participants to talk about their experiences of teaching, learning and assessment at university. The headings used for the findings are derived from data and are therefore student-led. Subsequent discussion with a second researcher resulted in modification of the categories, and also provided a means for increasing validity and interresearcher reliability (Onwuegbuzie & Daniel 2003).

#### Results

#### Difficulties at university

The main difficulties that students mention pertain to note taking, spelling, structuring and writing assignments, work overload and passing the exams. Another obstacle mentioned by one student was the great audience (number of students) during the lecture.

Things happen very fast. I need time... What's more, listening to everyone and at the same time taking notes gives me a very hard time. I can't do two things at the same time. (15)

*I* will catch at once whatever the professor says if *I* am there and listening. But *I* have never written correctly whatever he/she is saying (*I*4)

I have to write many assignments etc. and they are unstructured, although they are very good in terms of my specialty. I need my own time to write. Essentially, I need deep education to learn to write. Sometimes I write the one third of an essay during one day, and it is totally without grammar syntax. The greatest difficulty is that I am too tired. At that point, in fact, a terrible dyslexia gets into me...A terrible problem and I can't read my assignments very well. I will neither remember them nor understand them. I need many many hours to work. (13)

Because there are 100 people in each academic year, the professor can't distinguish students with dyslexia from the others and perhaps this is the biggest problem. The professor will do the lesson to satisfy the needs of the average students, so we (the dyslexic ones) will find it difficult. (16)

The difficulties are: constant attention deficit difficulties, 'chaotic' thoughts which make you end up having a lot of questions from the professor who sometimes may not have enough time to answer them, and of course the written exams. What I have as a problem is that I get lost, I think about too many things and I can't reach my final goal on my own. (I2)

#### Staff's awareness of dyslexia

According to students, staff are not well informed about dyslexia, although staff from education faculty seem to be more aware.

I am not sure if lectures and professors are informed about dyslexia. Even if they are, some of them are not willing to deal with this issue. Especially today, because of the work they have, they don't want to spend time. (12)

Few of them are informed (mainly staff from the education faculty). These ask to be informed in advance if there are any students with dyslexia (13).

I believe that staff's training on dyslexia is not adequate. This has a negative result on me. I miss the opportunity to be treated equally with my colleagues. I think that staff should show their ability in practice. (15)

#### Staff attitudes towards dyslexia

According to students staff have neutral or negative attitude towards dyslexia. One student (n=1) claimed that professors treat students having in mind that dyslexia will not be a facilitating factor in the job market and as a result they will have to cope with the courses to the same extent as the other students.

...I don't care if you are dyslexic because it won't count out there (in the job market)', one professor said to me. (I4)

We have a lot who don't care. They care about other things. They care about their career. So the only thing that can be done is the oral exam. Staff should know in advance who and how many are dyslexic. (I3)

If you, as a professor, lower my level, I will never, as a student, increase it... You, as a professor, have to increase the level of knowledge. Professors of Technical Education Institutions and Higher Education Institutions could change schools and teach to another school each semester. What's more, divergent thought and imagination are missing. Professors need to use imagination too. And to think that what they do is worthwhile. (19)

Four of the participants (n=4) said that professors' attitude towards dyslexia depends on the professor's personality and experience, while two of the participants (n=2) claimed that professors' attitude is indifferent.

It depends on how professional is each person, how each one is going to take it, what it will happen etc.. Some treated me positively, some negatively, some didn't help me. To be honest, I no longer remember.. (110)

Now there are other people who don't care at all, they may even be ironic, it has clearly to do with the character. The thing is whether the person is narrow- minded and thinks that we are trying to 'cheat' the system to get a higher and easier grade. But this is not true. (18)

Comparing educators in different education level, six of the participants (n=6) claim that the professors' attitude at university is worse in comparison to high school.

Worse, in that it's not just that they discourage you, they don't leave you much room for negotiation. (14)

I would call it a little worse, because it is more impersonal at University. (11)

It is worse not only in the way of testing, but also in the way of teaching. In high school they adapt the content of the lesson to the total of students. They had our documents, so I didn't need to go and talk to them about dyslexia. They just saw who was dyslexic and adapted it not only to that student, but to the whole class to be comprehensible. And that was good. Here they don't adapt anything. (I7)

One student (n=1) said that the professors' attitude at University is better and another one (n=1) that it depends on the person.

It's much better at university because there are many courses interesting and relevant for students with dyslexia, so professors also see the interest. In high school there were many subjects which were not interesting for those with dyslexia (I9)

#### Disclosure of dyslexia at university

A female student claimed that she would not expose herself, because it would not have any facilitating result, whereas another one said that she has thought about it but she is ashamed. Three students (n=3) said that some professors, when they realized that the student is interested they help him/her.

Here at the department even if you wanted to talk, you will either not find the professor, or he/she will be busy and you can't catch up with him/her. There are two-three professors who know that I have dyslexia, although normally all the professors should be informed about which children are dyslexic, since you are obliged to bring the diagnosis. (I6)

Some professors understood it and tried to help me, by explaining some exercises to me or by giving me notes sometimes. There are other professors who just made fun of me in many ways and in public. (11)

Most of the time you are afraid of speaking. They will think that you don't study, you don't care. So it's up to you to keep your fears or fight against them. Professors are busy here and they won't go into details. They also believe that Greek students want to pass exams without much effort. This is injustice for those who have dyslexia. As a result, professors believe that students with dyslexia should compete under the same circumstances with their classmates. (I2)

#### Disclosure of dyslexia to students

All the participants said that they revealed their dyslexia to their fellow students.

I'm not hiding it. I have accepted it. We discuss and talk about our problems. (I5)

To everyone. I'm not hiding anything and I'm not ashamed now. (I3)

Yes, everybody knows it. I'm not ashamed of this. It's not a shame. (16)

Yes, I have observed that they are nicer to me. That is they help me a little with the notes or somewhere when I have difficulty. (I7)

#### Supportive practices and types of accommodations

The only accommodation offered is 'one to one support' at the workshops, which ensures personal contact with the tutor. Three students (n=3) said that professors of pedagogical courses are more supportive and give more time.

I don't think there are accommodations. The only thing I have realized, the right to be examined orally. But not all the professors applied it. The Secretariat told me that I would be examined orally, but the professors told me if they want to. I haven't noticed any other facilitation. (I7)

When I was in the fifth year they started to do supplementary courses (extra tuition). You have physics and a physics workshop. You have statistics and a statistics workshop. But this started from the first year so I didn't forestall as I was at the end of my studies. I had already passed these courses. (I4)

X is a school with the best pedagogical department. Especially in the psycho-educational courses, professors are more willing to apply the oral exam accommodation and others which are related to dyslexia. As for the other courses, it depends on the person, the person's character. (I8)

#### Exam arrangements

Another point made by all participants (n=10) is that not all members of the staff are willing to apply the oral exam accommodation. Students experienced arbitrarily different departmental practices in relation to exam accommodation.

The Secretariat doesn't help with such issues. They said we should bring the document so that it exists officially but the oral exam is the professor's decision. (13)

During exams many professors don't examine orally and it's a great difficulty. Some others criticize you if you ask for oral exam. They make negative comments. I feel embarrassed and ashamed, because it happens in front of the whole class. (11)

From my experience I have understood that I have the right by the law to be examined orally. The arrangement of oral exam is not applied uniformely at university. At the end staff gives or not the permission. I have not observed any other accommodation (I7.

#### Proposed practices and accommodations for improvement

Students proposed dozens of practices to improve their educational experience. They suggested accommodations such as video recording of the lesson, having supplementary course material, good quality notes, using and updating e-class lessons, using a forum (where students can ask questions and lecturers should answer them), individualized tuition, oral examination, counseling services and raising staff awareness about dyslexia.

Videos would help. It is very important to see the lesson again in a little more analytical way. Or to see a lesson that you have missed, a difficult lesson to have time to see it again and again to understand. Dyslexic people need more time. It is important to cover the learning gaps and move on. (I5)

The lecturers can 'videorecord' the lesson and he/she will upload it on the e-class platform so the students who missed it, they have the chance to attend it. I miss some parts for sure, or I don't have had enough time to take notes. Through the video I will run it up to there, I would see what I hadn't understood or even better something which I have noted down and I can't understand. None of the professors uploads videos except for one. (I7)

In general, good and detailed notes by the professor are very helpful, it helps me to have a guide map, that is to have the steps, not the solution. (15)

*E-class should be updated regularly, to have exercises, to have examples. Through the e-class the course can be explained a little more and can be as simple as possible even for a student with dyslexia to understand it. (I6)* 

Use of technology. There are professors who are willing to help, who upload notes, explain more things, reply to their students. I would like a little more: To have something like a forum group where there could be discussion fields that each student who might have a question would upload it and everyone could see it. The professor would answer the question. (I7)

I need the professor to take me step by step. In the workshops I learn better, there are three of us in every table and the professors have their assistants. In theory class (where there are about thirty people), I get a little lost. (II)

I would suggest professors find specific time in the week and we have a short lesson for students with dyslexia. So the professor will focus on you, you can ask him/her your questions. If you have questions during the lecture it is difficult for him/her to answer them because they are in a hurry to cover the material and they can't spend time on you. There should be small classes and the professors to have one and a half hour lessons with students with dyslexia to help them more. (16)

Some supplementary courses. A differentiated lesson where the professor knows or not that there is a dyslexic student in there. An adapted version of the lesson will benefit all my fellow students, not only me. (19)

More assistant staff in the workshops so that the professor could help because now there is only one lecturer per 10-12 students. He/she doesn't have enough time..I'm asking for too much, aren't I? If the professor has 2 assistants he/she could cope better, serve us with dyslexia better. (18)

I would take part in counseling sessions, to begin with at least because it is something I haven't come across all these years. So, yes, I would try it. (I7)

#### Personal strategies to cope with dyslexia

All students have developed through years their own strategies to compensate for dyslexia. Five of the participants (n=5) mentioned that they work on the course material by making their own notes. Two participants (n=2) said that it is helpful when they make charts or diagrams from the notes. Two students (n=2) said that they memorize, understand, and learn better if they read the information many

times and then rewrite it. Another male student (n=1) mentioned that he has very good memory and it helps him when he notes down the most important. Two students (n=2) think that studying extracurricular books with topics on their specialty and literature is helpful.

I analyze everything. That's how my mind has learned to function in order to survive in the educational system. I analyze everything and then I synthesize it. I do this in every course and in my life generally. Charts, pros-cons, bullets etc. The computer helps me when I do assignments with spelling, it also helps with arithmetic a lot, especially the Excel you press two numbers, you show the relation to it and it makes it on its own. (I4)

Techniques? What helps me is just write on paper what I have learnt many times. I study and then I write again what I remember. I write it in sentences. We also have assignments at school. I prefer individual than group assignments. (II)

In theoretical (courses) I try to write down 1 sentence out of the 10 that the professor says. I note down the important. I note it down with a highlighter, I underline if it is from the book etc. and then I write it using encoded words. I keep the most important ones, the gist. (13)

Until two years ago I used to read many books. Extracurricular ones. I have read books relevant to cars, planes, motorbikes, engineering topics. I have read books such as the Alchemist and literature..I understood most books after the second or third reading. I also like writing, designing and doing maths.

I read aloud and when I am tired I have someone else read it for me. If the topic has been made into a documentary...I may have watched it one, two, three time. I gain as much knowledge as possible in this way. I did some research and I looked for a program that could read for me everything on the computer. I bought the program, I put everything there and I listen to it. (I8)

#### Study groups and peer tutoring

All the participants (n=10) think that study groups or peer tutoring are good ideas, but they find difficulties in practice. As a result, they have ended up preferring individual assignments and individual study.

I vote for collaboration because I think that two three 'minds' think better than one and they can be more productive and efficient. The problem is that this not happens in practice. It is our fault. Both professors and us. (I3)

I prefer individual work because cooperation is difficult. It would be a group of five and only two do the work. So there is no reason for collaboration. Apart from this, I like group work because you take your thoughts further, one has an idea, the other another idea. The assignment is done very well in this way. (14)

I believe that group work needs mature persons who know to share with each other. If there are 'suitable' people, it would be very easy for all the students. I have tried it but it hasn't worked, because the company didn't feet well. (I7)

#### Positive aspects of dyslexia

Finally, four participants (n=4) mention that dyslexia is not only a drawback but something different that they can take advantage of it:

It's a shame that some children can't understand that dyslexia is not something bad but a gift which, if you try to exploit properly, will give you a lot. (I6)

I think that dyslexia is divergent thought, I think a little differently. I can get over things. It's a kind of gift. It is up to us to use something for our sake.. I try to use it for my sake. (I4)

We shouldn't view dyslexia as a flaw. It is very important to try. For me getting my degree will make me twice as happy as another child. (15)

#### Discussion

The findings of the present study provide insight into the experience of students with dyslexia in a Greek university from the perspective of students. Students admit that they experience difficulties at university, showing that dyslexia is a life-long disability with many similar characteristics in specific age groups irrespective of the country or culture. It seems self-evident that students with dyslexia meet challenges relating mainly to learning and assessment in higher education (Holloway 2001; Mortimore & Crozier 2006).

The themes developed so far suggest that the university experience of individuals with dyslexia is dynamic and multifaceted. The participants reported that the university provided very few accommodations to meet their needs. At the same time, they reported the presence of barriers that made the university experience difficult and stressful. Students' negative experiences were the consequence of practice that sees dyslexia as the problem of the individual. Confirmation of the students' experiences is found in the existing international literature (Holloway 2001; Mullins & Preyde 2013; MacCullagh 2014).

While many of the experiences of students with dyslexia in this institution are unique and are influenced by the university's policy and ethos, there are a number of issues that relate to wider concerns of students with dyslexia within the higher educational system as a whole. Five areas were seen as being the source of most concern in the present study: disclosure, access to information, implementation of the law, awareness of staff, inclusive teaching accommodations. According to MacGullagh (2014, p. 8) three key themes emerge for students with dyslexia with regard to institutional challenges: attitudinal challenges, resource challenges and policy and administrative challenges.

Some students mention that the implementation of certain accommodations (such as oral exams) was contingent on the subjective preferences of their professors or other accommodations may need to be negotiated with them (Mullins & Preyde, 2013). A recommendation implied from the above finding is the adoption of the Universal Instruction Design (UID) (McGuire, Scott & Shaw 2006), an approach to teaching which is designed to be inclusive to all students and all kind of learners. Taking actions to provide various methods of presenting and assessing information when planning courses has been found to minimize the need for many accommodations (Scott, McGuire & Shaw 2001).

Raising awareness of staff emerges as a priority from the students' accounts because their success is determined by the type and quality of interactions they have with their instructors. Some of the students felt reluctant to ask for help because they felt that they were being a nuisance and staff would not have time to spend with them. The validity of dyslexia sometimes can be disputed by staff with little understanding and knowledge about dyslexia. In addition, professors may not be able to understand the full extent of students' limitations because of the dyslexia. Academic staff need to be familiar with the various models of dyslexia as well as the rationale behind these models. They need clear, accessible and comprehensive information about dyslexia (Shevlin, Kenny & McNeela 2004; Wadlington & Wadlington 2005; Cameron and Nunkoosing 2012).

Another theme appearing in the students' interviews is the issue of disclosure. Students in the present study have a dilemma whether to declare dyslexia or not and at which point in their student career.

According to Riddick (2001) disclosure could be made at different points for example on the application form, at interview, in the first meeting with the tutor or at the point of their first (or subsequent) failure. Disclosure is a difficult process because there seems to be a 'contention' between confidentiality and effective sharing of information about 'special needs'. Students are not willing to disclose dyslexia because of the lack of understanding or negative perceptions of the staff members. Passing as normal does not eliminate the disability. On the other hand, students with 'invisible difficulties' must disclose their disability in order to receive accommodations (Matthews, 2009). Students in the present study feel free to disclose dyslexia only to their fellow students.

The social environment of the university and peer support is crucial in making educational establishments 'enabling' (Onley & Brockelman 2003). Academic staff's skills in managing all kind of learners and learning environments are critical in promoting inclusion at university (Matthews, 2009). While there is a pressure for the university to respond to the principle of equal opportunities, how and to what extent they are implemented in practice remains unclear, and up to the discretion of the institution. It is therefore appropriate that a Greek law of inclusive education should be voted and implemented to include institutes of higher education. In addition, it seems that an individually focused model of dyslexia is adopted so far within the Greek educational system reflecting a medical/ deficit model of dyslexia. It is time for the university to shift from the deficit model to the social model of disability by adjusting the context rather than the learner, producing consequent positive impact for all learners. Changes should be made to eliminate the social and organizational barriers in students' transition to higher education and during the years of their studies (Riddick 2001; Mortimore 2012).

An optimistic finding of the present research is that some students with dyslexia report on their own the 'positive aspects' of dyslexia. They see dyslexia as a different way of thinking which endows the person with several career advantages, such as creativity, visual thinking, practical and problemsolving skills. These skills are difficult to evaluate using conventional examination or assessment procedures. Professors should adapt teaching and point to solutions that take the student's learning style into account (McGuire, Scott & Shaw 2006). In addition, students in the present study make dozens of practical recommendations on how to improve their learning experience. This means that students realize that their difficulties in a certain degree are the results of the limitations of the system. An accessible learning environment would benefit all kind of students. According to Holloway (2001), there is a need to enable students to advocate for themselves where they experience discriminatory practices, as well as a need for someone to advocate on their behalf at departmental level.

# Conclusion

This study makes a small contribution to the literature about the university experiences of students with dyslexia in Greece. There seems to be much room for improvement in key areas so that students with dyslexia will be able to fulfill their intellectual potential and participate in higher education as any other able and motivated adult. Because of the small number of the sample, students' experience may not be reflective of a universal experience. Data were also obtained solely from interviews. In future studies, quantitative data (such as students' subjects, grades and completion rates) should be combined with qualitative data. Larger studies including students from different universities and departments will give a clearer picture of the situation in Greece. Although this was a small-scale study, it is hoped to be useful to staff in Greek universities to make them aware of the potential adjustments that may be required for students with dyslexia as well as the important role they play in presenting new routes towards more inclusive education.

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