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Layout and Design:

Thomas J. Donaghy
Institute on Community Integration
University of Minnesota
150 Pillsbury Drive, SE
Minneapolis, Minnesota
USA

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Editors' Message

Greetings to the members and friends of the International Association of Special Education (IASE). In June of 2015, the editorship of the journal of IASE passed on from its long-time editor, Dr. Morgan Chitiyo, to the co-editorship of Dr. Renáta Tichá and Dr. Elizabeth Dalton. Professionally, Dr. Tichá serves as Research Associate for the Institute on Community Integration at the University of Minnesota in Minneapolis, and Dr. Dalton is Adjunct Professor for the Department of Communicative Disorders at the University of Rhode Island. This is the first issue of the journal produced under this new shared editorship, and we are extremely pleased to provide the IASE membership with such a quality publication focused on the broad range of issues concerning students and individuals with special needs around the world.

The mission of the *Journal of the International Association of Special Education* (JIASE) is to serve as a professional, peer-reviewed journal for the worldwide publication of articles focused on research and models of practice to help the fields of special and inclusive education gain a better understanding of diverse approaches to teaching and learning. Key to our mission is a commitment to cultivating international authors, reviewers, and readers to become highly qualified and savvy writers, critics, and consumers of international special and inclusive education research and innovative teaching practices.

In this 2016 issue of JIASE, articles represent studies and practical applications carried out in many countries, including China, Ethiopia, Jordan, Nigeria, Saudi Arabia, and the United States. Topics covered in the articles include behavioral issues, learning disabilities, technology applications and supports, educational policy, autism spectrum disorder, diversity in educational practice, and more.

This publication would not be possible without the dedication and hard work of our associate editors, Dr. Britt Ferguson, Associate Professor of Special Education for National University in California, and Dr. Malgorzata Sekulowicz of the University of Lower Silesia, Wroclaw, Poland; our managing editor, Thomas J. Donaghy of the Institute on Community Integration at the University of Minnesota; and our wonderful team of consulting editors, who volunteer many hours to provide professional peer review services for the journal. We thank them all whole-heartedly.

We are always seeking members who would like to serve as consulting editors for JIASE. If interested, please contact Dr. Dalton or Dr. Tichá directly for more information. Also, please consider submitting your work for publication consideration. Publication submission guidelines are located on the IASE website at <http://www.iase.org/>. We hope you will find this issue to be enlightening and professionally engaging. And we hope to see you all in Perth, Australia, in June 2017 for our 15th Biennial IASE Conference.

Sincerely,

Drs. Renáta Tichá and Elizabeth M. Dalton, Co-Editors, JIASE

Survey of the Use of Assistive Technology in Schools in Nigeria

Paul M. Ajuwon, Ph.D.

Missouri State University, USA
PaulAjuwon@MissouriState.edu

George Chitiyo, Ph.D.

Tennessee Technological University, USA

Abstract

In this study, the researchers explored the state of the use of assistive technology (AT) in Nigeria through a survey of 165 special educators. The underlying structure of the respondents' perceptions, and their challenges and barriers to the use of AT, were examined. Among other findings, the largest proportion of students using AT are those with deafness or hearing impairment (53.3%), followed by those with a learning disability (40%). Training in the use of AT lags behind, with most professionals having received little or no training in the use of AT. The lack of appropriate AT devices and services in classrooms, and irregular electricity to operate available devices, were frequently cited as the biggest challenges regarding AT. Correlations between students' conditions and factors of teachers' perceptions suggested the need to make AT available for students with certain conditions, as well as the need for effective training for teachers.

Keywords: Assistive technology; devices; services; special educators; Nigeria.

INTRODUCTION

In the past several decades, there has been growing recognition of the importance of assistive technology (AT) in the lives of children, youth, and adults with disabilities. This awareness has ushered in a new era worldwide to provide assistive devices needed to promote self-care, education, employment, leisure, and recreation for learners with disabilities. It has also brought to the forefront the need for effective legislation to train professionals in AT and to provide necessary supports. For example, in the United States, the Individuals with Disabilities Education Improvement Act (IDEIA, 2004a) requires that AT be considered for all students with an Individualized Education Program (IEP) who need technology in order to receive a Free Appropriate Public Education (FAPE). Consequently, schools strive to ensure the provision of appropriate AT devices and quality services in their programs. This paradigm shift in the provision of AT has been adopted by several countries, including Nigeria.

As used in the United States, AT encompasses both AT devices and services. AT devices are defined as "any item, piece of equipment, or product system, whether acquired commercially off the shelf, modified, or customized, that is used to increase, maintain, or improve functional capabilities of a child with a disability" (IDEIA, 2004b). In the same vein, AT services can be seen as "any service that directly assists a child with a disability in the selection, acquisition, or use

of an assistive technology device" (IDEIA, 2004c).

These services are comprehensive in scope, and involve evaluating the learners' AT needs in customized environments; acquiring AT devices; customizing, applying, and maintaining AT devices; coordinating other therapies with AT devices; training for the student and family; and training for professionals involved with the student.

In the United States (unlike Nigeria), legislation and empirical investigations have resulted in awareness of the importance of AT in the education of learners with disabilities at all levels. The National Assistive Technology Research Institute conducted a study to determine the current state of the practice of AT service delivery in schools in the United States (Lahm, Bausch, Hasselbring, & Blackhurst, 2001). Among its salient findings, which were based on a nationwide nonprobability sample of 699 AT users in grades P-12, it was revealed that: (a) the largest percentage of students received AT services in self-contained settings (40.47%); (b) AT was the third-most-frequently-provided service for students receiving related services; and (c) the most students receiving AT services were identified with a multiple disability (27.71%), a learning disability (16.72%), an orthopedic impairment (14.66%), autism (13.93%), or an intellectual disability (12.17%).

In studies, Criswell (2014); Duhaney and Duhaney (2000); Mirinda, (2001); Netherton and Deal (2006); Parette, Blum, and Boeckmann (2009), researchers es-

established that AT enhances the independence and quality of life of individuals with disabilities, in addition to promoting social integration by providing the right tools for communication, mobility, and recreation (e.g., music). These findings point to the need for professionals to be knowledgeable about AT and able to make recommendations that would benefit their students with special needs. The consensus among researchers is that for these students to be taught effectively in any educational environment requires that teachers themselves must be knowledgeable about AT. Abner and Lahm (2002), Cooper and Nichols (2007), Lee and Vega (2005), and Osborne and Russo (2007), among others, have concluded that teacher preparation programs share the responsibility to educate their trainees, so they are better prepared to deliver AT instruction. The current study therefore seeks to explore potentially similar and important issues in the domain of AT use in Nigeria.

Review of AT Policies in Nigeria

Nigeria has no formal definition of AT services or devices. However, since the 1970s, the Nigerian government has initiated major policies that, *inter alia*, sought to address AT issues related to persons with disabilities. In the mid-1970s, the government embarked on an initiative to address the imbalance that has existed since the country's independence in 1960 in the provision of special education. In Section 10 of the document entitled, *National Policy on Education* (2004), the government spells out its commitment to equalizing opportunities for all children, notwithstanding their physical, sensory, mental, psychological or emotional disabilities. In paragraph 96(b) of the document, the government declared, "The education of children with special needs shall be free at all levels" (p. 48). Hence, government was determined to make available to these children special education equipment and materials to facilitate learning. Furthermore, the policy enumerates the miscellaneous educational devices to include, but not limited to: Perkins braille machines, mobility canes, abacuses, and braille and talking watches for children with visual impairments; hearing aids for those with hearing impairments; calipers, prostheses, and wheelchairs for children who have physical limitations; and standard library, audiovisual equipment, and Internet facilities for children who are gifted and talented.

To complement the above policy, the government recognized the need to provide services that would emphasize the appropriate utilization of the equipment and materials. Such services shall include training in the use of the educational devices. For instance, there

would be a focus on implementing reading and writing in braille, orientation and mobility skills, sign language, daily living skills, and so on. More fundamentally, it was stated that special training and retraining of personnel to develop capacity and to keep abreast of the latest teaching techniques that will benefit children with special needs shall be undertaken.

The second major national initiative relates to the 1993 Nigerians with Disability Decree (DREDF, 1993). The overarching objective of the decree was to provide comprehensive legal protection for Nigerians with disabilities. It also endorses the need for improvement of facilities and equipment to further the education of persons with disabilities (DREDF, 1993). In terms of accessible sports and recreation, the decree mandated the improvement of existing facilities and equipment to accommodate the unique needs of persons with disabilities. Although the decree did not identify specific types of equipment, the policy was seen as a realistic approach to building an inclusive society that could foster the potential of persons with disabilities.

Nigeria's commitment to the provision of AT services to support its citizens with special needs is also discernible at an international level. As a signatory to the World Conference on Special Needs Education (1994), and the Convention on the Rights of Persons with Disabilities (2006), the country has further committed to enable persons with disabilities to live independently and participate fully in all aspects of life. According to the Framework of the World Conference on Special Needs Education (1994), schools should assist young people with special education needs to make an effective transition from the classroom to employment. One of the implications here is that schools should extend to these young people appropriate training technologies that will enable them to succeed in school. This would also allow them to become economically active and prepare them to function independently in their communities after graduating from school. On another international platform, the CRPD urges member states to ensure access to the physical environment, transportation, information and communications, and other facilities and services open or provided to the public for persons with disabilities (CRPD, Art. 9, 2006).

Purpose of the Study

Despite the availability of some technologies in schools in Nigeria today, relatively little is known about the students with special needs who receive AT devices, and how well their teachers are instructing them. Our extensive searches reveal there are no empirical studies

that address AT instructional issues in the country. This indicates a need for research in this area, which will potentially open up avenues for addressing the unique needs of learners with disabilities and their teachers. We anticipate that the findings of the current study could highlight ongoing issues and lead to the development of possible solutions to the challenges associated with AT service delivery.

Specifically, the current study sought to address the following objectives:

1. To establish a profile of the conditions of students that use AT in Nigeria, as reported by special education professionals;
2. To describe the various ways that teachers and students use computers and AT as reported by special education teachers;
3. To investigate the ability and proficiency of special education professionals in using AT; their level of knowledge regarding various aspects of AT, perceptions of challenges to AT use, and their perceptions of training needs; and,
4. To examine the underlying structure of the perceptions of these professionals regarding their knowledge, attitudes, and ability to use AT, and assess the correlations between the established components and key demographic variables.

METHODS

Sample

The study sample comprised 165 professionals, of whom 141 (85.5%) were special education teachers, 19 (11.5%) were school administrators, and five (3%) were computer teachers or other professionals. Among the classroom teachers, 75 (53.2%) worked in a self-contained classroom in a public school, 10 (7.1%) worked in a resource room in a public school, eight (5.7%) were itinerant, that is, they covered several schools, and 45 (31.9%) worked at a residential school. (All the participating schools are publicly-funded and are located in urban areas in the five states where the study was conducted). The years of teaching experience of the 165 special educators ranged from less than one year to 30 years, with a mean of 9.09 years and a standard deviation of 7.03. Among the classroom teachers ($n = 141$), the average number of students in a class was 14.

Instrumentation

The researchers obtained permission from Lee and Vega (2005) to adapt their AT instrument for use in Nigeria. The purpose was to use the modified instrument

to gather data on the current state of the practice of AT services in various special educational settings in the country. The modified instrument was divided into three sections: Section 1 consisted of demographics-related questions, including: participants' jobs and classroom settings, types of disabilities and ages of the children in their care, participants' educational qualifications, and the like. Section 2 comprised 20 Likert-scale items, while Section 3 had two open-ended questions that inquired about participants' challenges and barriers in AT use, and the perceptions of their teacher preparation programs. (The questionnaire is available from the first author upon request). The Institutional Review Board of Missouri State University, Springfield, U.S.A. approved the study.

Study Design and Data Collection

The design of the study was descriptive correlational. It was a cross-sectional study, and the survey was administered between March and April of 2013. During the first author's visit to Nigeria in early March of 2013, he contacted officials responsible for special education in each of the five states that participated in the study, to explain the purpose of the study, and to seek their permission to conduct the study. Subsequently, each state official undertook to distribute and retrieve the completed questionnaires. Also, each ministry's official was responsible for mailing all completed questionnaires to the lead researcher in the United States. Of the 300 questionnaires that were distributed, 165 were returned, analyzed and found usable. This represents a response rate of 55%.

Data Analysis

Data analysis included descriptive statistics (frequencies) to assess the distribution of students' conditions, types of uses of computers by teachers and students, as well as the barriers and challenges to AT use. Exploratory factor analysis (EFA), using Principal Components Analysis, was conducted to examine the underlying structure of the professionals' perceptions regarding AT knowledge and use. Finally, correlation analysis was performed between teachers' years of experience and the students' conditions, with the components obtained from the factor analysis.

RESULTS

Findings Pertaining to Objectives 1-3

Findings from the frequency analysis conducted to address the first four objectives are presented in this section. Essentially, the results describe the distribution

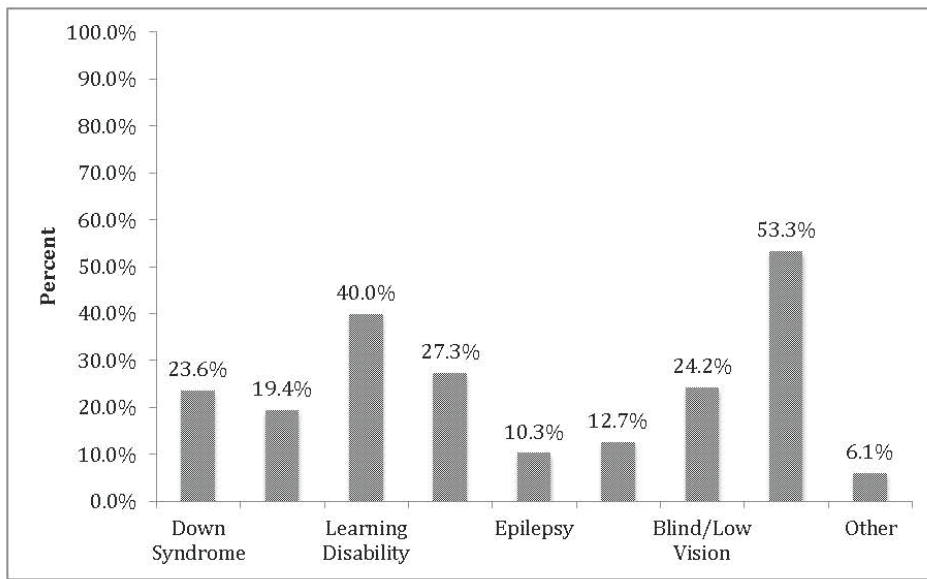


Figure 1. Distribution of conditions of the students served.

of responses by each of the key variables under consideration. These results are also depicted graphically in Figures 1-4.

Objective 1. The majority of professionals (73.3%) indicated that they were working with children aged 11-14 years. Figure 1 shows the distribution of the types of conditions of students served by these professionals. The percentages shown on the figure do not reflect those students with multiple conditions.

As indicated in Figure 1, the majority of students (53.3%) with whom these professionals worked were deaf or hard of hearing, and the second most prevalent condition was having a learning disability (40%). Among the specified conditions, the least prevalent was epilepsy (10.3%).

Objective 2.

Figures 2 and 3 indicate the use of computers by teachers (n = 130), and the students' reported use of computers by the teachers, respectively. Teachers mostly use computers for email (70.2%), Internet (68.8 %) and word processing (56.7%).

A large majority of students

(92.2%) were reported to mainly use computers for educational purposes (educational software), whereas the combined use of Internet and email for them was 41.1%.

The teachers also reported on the use of AT by students. The most frequent reported uses of AT by students were for reading (44%), and communication (41.1%). The other uses, in decreasing order, were: recreation/leisure (25.5%), math (23.4%), science (12.1%), and other (2.8%).

Objective 3. Regarding training in AT, the majority of professionals had received no more than one hour of training (75.8%). Further, 58.4% had not participated in in-service workshops on AT within a year of

the study.

Five items addressed whether the professionals were knowledgeable about specific aspects of AT. The percentages of professionals who agreed or strongly agreed with each of these items were aggregated in order to compute a percentage of positive responses for each of the items. The distribution of the positive responses across the five items is shown in Figure 4.

Regarding their knowledge of AT, 45.8% of respondents indicated being knowledgeable about reading, math, and science software for their students. This was followed by 37.5% who indicated being knowledgeable of AT for those who have physical disabilities (i.e., fine

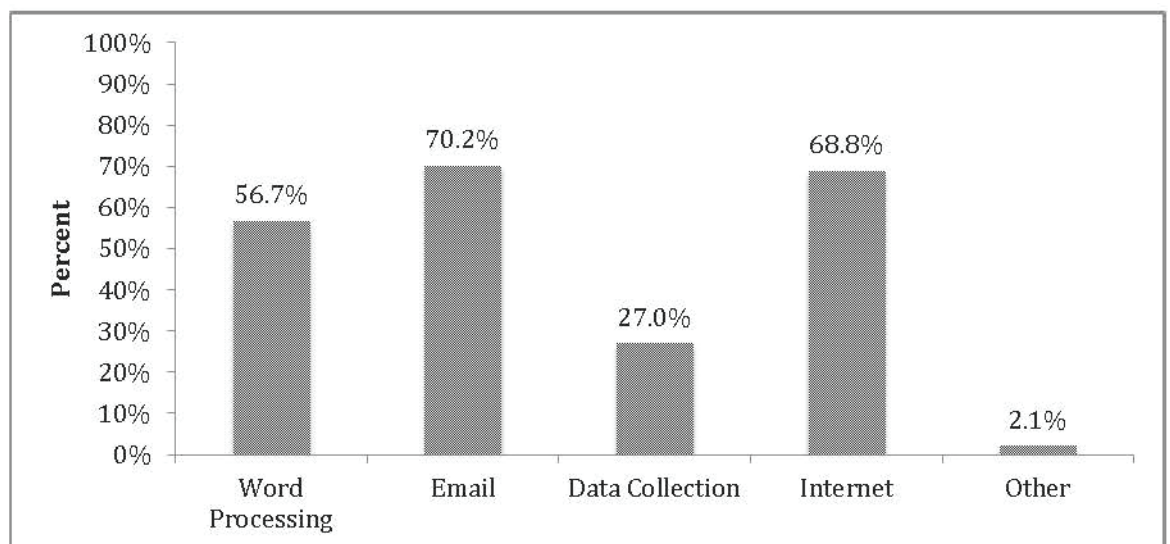


Figure 2. Primary uses of computers by special education teachers.

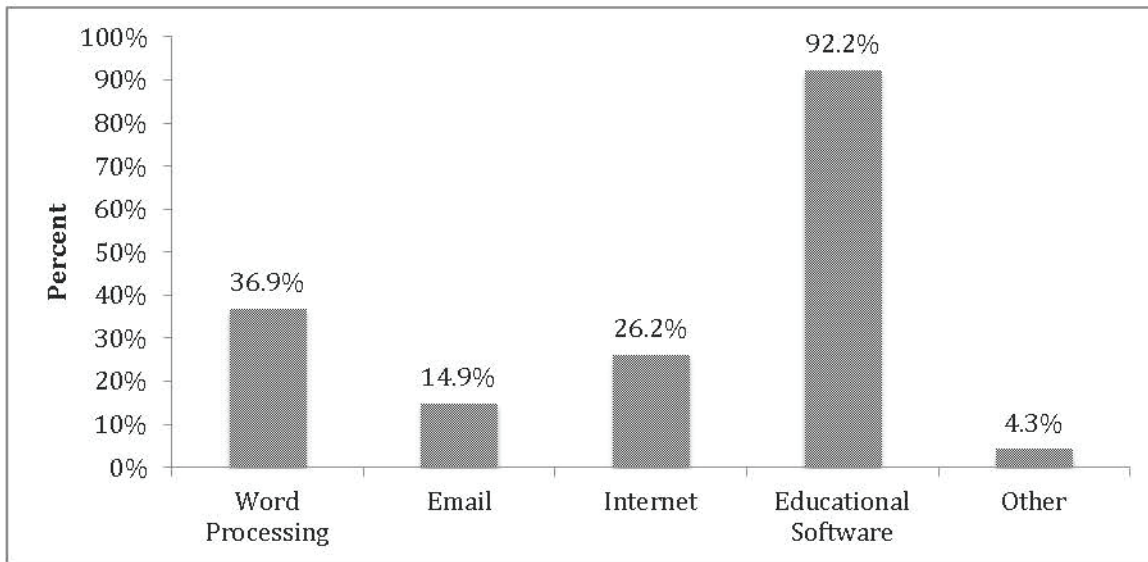


Figure 3. Students' primary uses of computers as reported by teachers.

- AT is not integrated into the curriculum for special needs students (n = 6)
- Inaccessible AT devices to some children in classroom (n = 6)

Perceptions of training needs.

Participants were also presented with an open-ended question regarding the training needs of teachers as well as the training

motor and gross motor problems). Teachers indicated having the least knowledge (11.4%) about augmentative communication methods and devices.

Challenges related to AT use and training needs.

Information regarding challenges to AT use and perceptions of training needs was obtained using open-ended questions. Frequencies were computed on the comments elicited from open-ended questions. In order of the most frequently cited, the following were identified by the professionals as significant barriers or challenges to using AT with students:

- Irregular electricity/power to operate available PCs (n = 57)
- Lack appropriate AT devices/services in classrooms (n = 31)
- Do not understand how to adapt/modify AT to improve students' learning (n = 20)
- Some expensive AT devices breakdown easily with no plan for maintenance (n = 9)

they had received during their postsecondary education. Below is a summary of their comments, in order of the most cited:

- Received inadequate training in AT during postsecondary education (n = 38)
- Felt postsecondary institutions did not want to invest in AT devices (n = 9)
- Some university teachers did not have knowledge of AT devices and services (n = 8)
- Outdated AT devices used in some class lectures (n = 7)
- AT training received during postsecondary education was good (n = 6)

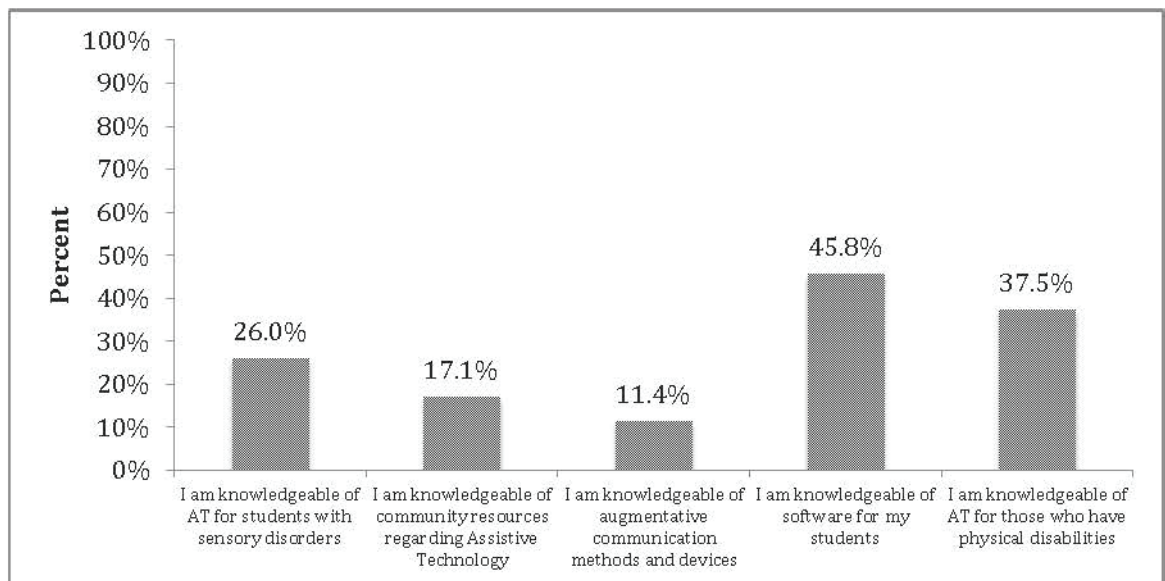


Figure 4. Percent of professionals knowledgeable about aspects of AT.

Table 1
Variable Loadings on Components of Teachers' Perceptions.

	Loading
Component 1: Willingness to integrate AT and support from administrators	
I have time to increase my technology-related knowledge and skills	.629
Assistive Technology is an important part of the daily routine for all of my students	.688
I can arrange and manage the classroom environment to facilitate the use of Assistive Technology	.625
My administrators support the use of Assistive Technology for my students	.640
Component 2: Ability to use/integrate AT	
I can identify and use Assistive Technology that can provide access to educational materials that are otherwise inaccessible to some individuals	.670
I am able to identify and operate software that meets educational objectives for students in my classroom	.613
My post-secondary institution's training program emphasized the use of Assistive Technology for children with disabilities	.729
Component 3: Availability of AT resources	
Information about Assistive Technology is easy to obtain in my school district	.779
Assistive Technology assistance is readily available in my school	.602
I know how, when, and where to refer a student regarding Assistive Technology	.654
Component 4: Proficiency in the use of AT	
It is easy for me to adapt Assistive Technology to meet the needs of my students	.799
I feel comfortable using Assistive Technology with my students	.577
I have received appropriate training in the use and integration of Assistive Technology at a post-secondary institution	.495

Findings Pertaining to Objective 4

Exploratory factor analysis (EFA) was conducted to determine what, if any, underlying structure exists for measures of the 14 Likert scale variables (shown in Table 1). The other six Likert scale variables were excluded from the analysis because either they cross-loaded on more than one factor or had low commonalities of less than .30. Principal components analysis was used for extracting the factors via varimax rotation. Four criteria were used to determine the number of components to retain: eigenvalue, variance, scree plot, and residuals (Mertler & Vannatta, 2002). The criteria indicated that

four components should be investigated. Table 1 shows the results of the EFA.

After rotation, each of the four components accounted for 17.1%, 16.5%, 12.5%, and 10.3% of variance in perceptions, respectively. All the variables had positive loadings on the factors. The four components were named: willingness to integrate AT and support from administrators, ability to use/integrate AT, availability of AT resources, and proficiency in the use of AT, respectively.

Correlations of factors with demographic variables. First, for the 138 teachers, Pearson correlations were computed between the factors of the teachers' perceptions and teachers' years of experience. Second, point biserial correlation coefficients were conducted between the same factors and students' conditions, all of which were dichotomous. The results of this analysis are presented in Table 2. The significance values for these

correlations were adjusted for type I error risk using the Bonferonni correction.

The factor of willingness of teachers to integrate AT and the support from administration did not significantly correlate with any of the students' conditions. For students with Down syndrome, teachers tended to indicate being less able to use/integrate AT devices and services ($r_{pb} = -.244, p < .05$). The same applied when dealing with students who have autism ($r_{pb} = -.249, p < .05$). These correlations, albeit not very strong, could shed light on training needs of teachers, particularly

Table 2
Correlations between Components and Students' Conditions.

	How many years as a special education teacher?	Down Syndrome	Autism	Learning Disabilities	Behavioral Disorder	Epilepsy	Orthopedic Impairment	Blind/Low Vision	Deaf or Hard of Hearing
Willingness to integrate AT and support from administrators	-0.003	0.099	-0.111	-0.133	-0.117	-0.069	-0.007	0.012	-0.085
Ability to use/integrate AT	-0.016	-.244*	-.249*	0.026	-0.109	-0.191	-0.114	-0.073	.212
Availability of AT resources	-.308*	-.195	-.276*	-0.129	-.327*	-0.155	-0.118	0.005	0.138
Proficiency in the use of AT	-0.063	-0.017	0.02	-0.003	-.252*	0.045	-0.016	.372*	-0.166

*Correlation significant at .05 using a Bonferonni adjusted p-value.

when dealing with students who exhibit these two types of conditions.

The factor of availability of AT resources correlated negatively with teachers' years of experience. Teachers with more years of experience tended to view AT resources as being inadequate. Also, they tended to report the unavailability of resources for students with behavioral disorder ($r_{pb} = -.327, p < .05$), and autism ($r_{pb} = -.276, p < .05$). The relatively small magnitude of these significant correlations is important to note when making decisions based on these findings.

DISCUSSION

This study provides a description of the status of AT service delivery in Nigerian schools. As far as can be ascertained, it is the first time such a study has been undertaken in the country. The outcomes reveal some

progress in the implementation of AT instruction. Data also point to the unavailability of AT resources for some learners, in addition to concerns about the lack of awareness about AT services by professionals working with special needs populations.

As can be seen from Figure 1, the only category of students with whom the professionals worked – and who represented more than half their students – were those with deafness or hard of hearing (53.3%). The same professionals reported students' primary uses of computers to be: educational software (92.2%), word processing (36.9%), Internet (26.2%), email (14.9%), and other (4.3%). The professionals, however, reported a number of reasons for computer usage. These professionals reported three aspects of computer usage greater than 50% in the following areas: email, Internet, and word processing (70.2%, 68.8%, and 56.7%, respectively). However, they reported low usage in the areas of

data collection (27.0%), and other (2.1%). Of the five areas of professionals' knowledge about aspects of AT and their level of knowledge, the respondents reported percentages less than 50% across the board.

The underlying structure of teachers' perceptions associated with AT consisted of the following four components: willingness to integrate AT and support from administrators, ability to use/integrate AT, availability of AT resources, and proficiency in the use of AT. It is suggested that when researchers contemplate studying issues related to teachers' perceptions of AT, they could use these four components as a starting point.

The willingness of teachers to integrate AT into their classes and the support from administrators did not seem to be related to any of the students' conditions. This is a positive finding since teachers do not appear to regard the students' conditions when they decide to integrate AT. Teachers' ability to integrate AT though is related to the students' conditions. This suggests the need for more specific training in order for the teachers to effectively meet the students' instruction, communication, and socialization needs, including for students with epilepsy, autism, and Down syndrome.

Lack of resources has been a recurring theme in this study, and is similar to results obtained in the United States (Bausch & Ault, 2012; Derer, Polsgrove, & Rieth, 1996; Lee & Vega, 2005). In the current study, all professionals tended to report that AT resources are generally unavailable or very limited. The correlation analysis corroborated this finding, and specifically indicates that this is more so for students with Down syndrome and autism. However, one should not make causal inferences from these data.

Some limitations with this study should be noted. The researchers collected data from a relatively small sample, considering the large population and size of Nigeria. Therefore, generalization to the greater population is limited. Data were collected from five out of the 36 states that were geographically diverse and that presented different educational placement options. Further research on the subject of AT from the perspectives of students with disabilities and special educators is warranted. Future studies could use other methods (e.g., focus groups or large-scale surveys of students), and sample groups, such as university lecturers; special educators in nursery, primary and secondary schools; and related support service providers (e.g., speech and language pathologists, physical therapists, audiologists). The aim should be to find practical solutions to the challenges of AT service delivery in all schools and to identify the factors that contribute to quality AT programs.

CONCLUSIONS AND RECOMMENDATIONS

Children, youth, and adults with disabilities need to be competent in the use of AT in order to reach their highest level of self-sufficiency in our technologically-oriented society. To successfully integrate students with disabilities into society, educators in Nigeria could use certain tools and techniques that enable learners with special needs to gain better access to information and work around difficulties in academic and extra-curricular subjects. This implies that professionals themselves be familiar with AT to provide services and successful learning opportunities for students with special needs, whether in inclusive, residential or home settings. Thus, to become competent in AT usage, students with disabilities must be taught by professionals who possess adequate knowledge and positive attitudes toward AT instruction (Gold & Lowe, 2009; Huting, 1996; LaMaster, 1998; Zhou et al., 2012).

A number of respondents in this study expressed concern about their limited knowledge of AT, which they attributed to insufficient preparation in teacher training programs. To corroborate this inadequacy, one participant commented: "Even at the university I attended, all the AT devices a lecturer showed in class were 15 years old ... I saw more functional devices on the Internet, but the university couldn't purchase them because of cost!" One respondent, who is blind, from another tertiary institution, decried the frequent power failures that, she noted, prevented the full utilization of the screen-reading software on the computer.

In addition to the above-mentioned problems, some respondents reported that their special education program did not have a dedicated course in AT instruction, but only had theoretically-based topics infused into a couple of courses. Others commented on the inability of their lecturers to stay current with the eclectic, interdisciplinary field of AT, while still others wrote about restrictions related to time and programming. To determine some of these curricula deficits, the researchers reviewed the syllabi on instructional methods from the postsecondary institutions sampled, as well as information on Internet sites. They found little continuity in lecturers' levels of knowledge and ability to use AT, as reflected in the superficial topics related to AT instruction contained in the documents that were analyzed.

Based on the foregoing, it seems that strengthening training in AT is a prerequisite to tackling the knowledge stagnation of lecturers and practicing special educators. Institutions of higher education that offer courses in special education and rehabilitation need to include AT as a fundamental component and reflect

such awareness in both the design of their curricula and the evaluation of their training outcomes. These institutions can collaborate with foreign universities and organizations to provide much-needed direction. External organizations are often able to provide funding support, which Nigerian authorities should explore. In order to sustain any gains that might result from such innovations, the accreditation bodies in Nigeria must engage the services of qualified personnel from the technologically-advanced countries to ensure compliance and rigor in the implementation of quality AT instruction.

Considering the AT knowledge gap that most respondents expressed, the authors of this paper particularly recommend training in AT at the in-service level, as practiced in the United States (Derer et al., 1996; Lahm & Nickels, 1999; Lee & Vega, 2005; Maccini, Gagnon, & Hughes, 2002; Miranda, 2001). According to one participant who teaches children with autism and Down syndrome, "AT workshops organized on weekends or during long vacations can give those of us already working with handicapped children some hands-on experiences." The issue of providing adequate technological resources, among other competencies, to aid effective education delivery in the country, has been investigated (Ajuwon, 2012), and has also been reinforced by researchers in the United States (Bouck, Flanagan, Miller, & Bassette, 2012; Edyburn, 2013; Outhred, 1989).

To conclude, the authors stress that in-service training and support (Anderson & Petch-Hogan, 2001) and pre-service preparation (Bausch & Ault, 2012; Derer et al., 1996) should be combined to address the many instructional needs in AT among currently-employed professionals. The findings of this study suggest that adequate annual funds be set aside to purchase modern devices (including their periodic updating and maintenance) and to train staff to conduct the assessment, evaluation, and instruction of children. It is also critical that authorities understand the need for adequate infrastructure, including the uninterrupted supply of electricity, to maximize the benefits from available devices in the nation's classrooms. Policymakers must realize that AT can open a new world for students with special needs, and that learners' AT knowledge and skills will equip them to function academically and as self-reliant, productive adults throughout their lives.

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Teachers' Attitudes Toward Children with Autism: A Comparative Study of the United States and Saudi Arabia

Abdulrahman Alamri

University of North Texas, USA
AbdulrahmanAlamri@my.unt.edu

Tandra Tyler-Wood

University of North Texas, USA

Abstract

Saudi Arabia (Saudi) and the United States (U.S.) both have procedures in place for identifying and serving individuals with autism spectrum disorders (ASD) in the general classroom setting. To determine differences in teachers' attitude towards autism in Saudi and the U.S., data were gathered, compared, and contrasted from both general education and special education teachers in both countries. The Autism Attitude Scale for Teachers (AASST) is a brief assessment of teacher beliefs that was used in this research. Results indicated significant differences in responses between the Saudi and U.S. teachers on 10 of 14 questions asked concerning teacher attitudes towards students with autism. Although the educational regulations governing autism in Saudi schools were introduced and modeled after U.S. legislation (Alquraini, 2012), teachers in Saudi tend to teach students with autism separately and not in an inclusive environment. The negative responses gathered through the survey seemed to relate to a fear of possible problem behavior from students and insufficient awareness of the characteristics of autism. Recommendations were made for additional exploration into teacher training using various technology applications.

INTRODUCTION

According to estimates from the U.S. Centers for Disease Control and Prevention (2010), one in 68 children in 2010 had autism spectrum disorder (ASD), as compared to one in 88 children in 2008. Estimates indicate that in 2014, more than 3.5 million Americans were classified as having autism spectrum disorder (<http://www.autismspeaks.org/>). There is no known recent data that indicate the number of children classified with autism in Saudi. However, earlier research from Yazbak (2004) indicated that the estimated number of children with autism in Saudi was 42,500. Unfortunately, no reference was made as to how this estimate was obtained (Murshid, 2005). Based on the official government statistics reporting the total population in 2013 of 29,994,272 (<http://www.cdsi.gov.sa>), and a ratio of one child per 68 having autism in the U.S., it can be reasonably estimated that there are now approximately 400,000 children with autism in Saudi. These data representing the large number of children identified with autism in both countries indicate the necessity for teacher training programs that better prepare teachers to provide quality services to children identified with autism (Haimour & Obaidat, 2013).

Although there has been a significant increase in the estimated number of children with autism, empirical research focusing on teacher attitudes toward children with autism is still limited (Park & Chitiyo, 2010).

Studies of teachers' philosophy in

educating students with autism in Saudi are very limited (Al-Faiz, 2006; Al-Zahrani, 2013; Haimour & Obaidat, 2013; Zeina, Al-Ayadhi, & Bashir, 2014), and it is clear that one of the main issues teachers and parents face in Saudi when working with children with autism relate to the inclusion of these children into the regular education classroom (Al-Faiz, 2006). Haimour and Obaidat (2013) indicated that the lack of inclusion occurs because of a lack of knowledge as well as the lack of training and resources provided to parents and teachers working with children with autism. In Saudi, students with high functioning autism, such as Asperger's Syndrome, often remain undiagnosed because teachers are unable to recognize the symptoms of autism. In addition, many students with autism in Saudi receive educational intervention in special centers for students with severe learning difficulties, regardless of their intellectual ability or particular needs (Zeina, Al-Ayadhi, & Bashir).

Autism in Education

Students in special centers are often not receiving services in the least restrictive environment (LRE). Yell (1995) defined LRE as “a principle stating that students with disabilities are to be educated in settings as close to regular classes as appropriate for the child” (p. 193). Least restrictive environment takes place across a continuum of environments from least to most restrictive, which includes these common types: a) general education classroom, b) general education classroom with consultation from or with additional instruction/related specific services from a special educator, c) resource room for a specific time where the student is pulled out for specialized instruction, d) separate classrooms where special educators are provided, e) separate schools where special educators are specifically trained to deal with students during the school day, f) residential schools where the student receives education and care 24 hours a day, and g) homebound or hospital where services are provided in the home or hospital (Hill & Sukbunpant, 2013; Yell, 1995).

In Saudi, special education services are provided in order to meet the diverse needs of all children with special educational needs. These service delivery models include residential schools, day schools, self-contained classes, resource room programs, itinerant teacher programs, teacher-consultant programs, and follow-up programs (Al-Mousa, 2010).

In the U.S., public education is guided by federal legislation through the Individuals with Disabilities Education Act (IDEA, 2004) and No Child Left Behind legislation (NCLB, 2001). IDEA (2004) requires that students with disabilities receive education in the least restricted environments (LREs), while NCLB (2001) requires that students receive access to the general curriculum and state mandated assessments in the major subjects of science, reading, writing, and math (Moore-Abdool, 2012). Most students with ASDs are educated in public schools and entitled to a free, appropriate, public education in the least restrictive environment. For most students, this is in inclusive settings (i.e., the general education classroom) (Hill & Sukbunpant, 2013). However, IEP teams, administrative support, and professionals and parents with differing experiences and philosophies sometimes resist inclusion (Pierce & Tincani, 2007).

The educational definition of autism is more concise than its mental health counterpart because it has been defined by federal and state laws. IDEA 2004 defined autism as “a developmental disability significantly affecting verbal and nonverbal communication and

social interaction, generally evident before age three, that adversely affects a child’s educational performance. Other characteristics often associated with autism are engagement in repetitive activities and stereotyped movements, resistance to environmental change or change in daily routines, and unusual responses to sensory experiences” (IDEA Regulations, 34 C.F.R § 300.8[c][1][i]).

Autism was first identified in the U.S. in 1943 by Kanner, who labeled the characteristics associated with autism as a developmental disorder (Horrocks, White, & Roberts, 2008). Kanner described 11 children, eight boys and three girls, with different individual actions, labelled as “extreme autistic aloneness.” Early signs of the syndrome included the inability to engage in anticipatory actions, the inability to convey meaning in a social sense, and the use of repeated personal pronouns rather than grammatically correct pronouns. However, most of the children had good cognitive skills and outstanding rote memory skills (Fisch, 2012). Kanner’s description identified three common symptoms, including impaired social interaction, lack of imaginative play, and lack of verbal communication (Al-Faiz, 2006). Interest in autism spectrum disorder (ASD) in Saudi began informally in 1993 through the efforts of a group of concerned private citizens and educators, and formally in 1998, when the Saudi system of education established services for students with ASD in schools (Al-Faiz, 2006).

This research examined teachers’ attitudes toward autism in the U.S. and Saudi, and explored how such attitudes are impacted across different cultures and countries. In Saudi, the government enacted the Provision Code for Persons with Disabilities in 2000 (Al-Mousa, 2010). In addition, the Document of Rules and Regulations for Special Education Institutes and Programs was issued by the Ministry of Education in 2002 (Al-Mousa, 2010). This document is an example of how Saudi modeled its regulations after U.S. initiatives (Alquraini, 2012). However, in many large cities in Saudi, programs for students with autism have been established with students who have multiple disabilities primarily utilizing self-contained classes in institutes for individuals who are classified as mentally disabled. It is anticipated that programs using this service delivery model will increase to cover more areas and cities in the future. There has been a push to change service delivery models for students with autism in Saudi. In 2000/2001, the General Secretariat for Special Education began to establish programs for students with autism in regular schools instead of institutions for people with mental

disabilities (Al-Mousa, 2010). In 2006/2007, the Ministry of Education of Saudi indicated that students with autism would be taught in 64 special education institutes or self-contained classes. Services in the institutes were provided for 515 students with autism (Al-Mousa, 2010). The term “Special Institutes,” as they are known in Saudi, “refer to separate schools, special schools, or special education schools.” Self-contained classroom programs “refer to special education programs in regular education schools” (p. 17).

In 2008, across 46 states in the U.S identified 272, 311 students with autism aged 6-21 years under IDEA criteria for autism resulting in a national prevalence of 0.44, which means that schools identified 1 in 288 students with autism (Sullivan, 2013). Although there are inherent differences between schools in Saudi and the U.S., it is important to examine practices and service delivery models in both countries. An exchange of information could facilitate the adoption of best practices for serving students with autism in both countries.

Literature Review

Autism is a lifelong condition that is recognized as a complex disorder often with unknown causes. A major impediment to progress in treating and understanding this disorder is that there is no way to reliably determine which form of autism a child might have based on the symptoms (Bradford, 2010). Autism can be marked by “impairments in social interaction and communication, possible impairments in cognitive functioning, and often impairments in fine and gross motor skills” (Bradford, 2010, p. 149). A child with severe autism noticeably struggles to speak, may never develop speech, or may show a delay in the development of language comprehension more than other children (Bradford, 2010). Standardized measures of adaptive behavior are useful tools in the diagnosis of autism, and may provide important information about communication, socialization, and other behaviors relative to the child’s age (Gillham, Carter, Volkmar, & Sparrow, 2000). Several revisions of diagnostic criteria are at issue in arriving at a uniform definition. Two decades after the *Diagnostic and Statistical Manual of Mental Disorders* (4th edition), (DSM-IV) and the International Statistical Classification of Diseases and Related Health Problems 10 (ICD-10) diagnostic systems appeared, a need to determine convergent definitions of autism and related disorders has been facilitating research and impacting clinical service (Volkmar, State, & Klin, 2009). It can be said that since Kanner’s description of autism as a syndrome, there have been many advances in the classification and diagnosis of autism-related conditions;

these include the recognition of autism as a disorder.

Research has also determined the classification of specific conditions within the heterogeneous group of disorders (Asperger’s disorder, Rett’s disorder, childhood disintegrative disorder). These disorders have been officially recognized, as well as a “subthreshold” category termed, in DSM-IV, Pervasive Developmental Disorder not otherwise specified (PDD-NOS) or in ICD-10 as atypical autism (Volkmar, State, & Klin, 2009, p. 108). Autism spectrum disorders (ASD) is the broad term for the *Diagnostic and Statistical Manual of Mental Disorders* (4th edition, text revision), (DSM-IV-TR) diagnoses of autism, Asperger’s, and pervasive developmental disorder-not otherwise specified (PDD-NOS) and refers to these as spectrum disorders noting the range of autism reaches from mild to very severe (Willis, 2009). Autism is one of the five disorders included in Pervasive Development Disorders (PDD). According to the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 2000), the classification of PDD consists of “Autistic Disorder, Rett’s Disorder, Childhood Disintegrative Disorder, Asperger’s Disorder, and Pervasive Developmental Disorder not otherwise specified”.

In Saudi, the definition of autism has been established by the Special Education Institute and Program as a disorder that is evident before a child’s third birthday. Characteristics associated with the disorder are:

1. Inability to develop speech (use what has been learned, communicate with others).
2. Inability to develop normal relationships with others, characterized by isolation and introversion.
3. Repetitive, atypical, and aimless behavioral patterns. (Al-Faiz, 2006).

However, the diagnostic and assessment processes needed to determine the eligibility of students for special educational programs still have shortcomings. For instance, the assessment process for children in Saudi begins too late. Identification begins once the child goes to school, so schools cannot provide early intervention for children with disabilities and their families. Furthermore, most of the special education institutes and public schools lack IEP teams, multidisciplinary teams, IQ tests, adaptive behavior and academic scales that are appropriate to the cultural standards (Al-Nahdi, 2007).

In conclusion, because of various revisions of the diagnostic criteria, research, source allocation, and clinical decisions, autism has been redefined many times since Kanner’s (1943) original publication, not only as a disorder, but also as a pervasive disability with characteristically heterogeneous manifestations (Matson &

Sturmev, 2011). Because of the many changes in definition and classifications within the disorder, teachers in both cultures may have difficulty determining which children are actually served under the category of ASD.

Teacher Attitudes and Impact on Learning

Teachers play a critical role for students with autism in many aspects of care, management, and education. Teachers are of vital importance for providing appropriate educational experiences and facilitating developmental opportunities, and in particular for improving students' social communication skills (Helps, Newsom-Davis, & Callias, 1999). Hence, it is not surprising that a social movement was born to advocate for and educate about the advantages of having a good teacher. In psychology, there has been a long history of interest in and ongoing attempts to measure attitudes (Kelly & Barnes-Holmes, 2013). Attitudes can be defined as concepts that impact options for providing appropriate intervention and quality service for children with autism. Teachers' attitudes toward autism are critical (Hadjikakou & Mnasonos, 2012). Teachers are one of the important moderating variables that may influence the effectiveness of any autism intervention (McGregor & Campbell, 2001). Attitude consists of three components: affective, behavioral, and cognitive (Shank, 2002). Boone and Kurtz (2002) defined the concept of attitude as "a person's enduring favorable or unfavorable cognitive evaluations, emotional feelings, and action tendencies toward some object or data" (pp. 281-82).

Teachers in many countries have different perspectives toward autism (Kim, 2012). Lindsay, Proulx, Thomson, and Scott (2013) conducted a qualitative study on a purposive sample of 13 educators who taught children with autism in two cities in Ontario, Canada. Interviewers asked about teachers' challenges regarding the inclusion of students with autism in the classroom. Results indicated that there were challenges that included understanding and managing students' behavior, socio-structural barriers, lack of training, availability of resources, school policies, and challenges in creating an inclusive environment. Additional concerns emerged including the lack of awareness and understanding of autism disorder among staff, students, and parents. In Arabic countries, there have been attempts to provide educational services for students with autism. Al-Sharbati et al. (2013) conducted a study to understand teachers' knowledge and awareness of autism in Oman. A total of 164 teachers from mainstreamed classes from five schools indicated that there were prevalent

misconceptions of autism spectrum disorder. The lack of awareness was rooted in sociocultural patterning, as well as conflicting views often "spun" by the scientific community and mass media. Recently in the U.S., two studies have used the Autism Attitude Scale for Teachers (AAST) survey to identify the beliefs of general educators and special educators about the inclusion of students with autism (Park & Chitiyo, 2010; Kosmerl, 2011). According to the research completed by Park and Chitiyo (n = 127) it is likely that special education teachers are more receptive to the inclusion of students with autism compared to general education teachers. It was hypothesized that this difference was found because special education teachers have had more training and experience with students with autism. The researchers found significant differences in attitudes between teachers who had attended multiple workshops and those who had not. Elementary school teachers were found to have more positive attitudes than middle or high school teachers. Kosmerl (2011) studied 50 general educators and 50 special educators from elementary public schools. Findings indicated that special educators had more receptive beliefs about the inclusion of students with autism compared to general educators. Through open-ended questions, general education teachers reported that the three main requested support systems for successfully including students with autism in public schools are personal care assistance, training specific to autism and consultation with an autism specialist. Special education teachers also reported the essential three support systems they could provide to general education teachers as consultation with the general education teacher regarding the specifics of an individualized education plan (IEP) and specially designed instruction (SDI), use of a board maker to develop picture schedules and communication boards, and the development of functional behavior assessments and positive behavior support plans.

The Importance of Comparing Autism Research Across Cultures

The current research project utilizes a constructivist approach, namely discovery learning (Alfieri, Brooks, Aldrich, & Tenenbaum, 2011). The theory is supported by the work of learning theorists Jean Piaget, Jerome Bruner, and Seymour Papert. By reviewing the literature and gathering data, the authors of this article hope to better understand how teachers view students with autism across the two cultures, Saudi and the U.S. Their data could inform teacher training, in-service training, and policy making in both countries.

International collaboration and dialogue is vital (Yssel, Engelbrecht, Oswald, Eloff, & Swart, 2007). Research in international trends in special education, involving students with autism in particular, is critical. Despite challenges, such as making generalizations about a complicated developmental disorder impacting such a broad spectrum of students, society has much to gain when research can be synthesized. Collaborative research efforts concerning families, both general and special educators, principals, IEP teams, and the community will contribute towards best practices for students with autism.

There is research in both cultures that can be synthesized, including research related to teachers' attitudes toward students with autism in school. Haimour and Obaidat (2013) conducted such a study. A total of 391 general and special education teachers from various segregated and inclusive schools within Jeddah in Saudi participated in this survey. In the past, teacher participants have demonstrated a relative lack of knowledge about autism and the importance of professional development and training in the nature and needs of students with autism. Results of this study indicated that special education teachers demonstrated a high level of knowledge about ASD in comparison to general education teachers, who were unprepared to deal with such students. In fact, there was a lack of training for general education teachers concerning the inclusion classroom (Haimour & Obaidat).

The Potential Impact of this Study

This research explored teachers' attitudes toward autism spectrum disorder in schools in both Saudi and the U.S. In this comparative international quantitative research study, an attitudinal demographic survey was distributed to 180 educators in the two countries. This comparative study added new insights about the complexity of teachers' attitudes toward students with autism in school, and to inclusive education. Legislation regarding the provision of services for individuals with disabilities began at different times in the U.S. and Saudi. In the U.S., the Education for All Handicapped Children Act was passed in 1975 to ensure that individuals with disabilities would receive the same opportunity to have a free and appropriate public education as other children (Noonan et al., 2014). In Saudi, providing special education services for individuals with disabilities emerged in 1958, but formal policies were not instituted until 2001 with the introduction of the first education regulation modeled after U.S. initiatives. This initiative was known as the Regulations of Special

Education Programs and Institutes of Saudi (RSEPI) (Alquraini, 2012). The Ministry of Education in Saudi annually reviews its education system and compares it to the equivalent system in the U.S. (Al-Faiz, 2006). As a result, this research should be viewed as a first attempt to explore teachers' attitudes toward students with autism in Saudi and the U.S. Understanding cultural differences between the two countries can help improve current practices in each cultural setting. In addition, understanding these complex cultural differences may influence policymakers in these different countries to improve practices toward autism spectrum disorders in their own schools. This understanding may also influence other countries to improve and enhance their practices. Other countries can benefit from the experiences of the U.S. and Saudi in establishing a well-rounded policy that matches their needs.

Research Questions

The purpose of this research was to explore and describe educators' perceptions of autism spectrum disorder in their classrooms. The central research question was: "What are the factors that contribute to or hinder teachers' attitudes regarding autism spectrum disorder in their schools?"

The hypothesis of this research is: "H1: There are no significant differences in the attitudes of Saudi and U.S. teachers towards students with autism in school."

METHODS

Participants

Teachers in Saudi and the U.S. were contacted through social media via Twitter, Facebook, and email. Through the various social media options, a link to a survey webpage (<http://www.surveymonkey.com>) was provided for participants from the US. Another link (<https://unt.az1.qualtrics.com>) was provided for participants in Saudi. Before beginning the survey, participants were told their names were not required, demographic information would be kept confidential, and that participation was voluntary. In total, there were 185 general and special education teacher participants in the U.S. and Saudi.

There were 142 (76%) participating teachers from Saudi of whom 65 were general educators, 43 were special educators, 6 were principals, 7 were school psychologists, and 21 reported as "other." The participants from the U.S. numbered 42 (23%) and included 24 general education teachers, 5 special education teachers, 1 teacher aide, and 13 who reported as "other." The participants taught students in grades preschool or kin-

Table 1
Demographic Information.

Characteristics	United States	Saudi Arabia
Teachers' educational role		
General Education Teacher	24 (55.8%)	65 (46.4%)
Special Education Teacher	5 (11.6%)	41 (29.3%)
Teacher aide	1 (2.3%)	0 (0.0%)
Principal	0 (0.0%)	6 (4.3%)
School psychologist	0 (0.0%)	7 (5.0%)
Other	13 (30.2%)	21 (15.0%)
The levels of the teachers' schools		
Preschool or kindergarten	7 (16.3%)	13 (9.2%)
Elementary School	18 (41.9%)	62 (43.7%)
Middle School	5 (11.6%)	25 (17.6%)
High school	10 (23.3%)	23 (16.2%)
Other	3 (7.0%)	19 (13.4%)
Experience		
Less than one year	0 (0.0%)	8 (5.7%)
1~2 years	4 (9.3%)	16 (11.3%)
3~5 years	5 (11.6%)	32 (22.7%)
6~10 years	8 (18.6%)	33 (23.4%)
More than 10 years	26 (60.5%)	52 (36.9%)
The type of exposure to exceptional children		
Taught a special class	7 (16.3%)	37 (26.4%)
Taught some exceptional children who were mainstreamed	29 (67.4%)	19 (13.6%)
Volunteered to work with exceptional children	1 (2.3%)	6 (4.3%)
Had indirect contact with exceptional children in others' class	1 (2.3%)	12 (8.6%)
Learned about exceptional children in college courses	4 (9.3%)	15 (10.7%)
None	1 (2.3%)	51 (36.4%)
Teachers' age		
20-25 years	5 (11.9%)	92 (65.2%)
26-35 years	9 (21.4%)	45 (31.9%)
36-45 years	18 (42.9%)	4 (2.8%)
46-55 years	8 (19.0%)	0 (0.0%)
56 years or more	2 (4.8%)	0 (0.0%)
Gender		
Female	31 (73.8%)	87 (62.6%)
Male	11 (26.2%)	52 (37.45)
Note: N of U.S.= 42. N of Saudi Arabia= 137.		

dergarten through high school. In Saudi, 13 participants (9%) taught preschool or kindergarten, 62 participants (43%) taught elementary school, 26 participants (18%) taught middle school, 23 participants (16%) taught high school, and 18 participants (13%) reported “other” as the grade level taught. In the U.S., the grade levels taught by the participants were preschool or kindergarten (7 participants or 16%), elementary school (18 participants or 41%), middle school (5 participants or 11%), high school (10 participants or 23%), and other (2 participants or 7%).

Many participants from both countries were experienced educators. There were 52 participants (37%) in Saudi and 26 participants (60%) in the U.S. who had more than ten years’ experience as educators. Regarding teaching exceptional children, 37 (26%) participants in Saudi taught a special class, 19 (14%) taught some exceptional children who were mainstreamed into regular classes, 6 (4%) volunteered to work with exceptional children, 12 (9%) had indirect contact with exceptional children who were in other classes in their school, 15 (11%) learned about exceptional children in college courses, and 36% had no exposure to exceptional children.

Among the participants in the U.S., 29, or 67% previously taught some exceptional children who were mainstreamed into regular classes, 7 (16%) taught a special class, and 4 (9%) learned about exceptional children in college courses. Regarding the participants’ ages, the majority in Saudi ranged between 20-25 years (65%), while in the U.S., the largest group of participants ranged between 36-45 years (43%). Regarding the participants’ gender, in Saudi 87 (63%) were female, and 52 (37%) were male. The majority of participants in the U.S. were female (31, or 74%).

Instrumentation

The instrument used in this study was developed by Park and Chitiyo (2010) and is based on Olley and colleagues work: the Autism Attitude Scale for Teachers (AAST) (Olley et al., 1981). This instrument measures the attitude of school teachers towards students with autism. The survey scale includes a practitioner’s demographic section used to gather data on teachers’ educational role (general education teacher, special education teacher, teacher aide, principal, school psychologist, and other), the grade levels of the participants’ schools (preschool or kindergarten, elementary school, middle school, high school, and other), years of experience divided into five categories (less than one year, one to two years, three to five years, six to ten years, and more

than ten years), the type of exposure to exceptional children (taught a special class, taught some exceptional children who were mainstreamed into a regular class, volunteered to work with exceptional children, had indirect contact with exceptional children who were in other classes of the school, learned about exceptional children in college courses, none, and others). The age ranges were between 20 and 56 years or more and were divided into five categories (20-25 years, 26-35 years, 36-45 years, 46-55 years, and 56 years or more), and gender included male and female.

The survey scale consisted of 14 questions and used a 5-point Likert scale where 1 = strongly disagree, 2 = disagree, 3 = unsure, 4 = agree, and 5 = strongly agree, to measure the attitude of school teachers towards children with autism. The survey questions were translated into Arabic and reviewed by three professors holding doctorates and currently teaching in a college of education in Saudi. The Arabic version was loaded into <https://unt.az1.qualtrics.com>, and the English version of the survey was loaded into SurveyMonkey.com. Participants were recruited through social media and email. The consent notice at the beginning of the survey explained to the participants the purpose of the study and advised that completing the online survey was entirely voluntary. Some items were negatively worded, and by reverse scoring, a total score was computed by summing the individual item scores. Once the negative item numbers 8, 9, 11, 13, 14, 16, 18, 20, and 21 were converted, the survey yielded an alpha reliability of 0.789 for all 14 items.

Data Analysis Procedure

The attitudes of teachers from the U.S. and Saudi regarding students with autism in schools were analyzed using summary scores of the survey scale. To answer the research questions, data were analyzed using descriptive statistics for categorical data, such as means, standard deviations, and a t-test. Data were numerically coded and transferred into the Statistical Package for the Social Sciences (SPSS) pack 22 software.

A cross-tabulation procedure was performed to sort and compare the attitudes of teachers with educational roles, including those of general teachers, special education teachers, teacher’s aides, principals, and others toward students with autism in schools. The mean scores for the teachers’ educational role survey questions were calculated separately. An independent samples t-test was completed to determine if statistically significant differences existed between the general and special educators in the U.S. and Saudi.

Table 2

Summary of Agreement of Participants for Each Question Indicated by Likert Mean Scores: Independent Samples *t*-Test for Significant Difference.

Item N	Item	Group	N	Mean	Std. Dev.	t	P (Two-tailed)	Cohen's d**
1	Only teachers with extensive special education training can help a child with autism.	US	43	1.88	.956	-12.73	<.001	2.23
		SA	137	4.17	1.047			
2	Meal time behaviors of children with autism are disruptive and negatively influence the behavior of children around them.	US	43	2.14	.833	-8.08	<.001	1.41
		SA	137	3.40	.911			
3	Schools with both typically developing children and children with autism enhance the learning experiences of typically developing children.	US	43	3.60	1.094	1.53	.128	.26
		SA	136	3.32	1.073			
4	Typically developing children and children with autism should be taught in separate schools.	US	43	1.74	.928	-8.19*	<.001	1.22
		SA	136	3.21	1.285			
5	Children with autism can learn from a good teacher.	US	43	4.37	.952	1.63	.105	.28
		SA	136	4.11	.908			
6	Regular schools are too advanced for children with autism.	US	42	1.71	.596	-6.44*	<.001	.81
		SA	136	2.61	1.218			
7	I would not want the children in my class to have to put up with children with autism.	US	42	1.64	.692	-7.94*	<.001	1.02
		SA	136	2.88	1.328			
8	Teachers not specifically trained in special education should not be expected to deal with a child with autism.	US	43	2.26	.875	-9.36*	<.001	1.39
		SA	136	3.83	1.196			
9	Children with autism are too impaired to benefit from the activities of a general school.	US	43	1.67	.644	-9.94*	<.001	1.28
		SA	136	3.12	1.248			
10	Schools with both typically developing children and children with autism enhance the learning experiences of children with autism.	US	42	4.00	.698	2.03*	.046	.30
		SA	135	3.73	.950			
11	If I had the choice, I would teach in a school in which there were no children with autism.	US	43	1.79	.804	-3.26*	.002	.48
		SA	134	2.31	1.158			
12	A good teacher can do a lot to help a child with autism.	US	43	4.30	.887	-.48	.633	.08
		SA	135	4.36	.665			
13	Children with autism cannot socialize well enough to profit from contact with typically developing children.	US	43	1.79	.833	-8.96*	<.001	1.38
		SA	135	3.20	1.078			
14	It is unfair to ask teachers to accept children with autism into their school.	US	43	1.81	.732	-9.54*	<.001	1.32
		SA	135	3.27	1.204			

*Equal variance not assumed

**Using pooled standard deviation

Note. (1=strongly disagree, 5=strongly agree toward students with autism in schools).

Note. The mean scores of SOME questions were reversed during analysis so that higher numbers represented higher ratings. ^aU.S. teachers, n=43. ^bSaudi Teachers, n=137. ^cSmall if d=.20; Medium if d=.50; Large if d=.80. * p<.05.

RESULTS

Demographics of Participants

The participants in the study totaled 180. Forty-three were from the U.S. and 137 from Saudi. The respondents from the U.S. were 26.2% female and 73.8% male teachers, while 62.6% of the respondents from Saudi were female and 37.45% were male.

The overall attitude toward autism disorder in schools was analyzed via a comparison of the means of the U.S. and Saudi teachers' ratings. In addition, the data were compared between the countries for each question on the instrument scale. An independent samples t-test was completed to compare overall means for the full scale between U.S. and Saudi teachers (see Table 2). A statistically significant difference was found between the two nations on the full survey scales.

Table 2 shows the Likert mean scores, p values, and effect sizes for each question on the instrument scale. The mean scores between the U.S. and Saudi teachers were comparable across the t-tests (see Table 2). However, the U.S. and Saudi participants showed significant differences on the Likert scale on some individual questions.

Table 2 shows the Likert mean scores, p values and effect sizes for each question on the instrument scale. Between the U.S. and Saudi, teachers displayed bigger differences on the following questions: 1 (Only teachers with extensive special education training can help a child with autism), 2 (Meal time behaviors of children with autism are disruptive and negatively influence the behavior of children around them), 4 (Typically developing children and children with autism should be taught in separate schools), 6 (Regular schools are too advanced for children with autism), 7 (I would not want the children in my class to have to put up with children with autism), 8 (Teachers not specifically trained in special education should not be expected to deal with a child with autism), 9 (Children with autism are too impaired to benefit from the activities of a general school), 11 (If I had the choice, I would teach in a school in which there were no children with autism), 13 (Children with autism cannot socialize well enough to profit from contact with typically developing children), and 14 (It is unfair to ask teachers to accept children with autism into their school) (see Table 2). The effect size of the difference in items is considered very strong, ranging between .81 and 1.38.

However, teachers in both countries indicated agreement on four items: 3 (Schools with both typically developing children and children with autism enhance the learning experiences of typically developing children);

5 (Children with autism can learn from a good teacher); 10 (Schools with both typically developing children and children with autism enhance the learning experiences of children with autism), and 12 (A good teacher can do a lot to help a child with autism).

Regarding the hypotheses in light of the results of the research questions, the outcomes indicate that there are significant differences in the negative attitudes recorded from the negative questions of the instrument, the Autism Attitude Scale for Teachers (AAST) (1, 2, 4, 6, 7, 8, 9, 11, 13, 14). By contrast, there are no significant differences in the positive attitudes of teachers in Saudi and the positive attitudes of those in the U.S. towards students with autism in schools as indicated by the instrument, the Autism Attitude Scale for Teachers (AAST) (items 3, 5, 10, 12).

DISCUSSION

Regarding the participants from Saudi, the results indicated that teachers had negative attitudes toward the inclusion of students with autism. That finding is consistent with the literature. This difference could be related to differences in the history of providing services and inclusive education between the two countries. In Saudi, the Ministry of Education established the first services formally structured for students with autism disorder in educational settings in 1998 (Al-Faiz, 2006), much later than the US. There is a noted difference between the two countries for inclusion of students with disabilities in the general education program with their non-disabled peers. These differences may be based on: (a) a lack of awareness and training among public school teachers about students with disabilities, (b) the fear that students with disabilities may endanger students in the general population, and (c) the thoughts of some educators that the "equal but separate" theory is considered the best way to teach students with disabilities (Al-Kheraigi, 1989, Al-Othman, Fischer, Christiansen, & Marble, 2004, Haimour & Obaidat, 2013). The results of the survey are consistent with the statements of Loreman, Earle, Sharma, and Forlin, (2007): "Many educators have reservations about including children with diverse learning needs in their regular classrooms since they feel that are not well prepared" (p. 150). Also, the results are consistent with Al-Sharbati et al. (2013) who found that teachers in mainstream classes have a lack of awareness of the autism disorder. The lack of awareness was rooted in sociocultural factors. The third reason, in Saudi the majority of programs for students with autism have been established with those who are multi-disabled in the form of self-contained

classes in institutes for the mentally disabled. Even though the Saudi government plans to establish programs in regular schools instead of establishing them in institutes for the mentally disabled, the majority of students will still be educated in self-contained classes (Al-Mousa, 2010). That policy leads to education that is separate, but equal.

In addition, in Saudi, there are financial and moral incentives for special education teachers that are designed to encourage them to work in the special education field (Al-Mousa, 2010). This policy may encourage teaching separately and beliefs that only teachers with extensive special education training can help a child with autism.

Regarding the participants from the U.S., the results indicated that both general and special education teachers have positive beliefs about whether students with autism should be included in the general education classroom. These beliefs are important to recognize when including students with autism in the general education environment. Although that sample size was small, general and special educators did not have different responses toward students with autism in schools. The findings are consistent with Kosmerl (2011), where teachers were receptive towards the inclusion of students with autism at the elementary level. Also, educators who have a high level of positive attitudes toward inclusion may have been influenced by the inclusion movement. This movement has played a critical role in affecting teachers' attitudes (Park & Chitiyo, 2011).

The data gained from this study can have a positive impact on the education of children with autism. Our technology-enhanced world is becoming smaller and smaller. Teachers are educating students from diverse backgrounds and cultures. Information that we identify to understand how students with autism are viewed across cultures can help us provide children with autism a better learning experience across cultures.

Limitations

This study has some limitations. First, the study used a convenience sample of teachers who had voluntarily responded to an electronic survey on a website to receive a reward. The lack of random selection limits the generalizability of the study. For instance, the percent of teachers who actually responded to the survey from the U.S. was much smaller than that of the teachers who responded from Saudi (43 to 137). Because of the low response rate, the data presented should be viewed with some caution. The results are hence limited in both countries. However, the researchers conducting the study believe that the current study is a good beginning

to gaining an understanding of the differences and similarities in identification and inclusion practices across the two countries.

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Using Virtual Reality to Help Students with Social Interaction Skills

Jason Beach

Tennessee Technological University, USA
jbeach@tntech.edu

Jeremy Wendt

Tennessee Technological University, USA
jwendt@tntech.edu

Abstract

The purpose of this study was to determine if participants could improve their social interaction skills by participating in a virtual immersive environment. The participants used a developing virtual reality head-mounted display to engage themselves in a fully-immersive environment. While in the environment, participants had an opportunity to explore and interact in a variety of scenarios that were designed to help develop their social interaction skills. The study observed and interviewed participants with autism spectrum disorders (ASD) to determine the effectiveness of virtual environments and examine how they can be used to develop and improve social interaction skills.

Keywords: *autism, social interaction skills, virtual reality*

INTRODUCTION

Understanding humor, sarcasm, and the context of bullying are all experiences that typical children and adults process daily. Students with autism spectrum disorders often struggle to understand the subtle nuances of commonplace social interactions. Navigating through childhood and into adulthood can be difficult for students attempting to build relationships, find occupations, and participate in the community (Hendricks & Wehman, 2009). Autism spectrum disorder (ASD) is a term that encompasses a variety of neurodevelopmental disorders. In May 2013, *The American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders* (5th edition) (DSM-5) redefined the autism spectrum to include diagnoses of Asperger syndrome, Rett Syndrome, childhood disintegrative disorder, and pervasive developmental disorder not otherwise specified (PDD-NOS) (Kupfer & Regier, 2013). The reclassification allows researchers to help spread awareness of these disorders to the general public and still target neurodevelopmental disorders on a case-by-case basis. According to the Centers for Disease Control and Prevention (CDC, 2014) approximately 1 in 68 children have been documented with autism spectrum disorder (ASD). These estimates are reported from the CDC's Autism and Developmental Disabilities Monitoring (ADDM) Network (CDC, 2014).

As researchers learn more about neurodevelopmental disorders, they have to leverage new technologies to help students develop their social interaction skills. Variations of virtual environments have been researched as interventions for a wide range of conditions, including phobias, specific social skills, post-traumatic stress disorder, and anxiety (Riva, 2005; Anderson, Rothbaum, & Hodges, 2001; Cameirao, Badia, Oller, & Verschure, 2010; Broeren, Claesson, Goude, Rydmark, & Sunnerhagen, 2008; Parsons, Leonard, & Mitchell, 2006; Lorenzo, Pomares, & Lledó, 2013).

One type of technology that shows promise is immersive virtual environments (IVEs). IVEs replicate physical environments by artificially creating experiences that appeal to the senses through hearing, sight, smell or touch. The environments can mimic traditional real-world settings or simulate fictional settings. IVEs employ stereoscopic displays that produce two-dimensional individual images for each eye that are interpreted and perceived by the brain as three-dimensional. The displays are embedded in a head-mounted display and can be enhanced with gloves or body sensors that provide haptic feedback. The experience is a consistent three-dimensional image that provides a natural and realistic viewing experience. Unlike three-dimensional movies, IVEs are much more realistic because of the continuous image feed from the immersive display. IVEs have been utilized for many years in a variety of

settings, including entertainment, military training, and corporate applications. Unfortunately, for these specific applications, the environments are costly to build and are typically designed around a specific training scenario or activity. The nature of these virtual environments are usually centered on a specific situation, which makes it difficult to develop a flexible environment that could be adapted and modified for students who are on the autism spectrum. Recently, companies such as Facebook and HTC have acquired forms of these technologies and are working to bring them to the consumer market in a more competitive, affordable system.

Using technology to alter social interactions has been discussed both in a positive (Rajendran, Mitchell, & Rickards 2005; Goodwin, 2008) and negative manner (Howlin, 1998; Latash, 1998). As with many research endeavors, early results can vary widely until the body of knowledge is more thoroughly established (Ke et al., 2015). Slater (2009) argued that the best IVE experiences provide visual, auditory, and haptic input. Most of the literature findings regarding virtual learning suffer because they do not have the same sense of “really being there.” Wallace et al. (2010) were early explorers of the way children with autism perceive IVE compared to typical children. Children on the autism spectrum reported similar levels of social presence when compared to typical children, which suggests that the IVE experiences are similar and can be used successfully with both populations. The researchers noted that the IVEs produced additional opportunities that traditional learning environments are not able to offer. Jarrold et al. (2011) investigated children’s scanning patterns in IVE classroom environments and found that children with autism were less focused on distant virtual peers than the central character in the digital classroom. Rajendran (2013) pointed out that future research in IVE arguably holds greater promise (than traditional virtual reality) because of its incorporation of both sensory motor and social cognition qualities. While traditional virtual reality experiences take place between the user and the environment, immersive virtual reality provides the opportunity for a much richer experience by enhancing and engaging multiple stimuli. IVEs provide a complete experience because participants are not only responding to their environment, but the environment responds to them and their actions. For example, objects can be located behind a participant in the virtual world and can only be viewed by physically turning around.

METHODS

The Study

The purpose of this study was to examine if students could alter or improve their social interaction skills by practicing them in an IVE. The researchers closely noted and observed the transfer of skills in specific scenarios from the IVE to the real-world environment. Unlike previous studies, this study utilized a head-mounted unit that provided a full visual sensory experience for the user. The participants were completely immersed in the environment, replicating the real-life ability to look and move in all directions unimpeded. The participants also experienced immersive surround sound and haptic feedback to enhance the virtual experience. To determine if the participants were able to transfer social skills learned in the virtual environment, the participants also experienced the scenarios in the real-world setting.

The researchers partnered with a special education coordinator from a regional school system to select students who were willing to participate in the study. The participants were selected from a pool of students who attended a yearly summer camp that invites students in grades 5-12 from different parts of the state to practice their social skills in a variety of settings and activities. After parental consent and IRB approval from the university was obtained, two participants were selected based on their age, stage of life, social ability level, and self-awareness. The study was conducted in conjunction with the summer camp that lasted for four weeks. The participants spent two hours in the IVE at the university, and then three hours at the camp, five days a week. While at the camp, the participants were exposed to similar environments that they experienced in the IVE.

The Participants

John was a 15-year-old Caucasian who, at the time of the study, had just finished his freshman year in high school. He had participated in the summer camp for three years. He overheard the teachers discussing the project and asked if he could participate. He had heard of IVE’s, and wanted to see what it looked like. John was adept at computers and enjoyed building in Minecraft and hosting Minecraft servers.

Sam was an 18-year-old Caucasian who had recently graduated from high school. Sam struggled maintaining eye contact and initiating typical conversation. He had attended the summer camp since it began six years ago. The director of the camp selected him to participate because this was his last year at the camp, and he had a strong desire to improve his social interaction skills.

The researchers worked in conjunction with the camp's teachers to build social interaction scripts. The scripts were designed around each student's identified social interaction weakness. Once the scripts were completed, each participant's special education teacher vetted them for accuracy and quality. After approval, the scripts were then given to the researchers to design the events in a virtual space. The researchers used Second Life to design the virtual environments. Second Life is a virtual world developed by Linden Research, Inc. The researchers and participants interacted in a variety of virtual areas that replicated real-life environments that closely matched where the summer camp was located. When designing the IVE, the researchers used panoramic images of the real-life environments to make them as authentic as possible. Every detail in the IVE was accounted for, including environmental details, building design and layout, and avatars that resembled their real-life counterparts.

Scripts were developed and guided by Baker's Social Skills Menu for ages 14 to Adulthood (Baker, 2007). Prior to the study, needs assessments were conducted as part of the summer camp for ASD students. These needs assessments guided the special education teachers as they created the scenario scripts. The teachers used pre-assessment data from participants' prior camp and school experiences, as well as Baker's Social Skills Menu, to develop the specific outlines and wording of the scripts. Each of the teachers had extensive professional experience working with students on the ASD spectrum, advanced education degrees, and had spent several weeks developing and refining the interactions for the students and researchers.

Scenarios designed for John focused on his inability to recognize when a friendly conversation began moving towards bullying. The first scenario was designed around him looking at a classic truck owned by an aggressive senior in a high school parking lot. This scenario was heavily scripted and required John to walk past the senior, at which time the senior would initiate the conversation about his truck. The scenario was designed to help John adapt to impromptu conversations, and not fall back and fixate on his Minecraft server. The second scenario was designed to emulate a library where he was studying with a small group of classmates. This scenario was less structured, which gave him opportunities to engage with students in a study session. He had to respond to a variety of cues from the group. The third scenario was focused on his ability to leave a situation where he was being bullied. The conversation scenario started simple, but escalated

progressively towards a more confrontational interaction to give John the opportunity to disengage at the appropriate time.

Of the two participants, Sam had the most difficult time interacting with others. Sam's scenarios were designed around situations where he needed to maintain eye contact and initiate conversation. The first scenario focused on him walking up to a person sitting on a park bench and asking for directions. The second scenario was designed around him applying for a job at a local hospital. The third scenario took place in a library where he needed to ask a librarian for help finding a book.

Research Questions

This study addressed two research questions:

1. Can students with autism spectrum disorder (ASD) transfer and maintain skills learned in a virtual scenario and apply them to a real-life scenario?
2. Can students with autism spectrum disorder (ASD) alter their social interaction skills by practicing them in a virtual immersive environment (IVE)?

Conceptual Framework

The researchers used the following frameworks and concepts to understand the intricacies of technology application, social interaction and awareness, and human performance: The Technological, Pedagogical, and Content Knowledge framework (Koehler & Mishra, 2008), Social Skill Menu for age 14 through Adulthood (Baker, 2007), Performance Improvement/HPT Model (Van Tiem, Moseley, & Dessinger, 2012). The frameworks and concepts were used to help guide the researchers when coding and interpreting the data. The frameworks also provided a reference point for social skill development. This helped the researchers understand which targeted tasks needed to be mastered in the virtual environment, and then reexamined in the natural environment. Finally, the HPT model was used to examine gap analysis to determine the difference between desired performance and actual performance.

Research Design

The researchers incorporated a case study approach using an ethnographic perspective (Hymes, 1982; Gee & Green, 1998). This approach is also used when studying practice-oriented theories in smaller group settings (Ortner, 1984). The case study was guided by the case study structure created by Lincoln and Guba (1985) that starts with the overall problem (how can students improve their social interaction skills), the context (using

IVEs that replicate real-life situations), the issues (can the students relate to the virtual world as well as the real-world), and lessons learned (develop skills in the virtual space and transfer them to real-world settings). The research study had full approval of the Institutional Review Board for the university and followed all protocol and guidelines, including anonymity of the participants.

Data Verification

To ensure the credibility of the data, the researchers incorporated a variety of validation strategies. Credibility and validity for this study were achieved through the validation strategies of triangulation, thick rich description, researcher reflexivity, and peer debriefing (Creswell, 2007). Triangulation was achieved through the collection of interviews, reflective journals, and field notes. The researchers also incorporated Stake's (1995) "critique checklist" to analyze the case study quality.

Data Analysis

The interviews, reflective journals, and field notes were transcribed before the researchers analyzed the data. The process of transcribing allowed the researchers to become acquainted with the data (Riessman, 1993). All coded data was reviewed through the lens of prevalent theories already mentioned to build logical explanations and add to the internal validity through the use of comparative analysis (Yin, 2003). The emerging themes were discovered through the process of in vivo coding (Strauss & Corbin, 1998). The researchers followed the step-by-step guidelines provided by Braun and Clarke (2006) for thematic analysis. Themes that were prominent across both cases were documented as well as those that were extremely different. These guidelines provided rigor, but still allowed for flexibility that is often needed in qualitative data analysis. The guidelines were: (1) become familiar with the data, (2) generate initial codes, (3) read each transcript to become immersed in the data, (4) analyze themes, (5) define and name themes, and (6) produce results.

RESULTS

Table 1 provides the themes and categories that were prevalent within the data. The results of the study are presented with each corresponding research question.

Two themes and four categories were prevalent in the data. The themes and categories were used to answer the research questions.

Sensory Engagement was the first theme to emerge, and it yielded the categories of Realistic Scenarios and Authentic Engagement. The second theme was Social Awareness, and it yielded Apprehension and Being Normal. The answers to the research questions are embedded in the themes and categories that relate to the research questions. The researchers chose to use as many excerpts from the transcribed data as possible in an attempt to allow the reader to understand the participants' experience in the virtual environment.

Findings

Can students with autism spectrum disorder (ASD) transfer and maintain skills learned in a virtual scenario and apply them to a real-life scenario? The theme of Sensory Engagement answered the first research question. Both participants described the virtual world as realistic, and they felt that they were part of the actual environment. Sam explained, "The places were life-like. You could walk into a building and go through doors. There was even a person sitting behind the desk waiting to talk to me." Sam enjoyed the freedom to move and the ability to engage with a variety of objects. He explained, "I walked into the hospital and looked around. I was able to run, walk, and sit down. I liked exploring the building and finding my way on the roof. When I jumped off, it felt like I was falling for real; it was cool." When the participants were introduced to the environment, they both were amazed at how they could look around. John explained, "When I put on the Oculus Rift, I heard someone talking behind me. I thought

Table 1
Themes, Categories, and Definitions Identified in the Data.

Themes	Definition	Categories
Sensory Engagement	Participants' experience in the simulator and use of the head-mounted device.	Realistic Scenarios Authentic Engagement
Social Awareness	Participants' awareness of their inability to engage and maintain conversation with their peers. Developing and enhancing their social interaction skills was a task they worked on daily.	Apprehension Being Normal

someone had walked into the room behind me. Then he (researcher) told me that the voice was from within the computer. It was cool.”

When asked if the scenarios seemed real, John said, “The library scenario was the most realistic. I could see the library books, the desk and the other students looking back at me. I knew they were not real people... they were cartoons but their response to my questions was cool. They looked up at me when I asked a question.” Sam also agreed. He said, “I like the scenario where I went to the hospital and asked about a job. The guy behind the desk looked at me, then looked down like he was going to type on his computer, then he did!” John experienced a glitch during one of his scenarios. His reaction reinforced the notion that the virtual experiences can be engaging. During his scenario the character he was talking with closed his eyes and fell asleep. He stopped and said, “Why are you asleep? Are you ok?” When asked if he would have responded in the same way in the real world. He replied, “Yes. I would ask if they are ok.” Because of this statement, the researchers were able to see that Sam was engaged in the conversation, so when the avatar that he was talking to fell asleep, it made him stop and express concern for the avatar.

Both participants were authentically engaged during the scenarios. The researchers decided to have the students walk to the location of the scenario instead of starting the scenario at its location. Both participants responded that walking to the scenario helped them become more acquainted with the environment and made it feel more realistic. Sam explained, “I had to walk on the sidewalk to the library. I even had to open the door before I was able to go in.” John also felt that traveling to the scenario made the experience more realistic. He explained, “I couldn’t fly to the location. I had to walk. When I was walking I was able to see more of the town and the truck. Walking made it more realistic.”

The teachers at the summer camp reenacted the scenarios in a real-life environment. The researchers noticed that the participants were less nervous during the scenarios. Both participants agreed that they felt less stress when interacting in the real-life scenario after participating in the virtual scenario. John described his experience. He explained, “I kinda knew what the teachers were going to ask me. So that helped. I knew the teachers so it helped me not feel as nervous.” Sam also acknowledged that knowing the teacher made the scenario easier. He explained, “I know the teacher so I knew she was acting. I liked the scenario. I know the teacher doesn’t work at a hospital (referring to the scenario at the hospital).” Both participants described how the IVE and the real-world scenario were very similar.

John explained, “After leaving the computer world (IVE), I thought it was cool that it matched real-life, even where the truck was parked in the parking lot was the same.” Sam also commented on the similarities of the IVE and the real-world encounters. He said, “When I walked into the library (in the IVE), I saw that the teacher (Librarian in the IVE) had brown hair and freckles just like my teacher at camp.

Each time the participants engaged in scenarios, it was altered to help them develop flexibility so they can move away from their typical scripted responses. The researchers noticed several changes in how the participants responded during the scenarios. The teachers also commented that both participants were more responsive and less rigid. A teacher commented, “I was surprised when he (John) didn’t keep talking about his Minecraft server. After realizing that the person liked his truck, he complimented him on the truck and said he liked it and walked away. He normally would have tried to talk about computers and fixate on his interests. He started noticing ‘cues’ and responded accordingly.” One teacher commented on Sam’s ability to maintain eye contact. She said, “I saw a big difference in his use of eye contact. This is something that we have been working on for several years. This year, after spending time in the IVE, I noticed that he would look up more and engage in eye contact. This is a big stride for him.”

Both participants demonstrated that they were able to transfer skills learned in the IVE to real-world settings. When John participated in the real-life equivalents of the scenarios, he demonstrated more flexibility in his typical scripted responses. Instead of defaulting to talking about computers and Minecraft, he employed new techniques learned in the IVE. Specifically, he was able to ask questions related to the other person’s interests. Those questions included, “How long have you owned the truck?” and “Did you paint the truck green?” Sam, who had trouble initiating conversations in the real-world, was the first person to initiate conversation in the IVE.

Can students with autism spectrum disorder (ASD) alter their social interaction skills by practicing them in a virtual immersive environment (IVE)? The researchers found that both participants were able to alter their social skills by participating in scenarios in the virtual environment. The teachers at the summer camp noticed and documented that both participants were making gains in their social interaction skills. When the participants were at the camp, they were more outgoing and excited to talk and discuss their experiences with the project. Sam showed noticeable gains in maintaining eye contact during conversations. When asked if he felt

that his eye contact has improved, he said, “Yes. I don’t look down as much. I’m not as nervous when I’m talking to people.” When asked why he does not feel as nervous, he explained, “I practiced on the computer [IVE]. I felt more comfortable because I knew I was in a safe place. I’m less nervous.” Sam also showed improvement in his ability to engage in conversation. A teacher commented, “I have known him (Sam) for three years and this is the first time that I have seen him participate in group conversation at camp without being asked to participate.”

John also showed gains in handling conversations that would start out civil and lead to bullying. He explained, “The guy really liked his truck. When I was asking him about it I could tell he liked it. I don’t know a lot about trucks so I asked him about computers. He thought computers were for nerds. So I told him that I liked the color of his truck and walked away.” When asked if he would have handled the situation differently not practicing in a virtual space, he said, “Yeah, I would have started telling him about my server and asked if he played Minecraft. I would have wanted him to like me so I would keep talking about things I like.” Of the participants, John was the most apprehensive about his social interaction skills. He explains, “I don’t want people to think I’m derpy [weird]. So I try to talk about stuff that I know. That way people don’t think I am dumb.” When asked if he felt like he was improving his conversation skills, he said, “I think so. The stories [scenarios] are close so I can practice. I also notice more when I’m on the computer, I am able to focus more on what’s happening. I don’t get confused or distracted as easily.”

Both participants were apprehensive when engaging and maintaining conversation. When asked how they felt about talking to their peers, they both explained that they did not want to mess up and they were always anxious. John explained, “I try to control what I say and stuff and make sure nothing bad happens or goes wrong. I feel worried, mainly around students and friends. I have to tell myself to act normal. I have to tell myself not to worry about it. Don’t be anxious about it.” Sam also felt anxious about maintaining conversation. He explained, “I have trouble talking to girls. With boys I don’t have problems because I talk about boy stuff. With girls I don’t know what to talk about.” When asked if he had more confidence when engaging in conversation, he said, “Yes. I feel more confident now that I have practiced. I am not as anxious because I had

Table 2
Distribution of Traits Needing Improvement.

	Week 1	Week 2	Week 3	Week 4
Sam				
Broke Eye Contact	13 (times)	8 (times)	6 (times)	5 (times)
John				
Minecraft/Computers	6 (times)	4 (times)	5 (times)	2 (times)

to do it before and I was ok when I did it then [in the simulator] and it all looked the same.”

To quantify if there were any affects using the IVE interactions in conjunction with real-life interactions, the researchers asked the teachers to provide a fixation point that each participant needed to improve. For Sam, he needed to improve his eye contact. For John, he needed to avoid discussing Minecraft and computers when he started to feel uncomfortable in a conversation. Table 2 shows the frequency distribution of traits that needed to be improved.

For Sam, breaking eye contact is defined by looking at the ground for more than five seconds while the conversation was in progress. For John, any mention of Minecraft or computers were tallied when they were mentioned during conversation. The length of the conversations varied based on the length of the encounter. Most conversations lasted only five to eight minutes. Both participants showed gains in overcoming their fixation points by the end of camp.

CONCLUSIONS

By developing engaging scenarios and presenting them in an IVE, both participants were able to show gains in their areas of weakness. John was able to maintain conversation without redirecting it to his specific interests. The conversation scenario started simple, but escalated progressively towards a more confrontational interaction to give John the opportunity to disengage at the appropriate time. He demonstrated the ability to detach from the conversation when he realized the conversation was turning negative. Sam maintained eye contact throughout most of the scenarios, as well as during his real-life scenarios. Both participants said they felt less stress when engaging in conversation after practicing in the IVE. The participants said they felt like they were less distracted while in the IVE. This finding supports Jarrold et al. (2011) research because the participants said they were less distracted, and were able to focus on the person they were interacting with.

The participants indicated that using the immersive head unit made them feel like they were actually in the environment. The addition of the surround sound and haptic feedback devices helped the participants transition into the IVE. They were impressed with how life-like the avatars were, and felt that the characters' head movements and eye blinking, posture changing, and the ability to interact with the environment added to the virtual scenario. These results reinforce Slater's (2009) findings and recommendations that for an IVE to be fully immersive, participants need to have all of their senses engaged. Both participants wanted to continue the project with more social environments that could help them practice their social skills, and they felt that they were improving their social interaction skills.

Limitations and Future Research

While the participants improved their social interaction skills, there were some limitations that impacted the results. The study only included two participants, limiting the generalizability of the results. The researchers only had three scenarios for each participant to practice. This limited the flexibility in developing the conversation. To compensate for this, the teachers were able to alter the dialog to make each social interaction different and challenging for the participants. Another limitation was that the participants, and not the teachers or researchers, were the only people immersed in the virtual world using the device. The other avatars were controlled with a mouse and keyboard. This limited how much head movement and gesturing was made during the conversation.

The findings from this study will add to the body of literature on autism and social skill development. Beyond the special education applications, students of all ages could benefit from scenarios explored and practiced in an IVE. As software and hardware continue to become more affordable and obtainable, the corporate, military, entertainment, and home applications will become much more involved and expanded.

As a qualitative exploratory case study, this study focused on specific social interaction discrepancies that the participants experienced on a daily basis. Because this study focused on only their social interaction discrepancies, results from this study cannot be generalizable to the larger population. However, the findings indicated that targeted specialized scenarios in immersive virtual environments have the ability to help participants overcome their social interaction discrepancies. Findings from this study enrich the research area of technology in relation to immersive virtual envi-

ronments. Additional studies could examine the use of immersive virtual environments in other environments like conversation skill development and developing soft skills.

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Psychosocial Variables as Predictors of School Adjustment of Gifted Students with Learning Disabilities in Nigeria

O. A. Fakolade

University of Ibadan, Nigeria
fakolade1@yahoo.com

S. O. Oyedokun

University of Ibadan, Nigeria

Abstract

The paper considered several psychosocial variables as predictors of school adjustment of 40 gifted students with learning disabilities in Junior Secondary School in Ikenne Local Government Council Area of Ogun State, Nigeria. Purposeful random sampling was employed to select four schools from 13 junior secondary schools in the area, six assessment instruments were administered to the participants, and the resulting data were then collated and analyzed using multiple linear regression. Results demonstrated that both emotional intelligence and self-concept were potent factors that could predict school adjustment of gifted students with learning disabilities. Similarly, socioeconomic status was a significant factor in influencing school adjustment of gifted students with learning disabilities. Gender also had a differential effect on school adjustment of students with learning disabilities. The implications and recommendations of the study were discussed.

INTRODUCTION

Starting school is a major life transition for children and their families. It is a time of change that can be both challenging and exciting. It is a process whereby children and families adjust to new roles, identities and expectations, initiate new interactions and friendships (Docket & Perry, 2007). It is a significant moment for children and their families and while most children make this transition successfully, it is sometimes associated with anxiety, uncertainty, and confusion (Margetts, 2003).

Transitioning from primary to secondary school presents many challenges as entering secondary school is an adjustment and growth process that takes considerable effort. The school context is one of the most influential for shaping the course of human development. Margetts (2005) quoted Belsky and Mackimmon (1994) that a child who makes a satisfactory initial adjustment to school is more likely to succeed in their future progress than a child who has difficulty adjusting to school life.

Adjustment to school is supported by a number of skills, including social competence, problem solving skills, self-reliance and determination, knowing about 'not knowing' and what to do about it, behavioral control and academic competence (Fabian, 2000b; Margetts, 2002). Children's adjustment is supported when they follow directions, take responsibility for their belongings, take turns, regulate their behavior in response

to others, and respond appropriately to frustration. Children are at risk of not adjusting easily to school when there is a mismatch between personal and cultural skills, attitudes and knowledge they bring to school, and the expectations of the school itself (Clancy, Simpson & Howard, 2001; Fabian, 2000a; Margetts, 2003).

Learning Disability

Learning disability (LD) is a classification that includes several areas of functioning in which a person has difficulty learning in a typical manner, usually caused by an unknown factor or factors. Given the "difficulty learning in a typical manner," this does not exclude the ability to learn in a different manner. Therefore, some people can be more accurately described as having a "Learning Difference," thus avoiding any misconception of being disabled with a lack of ability to learn and possible negative stereotyping.

Douglass (2007) quoted Whitmore and Maker (1985) that intellectually gifted individuals with specific learning disabilities are the most misjudged, misunderstood, and neglected segment of the student population and the community. Teachers, school counselors and others often overlook the signs of intellectual giftedness and focus attention on deficits, such as poor spelling, reading, and writing (Reis & Colbert, 2004). Gifted students with LD are a unique subgroup of students who demonstrate both intellectual ability and specif-

ic learning problems. They are forgetful, sloppy, and disorganized. They may be inattentive in class, struggle with basic spelling or reading skills, have poor peer relationships and low self-esteem, dislike school or demonstrate school failure. At the same time, they may have excellent vocabularies, exceptional analytic and comprehension skills, show extraordinary interest or talent in a particular area or use sophisticated problem-solving skills (Robinson, 1999).

Students who are gifted and also have LD are those who possess an outstanding gift or talent and are capable of high performance, but who also have a learning disability that makes some aspect of academic achievement difficult. These students suffer frustration and poor self-esteem when their gifts are not recognized. Hermon (2002) quoted Suter and Wolf (1994) that students who are both gifted and have a learning disability cannot reconcile their higher-level thinking ability with their difficulty and frustration over mastering basic academic skills. Gifted students with learning disabilities tend to lag two to three years behind their age peers in social and emotional maturity (Barkley, 1998). This has significant implications for them when they try to adjust appropriately in school.

Self-concept and School Adjustment

Gifted students with LD frequently display a decline in self-concept during elementary school and the transition to middle level (Harter, 2006). This decrease represents an adaptive reaction to the overly positive self-perceptions that are characteristic of childhood. Young children tend to overestimate their competence because they lack the cognitive maturity to critically evaluate their abilities and to integrate information from multiple sources (Manning, 2007). As students develop, they better understand how others view their skills and better distinguish between their efforts and abilities.

Self-concept develops as a result of one's experience with the environment and one's evaluation of these experiences. Shavelson, Hubner, and Stanton (1976), as cited in Frazier (2009), explain that self-concept is multifaceted, hierarchical, organized and structured, descriptive and evaluative, stable, and yet increasingly situation-specific. The formative middle-school years of a child's life are an important time for the child to develop self-concept. Self-concept is important because it contributes to many different facets of a person's life, from childhood to adulthood.

Mishra (1985), as quoted in Lee (2005), conducted a study on 100 students studying in class X, both male and female, belonging to urban areas which revealed

that positive self-concept leads to high adjustment and negative self-concept to poor adjustment and also showed that the specific model of self-concept is more useful in the adjustment process. Similarly, Rajput (1985) as cited in Hines (2007), conducted a study on values, dependency, and academic adjustment of students. The sample size of 42 was chosen from each of six groups (boys and girls in each faculty: arts, commerce, and science). The entire sample was selected from higher secondary schools of Mandvi, Bhuj, and Gandhidam districts in India. It was found that academic adjustment was not meaningfully related to academic achievement. Personality traits, values, self-concept, mental make-up, and adjustment of regular and physically-handicapped children were studied by Bala (1985) as quoted in Usha (2003). The study sample consisted of 1,000 students with the age range of 12-18 from Haryana State in India. It was found that learners with special needs differed significantly from the regular students in adjustment.

Emotional Intelligence and School Adjustment

One of the most important objectives for any person is to maintain the best possible relations with the people around him or her. Strong emotional intelligence helps one inform others about one's psychological state. In order to manage the emotional state of others, it is first necessary to manage well one's own. Ellis (1994), as quoted in Matthias, Sporrle, and Friedrich (2006), reported that emotionally intelligent persons, like the gifted students with LD, are not only skillful in perceiving, understanding, and managing their own emotions, they also are able to extrapolate these skills to the emotions of others. In this sense, emotional intelligence (EI) plays a basic role in establishing, maintaining, and having quality interpersonal relationships. Some studies have found empirical data that support the relationship between EI and adequate interpersonal relationships (Brackett, Rivers, Shiffman, Lerner, & Salovey, 2006; Extremera & Fernandez-Berrocal, 2004; Lopes, Salovey, Cote, & Beers, 2005). Mayer, Salovey, and Caruso (2000), as cited in Adeyemo (2005), see emotional intelligence as it relates to the perception, assimilation, expression, regulation, and self-management.

Bar-On (1997) defines emotional intelligence (EI) as being concerned with effectively understanding oneself and others, relating well to people, and adapting to and coping with the immediate surroundings to deal successfully with environmental demands. Bar-On posits that EI develops over time and that it can be improved through training, programming, and therapy. Bar-On

hypothesizes that individuals with above-average EI are generally more successful in meeting environmental demands and pressures. He also notes that a deficiency in EI can mean failure and emotional problems. Problems in coping with one's environment are thought to be especially common among individuals who lack the subscales of reality testing, problem solving, stress tolerance, and impulse control.

Emotional intelligence is one of the psychological factors that can predict students' adjustment to school. Colman (2005) defined EI as the ability to monitor one's own and other people's emotion, to discriminate between different emotions and label them appropriately, and to use emotional information to guide thinking and behavior. Research further defined EI as the ability to regulate one's emotion to promote growth and well-being. Ramalingam (2006) sees EI as the awareness of the ability to manage one's emotions in a healthy and productive manner. Emotional intelligence is the ability to monitor, access, express, and regulate one's own emotions; the capacity to identify, interpret, and understand others' emotions; and the ability to use this information to guide one's thinking and actions (Weiten & Lloyd, 2003).

Socioeconomic Status and School Adjustment

School adjustment is shaped by students' individual attributes, such as race and socioeconomic background (Johnson, Crosone, & Elder, 2001; Ladd & Dinella, 2009) as well as contextual factors, such as classroom and school characteristics (Fredricks, Blumenfeld & Paris, 2004; Johnson, Crosone & Elder, 2001; Moody & White, 2003). Socioeconomic status is a powerful agent in creating the cultural environment in which individuals are reared. Demarest et al. (1993) reported that a family's socioeconomic status is based on family income, parental education level, parental occupation, and social status in the community, such as contacts within the community, group associations, and the community's perception of the family.

It is generally believed that children from high- and middle-socioeconomic status parents are better exposed to a learning environment at home because of their position and the availability of extra learning facilities. This idea is supported by Becker and Tomes (1979), as cited in Farkhanda and Ehtesham (2013), who asserted that it has become well recognized that wealthy and well-educated parents ensure their children's future earning by providing them a favorable learning environment, better education, and good jobs.

Gender and School Adjustment

Gender shapes school adjustment. Girls generally show greater engagement and stronger attachment than boys. These differences are modest and the girls' lead in attachment disappears in higher grades (Johnson, Crosone, & Elder, 2001). Within gender, students vary considerably in the degree to which their behaviors conform to gender expectations ("gender types"), but the existing literature provides little information about whether and how gender types are associated with school adjustment.

An individual attribute, such as gender, may indicate who is likely to struggle in school, with boys being at a well-documented behavioral disadvantage in the lower grades (Duckworth & Seligman, 2005; Entwisle, Alexander, & Olson, 2007; Ready, LoGerfo, Burkam, & Leec, 2005). The idea is that divergence in boys' and girls' first grade functioning may originate in how well children cope with the experience of starting school and that gender difference may relate to contextual factors, including strong organization in the classroom. The National Association of School Psychologists (2004) remarks that gender may influence adjustment as females tend to worry about physical attractiveness and males worry about athletic competence. Females experience greater declines in self-esteem during the transition.

Research on gender differences in school adjustment has portrayed girls as better adjusted compared to boys. This has been evident in studies from the East and West. One such study was by Wang, Chen, Sorrentino, and Szeto (2008), who used a sample of 390 students in their study. They looked at uncertainty orientation in Chinese children, relations with school and psychological adjustment, and found that, compared to boys, girls had higher scores on academic achievement, distinguished studentship, and self-perception, and lower scores on teacher-rated learning problems. Uncertainty orientation was significantly and positively associated with academic achievement, teacher-rated school competence, and self-perceptions of competence.

Statement of Problem

In view of the foregoing, it becomes imperative to investigate the extent to which self-concept, emotional intelligence, socioeconomic status, and gender predict the school adjustment of gifted students with learning disabilities.

Research Questions

Two research questions were generated and tested in the study:

1. What is the composite effect of self-concept, emotional intelligence, socioeconomic status, and gender (independent) variables on the school adjustment of gifted students with learning disabilities?
2. What is the relative contribution of self-concept, emotional intelligence, socioeconomic status, and gender on the school adjustment of gifted students with learning disabilities?

METHODS

Research Design

The study adopted correlation research design because it investigated existing variables without any manipulation of the variables in order to establish the relationship between the independent and dependent variables.

Population and Sample

The population of this study was comprised of junior secondary students in Ikenne Local Government Area of Ogun State, Nigeria. It is a rural district with over 20,000 residents. The sample for the study comprised of 40 junior secondary students with giftedness and learning disabilities (20 males and 20 females) between the ages 10 and 14 years. Purposeful random sampling was used in this study. Ikenne Local Government was purposefully selected and four secondary schools were randomly chosen to allow the researcher to get the desired sample. All students in the study were screened for learning disabilities through the use of Myklebust Pupils Scale and Slosson Intelligence test to screen and identify their Intelligent Quotient (IQ) for learning disability and giftedness respectively.

Instrumentation

Self-Concept Scale

The self concept scale was developed by Akinboye (1977) to measure the self-concept level of the randomly-selected participants in order to assign them into high, moderate or low self-concept groups. The norm for the self-concept scale is 90. Therefore, a score of 0-89 indicates low self-concept, 90-100 indicates moderate self concept, and 101 and above indicates high self-concept. The self-concept subscale calculated using the factor analytic approach is .67. An index of construct validity of .62 is reported and the coefficient alpha for internal consistency is calculated to be .75. The coefficient of test-retest reliability is $r = .80$.

Emotional Intelligence Scale

Emotional intelligence (EI) is measured using the 33-items EI scale developed by Schulte et al. (1998). This scale was based on the mode of EI developed by Salovey and Mayer (1990). Schulte et al. reported good internal consistency (.90) and good test-retest reliability ($r=.78$) for the scale when administered to adults. Furthermore, the instrument demonstrated good predictive and discriminate validity.

Socioeconomic Scale (SES)

The socioeconomic status (SES) scale developed by Salami (2000) was used as a measure of socioeconomic status of the participants. The SES scale asked for information on the educational qualifications and occupational status of the participant's parents (mother and father or guardians). The test-retest reliability of the SES scale was .73, with an interval of three weeks. Cronbach's alpha was .83.

The Pupil Rating Scale

This instrument was designed by Myklebust in 1971 and revised in 1981. Teachers are asked to compare and rate their students in the following five areas of classroom behavior: auditory comprehension, spoken language, orientation, motor coordination, and personal and social behavior. Myklebust (1981) stressed the usefulness, importance, and accuracy of the rating scale for screening purposes when identifying students with learning disabilities. A reliability coefficient of .74 was calculated in this work during a pilot study.

School Adjustment Scale

This scale of school adjustment was developed by Sinha and Singh (1971) as a measure of emotional, social, and educational adjustment. The adapted and modified version consists of 15 items with a response format ranging from Strongly Agree to Strongly Disagree. It has a two weeks' test-retest reliability coefficient of $r = .74$.

Wechsler Intelligence Scale for Children (WISC-IV)

The WISC-IV (Wechsler Intelligence Scale for Children) is a cognitive ability assessment of verbal comprehension, perceptual reasoning, working memory, and processing speed. It measures a child's intellectual ability with norm scores by age, index scores, and full-scale IQ. The WISC-IV provides more than IQ scores; it provides essential information and critical clinical insights into a child's cognitive functioning.

Table 1
Summary of Regression Analysis Showing the Composite Effect of Independent Variables on School Adjustment of Gifted Students With Learning Disabilities.

R = .642 R ² = .412 Adjusted R ² = .401 Std. Error = 10.543					
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	16601.438	4	4150.360	37.337	.000 ^a
Residual	23677.222	32	111.161		
Total	40278.661	39			

Data Collection Procedure

The six instruments described in the previous section were employed to collect data in the four participating secondary schools. The Myklebust Pupil Rating Scale and WISC-IV were administered to screen gifted students with learning disabilities, while the other instruments assessed psychosocial variables.

Data Analysis

The resulting analysis were then conducted and analyzed using self-concept, emotional intelligence, socioeconomic status, and gender as independent variables. Multiple linear regression was used to answer the posed research questions respectively.

RESULTS

Research Question 1: What is the composite effect of independent variables (self-concept, emotional intelligence, socioeconomic status, and gender) on the school adjustment of gifted students with learning disabilities?

Table 1 reveals a significant composite effect of the independent variables (self-concept, emotional intelligence, socioeconomic status, and gender) on school adjustment of gifted students with learning disabilities. The result yielded a coefficient of multiple regressions R= .642, multiple R² = 0.412, and Adjusted R² =.401.

Research Question 2: What is the relative effect of independent variables (self-concept, emotional intelligence, socioeconomic status, and gender) on the school

adjustment of gifted students with learning disabilities?

Table 2 shows that the four predictor variables (self-concept, emotional intelligence, socioeconomic status, and gender) are potent predictors of school adjustment of students with learning disabilities. The most potent factor was emotional intelligence (Beta = .376, t = 6.711, p<0.001), followed by gender (Beta = -.292, t = -5.402, p<0.001), self concept (Beta = .162, t = 2.782, p<0.05), and socioeconomic status (Beta = .129, t = 2.197, p<0.05).

DISCUSSION

Table 1 reveals a significant composite effect of the independent variables (self-concept, emotional intelligence, socioeconomic status, and gender) on school adjustment of gifted students with learning disabilities. Table 2 indicates that the four predictor variables (self-concept, emotional intelligence, socioeconomic status, and gender) are potent predictors of school adjustment of students with learning disabilities. The higher the self-concept, emotional intelligence, and socioeconomic status, the easier it is to adjust to a school environment. School adjustment is easier for boys than for girls.

The findings corroborate Craven and Marsh (2008) who suggest that positive self belief is valued as an important variable that can facilitate positive development by facilitating the realization of full capacity in a range of settings. Goleman (1995, 1998) agrees with the finding of this study that emotional intelligence is a critical factor in adjustment to life in general and

Table 2
Summary of Regression Showing the Relative Effect of Independent Variables on School Adjustment of Gifted Students With Learning Disabilities.

Model	Unstandardised		Standardised	T	Sig.
	B	Std. Error	Beta		
1. (Constant)	31.718	4.525		7.010	.000
Emotional Intelligence	.490	.073	.376	6.711	.000
Self-concept	.152	.055	.162	2.782	.006
Socio-Economic Status	.133	.060	.129	2.197	.029
Gender	-8.118	1.503	-.292	5.402	.000

to work and work performance. Nelson (2005) stated that emotional intelligence plays a role as an important predictor that can help students to adjust successfully for the long term.

The results imply that an increase in self-concept, emotional intelligence, and socioeconomic status will increase the tendency for students with learning disabilities to adjust to school. It also implies that gifted female students with learning disabilities are less likely to adjust to school.

The finding of Bar-On (1997) supports the results of this study stating that emotional intelligence is the most potent factor on the school adjustment of gifted students with learning disabilities. Also, the finding of this study is supported by Shavelson, Hubner, and Stanton (1976) that self-concept develops as a result of one's experience with the environment and one's evaluation of these experiences. Similarly, gender is found to be a significant predictor of school adjustment of students with learning disabilities.

Recommendations

Therefore, based on this study's findings, it is recommended that primary school teachers minimize their students' fears by emphasizing the benefits of advancing to secondary school. Teachers can make a special effort to teach coping strategies at all levels, as well as encouraging students to see the transition to secondary school as a challenge and an opportunity for intellectual and social growth, which will improve school adjustment, especially for gifted students with LD.

Teachers should prioritize teaching social skills so students with LD can make friends and become part of an accepting peer group, improving school adjustment. The finding implies that students with good social skills and established, stable, supportive friendship groups will transition more smoothly into their new school. It is worth noting that teachers should prepare students for the demands of secondary school academics by gradually increasing student autonomy in completing assignments. The teacher should explain this in a relatively non-anxiety producing manner to enhance students' confidence to handle the increased responsibility.

CONCLUSIONS

The adjustment of school children with learning disabilities is determined by their gender, self-concept, emotional intelligence, the class in which they study, their school's medium of instruction, school management, and their parents' education and occupation.

With respect to the study findings so far, it is evident that self-concept, emotional intelligence, socioeconomic status, and gender are significant in predicting the school adjustment of gifted students with learning disabilities.

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The Effects of Using Self-Modeling Narratives for Behavior Change

Susan D. Whitaker

University of South Carolina Upstate and Walden University, USA
sue1211@aol.com

Holly Pae

University of South Carolina Upstate, USA
hpae@uscupstate.edu

Julie P. Jones

Converse College, USA
Julie.jones@converse.edu

Abstract

In this study, the authors used a single subject A-B-A design to investigate the effectiveness of Self-Modeling Narratives (SMNs) as a behavioral intervention for two students diagnosed as having a learning disability and one with a developmental delay. SMNs are personalized stories that explain a situation and then use the student to demonstrate the appropriate way to behave in the circumstances. For each of the three students in this study, the intervention had the desired effect of modifying the target behavior. The authors contend that the combination of bibliotherapy, vicarious reinforcement, and self-modeling used in the SMN can be effective in changing behavior.

Keywords: *self-modeling, behavioral intervention, bibliotherapy, vicarious reinforcement, positive behavior support*

INTRODUCTION

Self-Modeling Narratives (SMNs) are short stories about a specific student written in either the first or third person that are used to teach an appropriate behavior. An adult reads the story with the student each day just before the student is expected to demonstrate the desired behavior. The story explains the situation and shows the student engaging in the appropriate behavior. The story also describes why the skill or behavior is desirable and portrays the student receiving positive reinforcement, such as praise or even tangible reinforcers. In this way, the SMN combines bibliotherapy, self-modeling, and vicarious reinforcement into one intervention.

The Research Base for SMNs

Bibliotherapy

The term “bibliotherapy” was first used by Samuel Crothers (1916) to describe the use of books to change behavior. Shechtman (2003) and Shechtman and Birani-Nasaraladin (2006) found that bibliotherapy was more effective in reducing adjustment difficulties and aggressive behavior in adolescent males than was

receiving no treatment. Other studies have shown, for example, that bibliotherapy can help students decrease obsessive-compulsive behaviors (Tolin, 2001) and develop coping skills (Haeseler, 2009).

Many possible benefits of bibliotherapy for social and emotional intervention have been identified. Bibliotherapy has been shown to provide positive alternative solutions for addressing problems (Cook, Earles-Vollrath, & Ganz, 2006), promote the use of problem-solving skills and further development of a positive self-concept (Prater, Johnstun, & Dyches, 2006), and provide a better understanding of behavior (Maich & Kean, 2004). In writing about the use of bibliotherapy in a classroom setting, Rozalski, Stewart, and Miller (2010) concluded, “Teachers can use the experiences of characters in quality children’s literature as a powerful tool to open dialogues with their students and help them relate the messages in the books to their own personal struggles” (p. 37). Because bibliotherapy has been shown to be effective in changing behavior and the characters in the books can help students learn strategies modeled by others, it is reasonable to infer that books specifically written using the student as the model could be even more effective.

Vicarious Reinforcement

Malouff and Rooke (2008) defined vicarious reinforcement as occurring “when (a) an individual observes another person (a model) behave in a certain way and experience a consequence perceived as desirable by the observer, and (b) as a result, the observer behaves as the model did” (p. 1001). The concept of vicarious reinforcement is derived from Bandura’s (1986) social learning theory in which he suggested that learning occurs through observation of a model’s behavior and observation of the consequences of that behavior. Bandura further suggested that compared with personally experienced outcomes, vicarious outcomes tend to produce stronger learning effects, possibly because the learner is less focused on actually performing the behavior and is more focused on the outcomes. Malouff, Schutte, and Rooke (2008) reported on several studies in which vicarious reinforcement increased the likelihood of the desired behavior occurring. In SMNs, the student learns the expected behavior through observing him- or herself modeling the behavior and receiving reinforcement, thereby using observational learning and vicarious reinforcement to learn the desired behavior.

Modeling and Self-Modeling

Self-modeling interventions began in the 1970s, and the research base supporting the efficacy of self-modeling has been growing since that time. Self-modeling has been successfully used to increase appropriate classroom behavior (Schwan & Holzworth, 2003), increase on-task behavior (Clare, Jenson, Kehle, & Bray, 2000), improve classroom participation (Hartley, Kehle, & Bray, 2002), reduce aggressive or disruptive behaviors (Buggey, 2005), improve academic performance (Prater, Carter, Hitchcock, & Dowrick, 2012), decrease speaking anxiety (Rickards-Schlichting, Kehle, & Bray, 2004), and improve the social-communication skills, functional skills, and behaviors of individuals with autism (Bellini & Akullian, 2007). Reviews of the literature have found that the intervention can be effective with individuals of various ages, genders, and disabilities, as well as with different behaviors (Buggey & Ogle, 2012).

It has long been believed that similarity between the observer and the model is critical to the success of modeling (Bandura, 1986; Schunk, Pintrich, & Meece, 2007). In self-modeling, there is maximal similarity since the observer and the model are the same individual. In addition, the behaviors demonstrated by the model must be perceived as being in the behavioral repertoire of the observer (Dowrick, 2012). In the case of

self-modeling, the student sees him or herself performing the behaviors, thus reinforcing the belief that he or she is capable of demonstrating the desired behaviors. Bandura (1997) noted that the advantage of seeing oneself perform successfully “provides clear information on how best to perform skills” and “strengthens beliefs in one’s capability” (p. 94).

Biblio self-modeling has been used as a print form of self-modeling that involves reading a story about oneself. Probably the best-known form of biblio self-modeling is Social Stories™ (Gray, 2004; Gray & Garand, 1993), although Gray does not refer to them as such. Social Stories™ are used to explain various social situations involving individuals with autism and are less focused on directly changing behavior, however. She writes:

the goal of a Social Story™ is to share accurate social information in a patient and reassuring manner that is easily understood... The most common misconception is that the goal of a Social Story™ is to change a child’s behavior. This has never been the case. (Gray, 2004, p. 3)

In contrast, Self-Modeling Narratives are explicitly designed to change behavior.

Self-Modeling Narratives (SMNs)

Self-Modeling Narratives are a positive behavior support designed to change behavior. Each narrative is positive and has an introduction, a body, and a conclusion. The SMN explains the particular circumstance and what is required, shows the student behaving in an appropriate manner, and then explains the positive consequences of handling the situation in the manner portrayed by the student in the story. The SMNs are told in the first-person or third-person and include photographs of the student engaged in the desired behavior (self-modeling).

The narratives consist of three different categories of sentences. Descriptive sentences tell about the particular situation, explain how others feel or perceive the situation, and provide relevant background information. Self-Modeling sentences portray the student engaging in the desired behavior, and the consequence sentences explain the positive outcomes of engaging in the desired behavior and portray the student receiving those positive consequences. The SMN may be presented to the student on one page, in a book, or in a computerized format. An example of a SMN is shown in Figure 1.

The SMN is read with the student just before the student is expected to display the desired behavior or social skill portrayed in the narrative. They are read

Figure 1. Example of a self-modeling narrative.



multiple times and over a period of time so the student becomes familiar with the content, after which the use of the SMN may be faded.

Purpose of the Study

The purpose of this study was to determine if SMNs are effective in changing student behavior. The study used an A-B-A single subject design with three different students, targeting a different behavior for each student. The research questions were (a) would the use of the SMN result in a decrease in the targeted inappropriate behaviors and (b) would the treatment effects (if any) continue after the fading of the SMN.

METHODS

Participants and Setting

Eligible participants were students in elementary school identified as having a learning disability or developmental delay and who were served in the general education classroom for the majority of the day. The sample consisted of three students, all of whom attended different schools in different districts in an urban area of the southeastern United States. There were two females and one male, with grade placements ranging from kindergarten to fifth grade. Two students were Caucasian, and one student was African American. All

students received at least one class period of special education services, but spent the majority of the day in general education classes.

Student 1, Elise, was a 6-year old Caucasian female kindergarten student identified as having a developmental delay, but reclassified as having a learning disability at her reevaluation just after the completion of the study. Her measured intelligence was slightly below average and her achievement ranged from average to slightly below average. Her behavior and social skills were rated as being below average. Her target behavior was prolonged interaction (more than three seconds) with textured surfaces (i.e., rubbing her face repeatedly; stroking, flicking, or scratching items). This behavior interfered with her ability to focus on the task at hand.

Student 2, Mollie, was a sixth grade African-American female with a learning disability. Mollie had average intelligence and below average achievement in reading and written language. Her teacher also reported deficits in attention. Mollie demonstrated particular difficulty paying attention during English language arts instruction. Her target behavior was defined as being off-task when she was not looking at either the speaker or the work, when she was playing with objects or engaged in activities other than the task in which she was supposed to be engaged, or when she covered her face with her hands or clothing.

Student 3, Andrew, was a fifth grade Caucasian male with average intelligence and a learning disability in reading, math calculation, and written expression. His teacher also noted deficits in social skills and adaptive behavior. His target behavior was inappropriate oral expression of thought processes and self-talking loudly during group instruction such as saying thoughts aloud, reading independent assignments loudly, or blurting out to ask for assistance.

Measures

In this study, two different measures were used: systematic direct observation of the target behavior and anecdotal recording (using journals) to document the fidelity with which each teacher provided the SMN and to note qualitative observations regarding the target behaviors.

The independent variable in the study was the use of the SMN (the SMN read and discussed with the student daily just before the student was expected to exhibit the desired behavior) and the dependent variable was the target behavior for each student (prolonged interaction with textured surfaces for Elise, off-task behaviors for Mollie, and inappropriate oral expression of thought processes and self-talking loudly during group instruction for Andrew).

Design

To examine the effectiveness of SMNs in changing student behavior, the researchers used a single subject A-B-A design (Kazdin, 2010). Single subject research has proven to be particularly relevant in establishing evidence-based practices at the level of the individual learner (Horner et al., 2005). The use of a standard A-B-A design can be problematic in social science research since “ideally the point of intervention is to reduce or eliminate the target problem without the need for ongoing intervention” (Nestor & Schutt, 2015, p. 237) but the researchers chose this method to examine whether the behavior was maintained once the intervention was removed. A critical assumption in A-B-A-B designs is that the dependent variable is *actually reversible* (Byiers, Reichle, & Symons, 2012). In this case, one of the research questions was to determine if the behavior would return to baseline when the intervention ended, with the hypothesis that the behavior would be maintained at least for a while; therefore, the A-B-A-B design was not appropriate. Several different subjects and various settings were used in this study as well as a baseline, intervention, and discontinuation of the intervention that occurred at different times for the three

students. This single-subject research design reduced the effects of external factors across subjects, making it more likely that if consistent behavior changes were observed during the intervention, they were the result of the intervention and not of other external factors.

Procedures

Inter-observer training. Three student teachers were trained by the researchers to observe and record data. They were given operational definitions of the target behaviors with examples and non-examples and taught to take partial interval data (recording + or 0 for occurrence or non-occurrence of the target behavior at 30 second intervals). They practiced taking data until they reached a criterion of 90% inter-rater agreement with the researcher. A student teacher was assigned to take data on each student (for consistency, each student teacher took data on one student throughout the study).

Data collection. Using partial interval recording, the student teachers marked a + for any 30 second interval in which the target behavior occurred for any part of that interval. Partial interval recording was selected as all of the target behaviors lent themselves to interval recording and partial interval recording is the most sensitive to any occurrence of the behavior (as opposed to whole interval recording where the target behavior must occur for the entire interval or momentary interval recording where the observer only records if the behavior is occurring at the end of the specified interval) (Wirth, Slaven, & Taylor, 2014).

The student teacher was in the classroom for at least a week prior to the collection of baseline data so that the students were accustomed to her presence. The student teacher then took baseline data on the target behavior for at least three days or until stability was established (Kazdin, 2010). Baseline data were collected each day at the same time and in the same way. During baseline, no interventions were provided.

The SMN was then introduced to the student in a 10-15 minute lesson using a lesson plan provided by the researchers. In the initial lesson, the teacher began by reading the narrative to the student, stopping and talking about each page, discussing what the narrative said, and asking questions. Then the teacher read through the story a second time with her students and checked for understanding. The lesson concluded with the student summarizing the story. After the SMN lesson, the student went back to participating in the classroom instruction, and data on the target behavior were collected at the same time using the same procedures to that during baseline. The student teachers spent approx-

imately five minutes each day after reading and talking about the SMNs with the students using the prescribed lesson plan and then collected behavioral data. After a period of eight to ten days, the teachers no longer read the SMNs to the students, but data collection continued in the same way to provide post-intervention data.

Establishing inter-observer agreement. To ensure data reliability, one of the researchers observed and collected data concurrently with each student teacher once during baseline (25% of the phase), at least once during intervention (13 to 20% of the phase), and once during the removal of the intervention (25 to 33% of the phase).

Documenting the fidelity of implementation. To ensure that the implementation of the SMNs was consistent, the student teachers were each given a lesson plan to follow when introducing the SMN and then a lesson plan to use throughout the intervention phase. To document the fidelity of the implementation of the SMN, the student teachers kept journals documenting what they did during each session. The researchers reviewed the journals to ensure that the intervention was delivered only during the intervention phase, that the intervention was delivered as required, that the lesson plans were followed, and that the amount of time spent reading the SMN was within established guidelines.

Data Analysis

Data were analyzed through visual analysis and then through the calculation of the Percentage of Non-overlapping Data (PND). The effectiveness of SMNs

was assessed first by visually examining the trends in the data across baseline, intervention, and removal of intervention phases. The data for each student were graphed and trend lines drawn for each phase using the Tukey method (Hutton, Dubes, & Muir, 1992). In addition, Scruggs and Mastropieri (2001) suggested the use of the PND) statistic as a method of analyzing single-case data. PND is the percentage of treatment data that does not overlap with the most extreme data point in baseline. PNDs were computed for each case with PNDs $\geq 90\%$ indicating a very effective treatment, 70-90% indicating an effective treatment, 50-70% indicating questionable effectiveness, and $< 50\%$ indicating an ineffective treatment (Scruggs & Mastropieri, 1998).

RESULTS

Establishing Inter-Observer Agreement

Inter-observer agreement of .90 is generally considered to indicate high reliability (Bailey & Burch, 2002). Inter-observer agreement for this study ranged from 0.923 to 1.0 for each observation, with all measures indicating strong inter-observer agreement.

Elise. The goal for Elise was to reduce the frequency of her engagement with textured surfaces over the intervention and removal of intervention phases. During the baseline phase (see Figure 2), Elise's behavior was relatively stable with a frequency range from 21 to 29, and a mean of 26.25. During intervention, the behavior decreased sharply. Intervention frequency ranged from 2 to 22,

with a mean of 8.4 occurrences. Behavior frequencies increased once the narrative reminder was removed, but then began on another downward slope.

Figure 2. Elise: Frequency of problem behavior with trend lines.

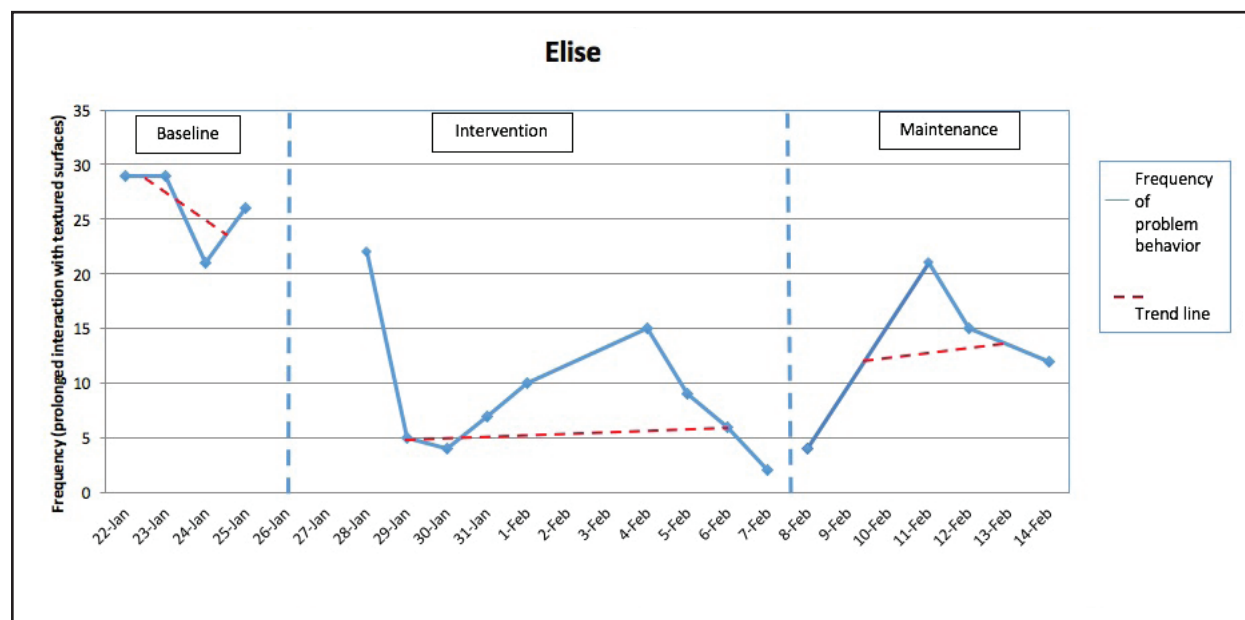
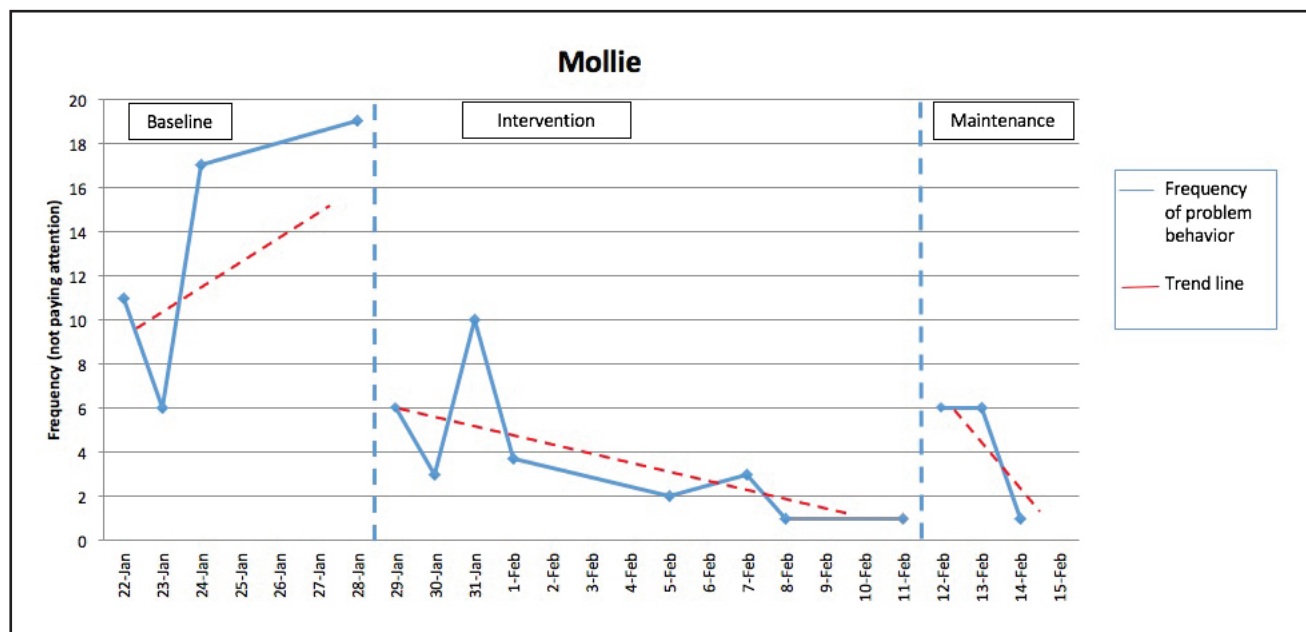


Figure 3. Mollie: Frequency of problem behavior with trend lines.



Frequencies during this final phase ranged from 12 to 21 with a mean of 16. Only three data points were taken during removal of intervention due to student absence. Elise's PND was 90%, indicating a very effective treatment.

Mollie. The goal for Mollie was to decrease her off-task behaviors. During the baseline phase, her behavior was generally increasing; the range during this phase was 6 to 19, with a mean of 13.25 (see Figure 3). During intervention, the frequency of off-task behavior decreased from 6 data points per day in the beginning of the phase to 1 data point per day at the end of the phase. The range for the intervention period was 1 to 10, with a mean of 3.71, nearly ten points lower than the baseline mean. Frequency of off-task behavior increased during the removal of intervention period, but ended with a continued downward trend across all measured days. Mollie's PND was 75%, indicating an effective treatment.

Andrew. The goal for Andrew was to decrease the incidences of loud self-talk. Figure 4 shows the baseline data range from 16 occurrences to 28 of the sample period, exhibiting problem behavior, with a mean baseline of 21. Behavior frequencies indicate a decline in problem behavior during the intervention phase. Behavior data during the intervention phase ranged from zero to 15, with a mean of 4.1. Problem behavior continued to decline into the removal of intervention phase; the range of daily occurrence was 0 to 4, with a mean of 1.6. His behavior did not increase during the

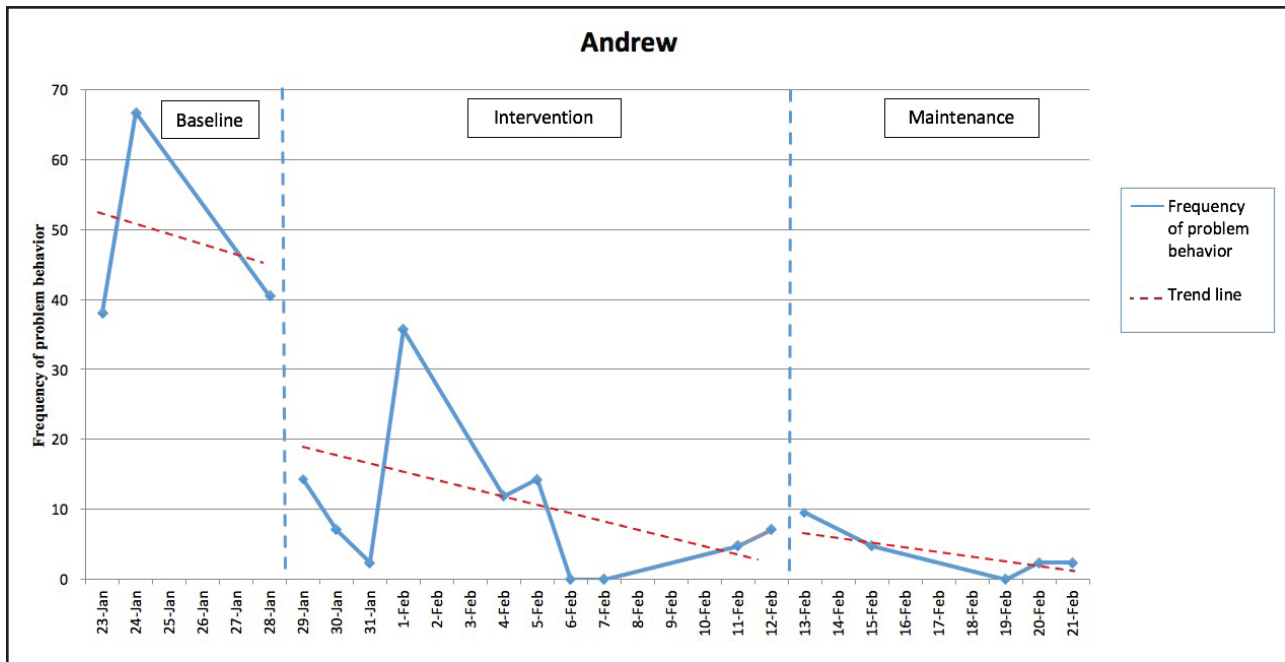
removal of the intervention, indicating that the behavior was maintained without the intervention at least in the short term. Andrew's PND was 100%, indicating a very effective treatment.

DISCUSSION

The Self-Modeling Narratives (SMN) intervention in this study was effective for different behaviors and for students of different ages, grades, and gender (see Table 1). The SMN provide a technique for assisting students in demonstrating desired behaviors. All three students were able to reduce the occurrence of the target behaviors (prolonged interaction with textured surfaces for Elise, off-task behaviors for Mollie, and inappropriate oral expression of thought processes and self-talking loudly during group instruction for Andrew) and then maintain that reduction when the intervention was removed. The intervention was effective or very effective for all three students. The causation for these results may be attributed to several factors. The researchers contend the combination of bibliotherapy, vicarious reinforcement, and self-modeling used in the SMN contributes to the overall success of the intervention.

From a pedagogical standpoint, the content to be learned by the student is formatted into a narrative, which in itself may serve as the hook for capturing the students' interest. Students are familiar with instructional elements of plot and characters early in their learning. The SMN may produce a positive impact on student learning because, as in bibliotherapy, it

Figure 4. Andrew: Frequency of daily on-task behavior with trend lines.



structures content in a way that is familiar to students’ modes of processing information. There is a beginning, middle, and end, as well as consequences for the actions performed by the individual.

The vicarious reinforcement of students seeing the behavior performed appropriately, combined with students serving as their own models, echoes the premise of Bandura’s (1986) Social Learning Theory. The SMN purposefully uses a direct-instructional approach to teach and reinforce the desired behavior, along with the positive consequences. This teaching method assists students in making the connection between behavior and the desired learning outcomes. The SMN’s use of multiple images of the student performing the task in the story format translates the learning objective into a personalized, student-centered focal point. The researchers contend that this renewed focus allows the students to make more meaningful connections with the

subject matter. The observations of the desired behaviors across all cases during the study’s intervention and removal of intervention phases reflects this learning effect.

Limitations and Directions for Future Research

The presentation of the narrative, whether in a book or digital format, may have influenced results, thus limiting generalization. Andrew’s, and Elise’s narratives were a mix of traditional book and digital formats. The narrative was prepared as a PowerPoint slideshow and bound as a book. A portion of the intervention phase included presentation as a printed book and a portion was presented on a digital device. While all cases resulted in improved behavior, future research should systematically examine the added effects of presentation format for SMN as a behavioral intervention.

Table 1
Frequency Mean Comparisons across Baseline, Intervention, and Removal of Intervention Phases.

Student	Means			
	Baseline	Intervention	Removal of Intervention	Change Baseline to Intervention
Elise	26.25	8.40	16.00	-17.85
Mollie	13.25	3.71	4.33	-9.54
Andrew	21.0	4.1	1.6	-16.9

Note. Overall change column was computed by finding the difference from Baseline to Intervention.

This research explored the impact of SMNs on two students with learning disabilities and one student with a developmental delay. This study used three case studies to provide a preliminary exploration of the effectiveness of SMNs as an intervention for behavioral change. The researchers caution against generalization of the success of SMNs to students with disabilities and/or other behaviors not included in this study or to students of ages not included. Future research should focus on replication of results across students with other disabilities, ages, and ethnicities.

CONCLUSIONS

As a result of this study, we have more knowledge about the use and success of Self-Modeling Narratives. SMNs are an intervention that has international appeal. They are easy to write and virtually cost-free to produce. The intervention takes up minimal class time and can be provided during transitions without disrupting instruction. The use of SMNs allows teachers to improve the overall classroom milieu by targeting particular troublesome behaviors in a positive and enjoyable manner.

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Educational Practices and Services for Students with Learning Disabilities in Oman: Proposed Guidelines

Yasser A. Al-Hilawani
Yarmouk University, Jordan
yhilawani@netscape.net

Abstract

The purpose of this paper is to provide description, analyses, and insights with respect to the procedures and services currently available to students enrolled in the learning disability (LD) program in Oman. Traditionally, students in Oman were identified based on low academic achievement by the end of first grade without applying any exclusionary criteria (e.g., low IQ and inadequate instruction). This simple approach of using low academic achievement to diagnose LD does not accurately reflect the meaning of LD (i.e., unexpected underachievement) and it has led to the formation of a heterogeneous group of students enrolled in the program. The overall conclusion is that adequate practices, appropriate services, and equal opportunities are yet to be fully provided based on the current knowledge on LD. Therefore, a proposed set of guidelines to identify students with LD is presented to create consistency and cohesiveness in determining eligibility and to provide better services that could benefit not only children with LD in Oman, but also in countries with similar circumstances.

Keywords: *learning disability, assessment, identification, Oman, Middle East, Arabic*

This paper provides a narrative, analyses, and interpretations with respect to the procedures and services provided to students enrolled in the learning disability (LD) program in the Sultanate of Oman, also known as Oman. The paper suggests guidelines to assist in the identification and support of students with LD that have the potential to benefit not only Oman, but also surrounding countries that use similar definitions, identification criteria, assessment processes, educational placements, and personnel qualifications.

Searching multiple citation databases (e.g., Thomson Reuters Web of Science, Elsevier Scopus, and Google Scholar) using the terms *learning disabilities, LD, Middle East, identification, assessment, Arabic language, and elementary schools* has revealed studies with a focus on assessing dyslexia and on recruiting students with a suspected LD for research studies. For example, Elbeheri, Everatt, Reid, and Al-Mannai (2006) focused on assessing dyslexia, one form of LD, in Arabic by proposing appropriate tests and procedures, and establishing the current level of performance. The authors mentioned that these tests could be customized and standardized to make them linguistically and culturally sensitive.

Other studies focused on collecting data for comparisons between groups of students with and without LD that did not challenge the status quo of the field in terms of issues, concerns, and valid assessment and identification procedures (Al-Hroub, 2010; Elbeheri, Everatt,

Mahfoudhi, Abu Al-Diyar, & Taibah, 2011; El-Keshky & Emam, 2015; Mahfoudhi, Elbeheri, Al-Rahidi, & Everatt, 2015). Based on the guidelines proposed in this paper to help streamline and rationalize the identification of students with LD in these studies and very limited Arabic published official documents regarding the eligibility criteria for LD programs, the students who participated in these studies can be classified under the broad category of underachievement, rather than the actual LD category (Abu-Hamour, 2014).

Considering that the LD field is one of the most researched areas in special education in general, it is time to address the assessment and identification of LD in children in Arab countries in the Middle East. Students with LD usually receive special education services in school settings. Students with LD tend to be overrepresented and/or misidentified due to the implemented assessment tools and procedures. This is a thorny issue that exists not only in the Middle East, but also in more developed countries such as the United States of America (Kavale, 2005; Kavale & Forness, 1998; Ysseldyke, 2005).

Research about LD in the Arabic language generated in the Middle Eastern Arab countries is unsatisfactory and can erroneously consider students with academic difficulties as having LD. This research ignores and overlooks other possible causes of academic difficulties, such as poor teaching, family matters, mild intellectual disabilities, and behavior and motivational issues.

Thus, adhering to the suggested guidelines presented in this article may benefit students in Arabic-speaking countries like the United Arab Emirates (UAE), Oman, Kingdom of Bahrain, State of Qatar, Kingdom of Saudi Arabia (all known as the Middle East Arab Gulf region – MEAG), and Jordan (Al-Hilawani, Koch, & Braaten, 2008). Hadidi and Al Khateeb (2015) documented recently the status quo of special education in Arab countries. They mention that in many of these countries there is a lack of formal operational definitions and classification systems, a discrepancy between stated rules and actual implementation, and a limited application of research findings to the field of special education.

This article addresses the assessment and identification of children with LD in detail in the Arabic speaking region using Oman as an example. While Al-Hilawani and colleagues (Al-Hilawani et al., 2008) were among the first to stress the need for accurate assessment of students with mild disabilities, including LD, in this part of the world, clear and logical procedures and concrete steps have not been forthcoming. In all his research, Al-Hilawani (e.g., Al-Hilawani & Abdullah, 2010) acknowledged this matter by using the term low-achievement and/or underachievement when recruiting participants who have academic difficulties due to learning, emotional, or mild intellectual disabilities. Later in this study, this manuscript suggests guidelines to identify students with LD. This manuscript was based on first-hand experiences with students with LD and their teachers, analysis of published works on special education status in the region and abroad, and official documents focused on Oman. Although resources that can be used to better understand LD and supports for students with this disability are readily available and accessible in English, such material has yet to be made available in Oman and other Arab countries in a logical and systematic fashion to support the education of these children.

Background

Oman is located on the Arabian Gulf branch of the Indian Ocean, on the southeast corner of the Arabian Peninsula. The country's economy depends on oil revenue and local trade. Due to limitations of obtaining information about Oman via the World Wide Web using different citation databases, this manuscript's data and facts on special education services offered to students were gathered primarily through personal and proxy contacts. The author's recent employment at Sultan Qaboos University (SQU), the premier government funded university in Oman, and previous positions at Kuwait University and the United Arab Emirates Universi-

ty, have all provided access to first-hand information about special education laws and services in these three MEAG countries.

A review of official documents reveals that Oman was the first MEAG country to mandate special education services; this happened on June 14, 1987, when signed the Minister of Education signed the Rules and Regulations Act (Ministerial Act Number 87/42, 1987). Kuwait followed in 1996 (Higher Council for the Disabled, 1996), and UAE in 2006 (Ministry of Social Affairs, 2006; Al-Hilawani, 2011). Oman's act specifies the rules and regulations for admission to special education schools, the disability categories to be served, and required subject areas. The legislation's disability categories include visual and partial visual disabilities, deaf or hard-of-hearing, speech disorders, intellectual disability, physical disability, and disabilities in early childhood.

Oman's Ministerial Act Number 87/42 (1987) states that for each mentioned disability category the class sizes should range from 6 to 16 students, with class duration times ranging from 45 to 50 minutes depending on the grade level and type of disability. It is also mentioned in the Act that students who have a visual disability or are partially sighted should follow the general education study plan, unlike students who are deaf or with intellectual disabilities who are tracked to continue their education in vocational training programs. Students with a visual disability are the only disability group permitted to continue their education through the high school level. The 1987 Act mentions neither the terms nor the services to be provided to students with learning disabilities, emotional and behavioral disorders, or other mild disabilities.

In 2008, a royal decree (#2008/63) was issued, entitled *Care and Rehabilitation of the Handicapped Act in the Sultanate of Oman*. The purpose of this legislation was to continue efforts to provide better educational services to students with special needs, but it does not address issues related to learning disabilities, educational assessment, and placement options. Rather, it deals only with more significant disabilities (e.g., physical, intellectual, deaf, visual disabilities), whether acquired or congenital, to help promote and protect the rights of individuals with intensive support needs in Omani society.

A new law is needed to address and keep pace with developments in the field of special education similar to neighboring countries, such as UAE, that passed its first comprehensive special education law in 2006, and Kuwait, which passed its second law in 2010 (The Rights of Individuals with Disabilities, 2010), in order to pro-

tect the rights of individuals with disabilities, provide needed services, guarantee equal opportunities, and prevent discrimination based on disabilities in social, economic, health, learning, cultural, and recreational care, and welfare.

Oman is currently in dire need of educational support services for children who are struggling academically and are at-risk for academic failure. Providing these services and initiating new plans for students with LD have occurred due to efforts by the Ministry of Education (MoE), in cooperation and partnership with SQU. The committee first mentioned the term LD in 2000/2001 and later when the *Guide to Learning Disabilities Program* was prepared and issued by the Oman MoE (2014/2015). This guide has been used as a foundation for addressing academic difficulties that some students encounter in mastering the expected learning outcomes embedded in the curriculum. The rationale for initiating educational services for these students includes the group's high drop-out rate during middle and high school due to repeated academic failure, the fact that regular education teachers are not being professionally prepared to diagnose LD or implement Individualized Education Programs (IEPs) for this group, and the current classroom teaching environment in Oman, i.e. strategies and teaching methods used with typically developing children and youth are not suitable for students with LD.

General Education Context

Universities that offer teaching programs in Oman and some other countries in the region are currently not providing general education teaching candidates with the coursework and experiences that support development of the skills needed to offer high quality instruction to diverse learners, including those with LD. Graduates of such programs often lack the specific knowledge and skills to effectively teach these children and are unaware of their needs (Al-Hilawani et al., 2008). These teacher preparation programs have not required pre-service teachers to enroll in introductory coursework related to the education of exceptional learners. This situation recently changed in the UAE and is being considered in Kuwait. The time has come to seriously consider this requirement in Oman as SQU is actively seeking academic accreditation from the National Council for Accreditation of Teacher Education (NCATE), a U.S. based educational organization. In addition to implementing NCATE standards, SQU's College of Education (CoE) has modified its courses with the goal of implementing the principles of the

Interstate New Teacher Assessment and Support Consortium (INTASC) that requires, among other things, adequately preparing teachers to provide instruction to diverse learners. Every department in the College is attempting to apply the relevant principles, standards, and learning outcomes to each content area of study, as specified by the accreditation organizations. SQU's Psychology Department, for example, intends to adopt the Council for Exceptional Children's (CEC) learning outcomes in knowledge, skills, and aptitude to modify its one-year higher diploma, and later its master's degree program, in learning disabilities. This process will result in an overall restructuring of the two current academic programs in LD.

Sultan Qaboos University (SQU)

SQU has assumed responsibility for providing Omani society with teachers in various disciplines. To accomplish the University's role in serving the community, a partnership has been formed between the MoE and SQU's Department of Psychology in the College of Education to initiate a one-year diploma program in learning disabilities, targeting in-service teachers. This endeavor is part of an ambitious program to prepare teaching staff for instructing students with LD who study the regular curriculum in a resource room setting. It was started in 2006 as a response to the Ministry's demands for qualified teachers for this population. The training program was originally designed for Omani teachers who already had a bachelor's degree in Arabic, math, special education, or psychology. The purpose is to assist program candidates to acquire concepts, identification and diagnostic skills, and appropriate approaches for teaching students with LD. Every year, about 30 in-service teachers are enrolled fulltime in the program.

Oman's MoE requested another program to be executed in partnership with SQU to provide individuals with the opportunity to obtain a master's degree in learning disabilities. This program was initiated in the Fall of 2013/2014 and accepted the first higher education candidates to prepare qualified personnel for teaching, conducting in-service training, and assuming supervisory and consultation roles with specialization in LD. The study program lasts for two years. In the first year, candidates complete coursework and in the second year they work on their theses.

The common goals for both the one-year and master's degree programs are to provide in-depth knowledge and training with respect to the: (1) characteristics of students with LD; (2) identification and legal rights of students with this disability; (3) development and ad-

ministration of assessment tools; (4) development and implementation of individualized educational programs; and (5) acquisition of a large repertoire of instructional, technical, and behavior management techniques.

A critical issue in the establishment of both programs is a shortage of faculty qualified to provide instruction in the field of mild, high-incidence, and learning disabilities. Both programs have, as a result, been understaffed since their inception. Overall, there is a shortage of faculty in this subfield of special education across the region with many of those in the field not trained or academically prepared to run such programs. A second issue that affects the field in the region is the shortage of teaching materials in Arabic, especially those needed for graduate studies that provide an in-depth focus on theoretical, conceptual, and practical understanding of learning disabilities. In addition, there is a dire need for up-to-date research-based knowledge necessary for teaching children with learning disabilities living in Oman and other Arab countries. Efforts in this regard, thus far, are being carried out at the individual level through the translation of materials developed in other countries, conducting research using groups of students known as underachievers or low achievers, and through the application of knowledge gleaned from experiences obtained while studying and working abroad.

The Nature of Current LD Services in Oman

Within Oman, services for students with LD started during the 2000/2001 academic year based on a decision by a committee overseeing educational development and policy practices in the MoE. These services were initially made available in three schools that serve students in grades 1-4. Services have been expanded since then to cover a total of 613 schools located in various parts of the country and currently also include some students in grades 5-10 (Guide to Learning Disabilities Program, 2014/2015). The purpose is to remediate learning difficulties and to provide students with educational services that can assist them in acquiring the content knowledge provided in the regular curriculum at a level on par with that of their non-LD peers.

Services for students with LD are presently based on the pull-out model where students receive instruction in the resource room a few hours a week in math and/or language and then return to regular classrooms. The number of hours or visits to the resource room is determined by the evaluation team, based on the severity of academic weakness or difficulty. A review of Oman's current educational guide on LD reveals that the instruction of students suspected of experiencing

this disability starts by focusing on the developmental deficit (i.e., emphasizing the cognitive foundation or basis of academic development or problem). Teachers are required at the beginning of a lesson to provide students with exercises to remediate suspected developmental deficit in areas of attention, discrimination, and recognition before they start teaching academic skills. This approach is contrary to a more behavioral approach that uses evidenced-based teaching practices that focus on direct teaching of needed skills (Brophy & Good, 1986; Coyne, Kame'enui, & Carnine, 2007; Fletcher, Lyon, Fuchs, & Barnes, 2007; Hughes, 2011; Konrad, Helf, & Joseph, 2011; Pressley, Johnson, & Symons, 1987; Rossenshine & Stevens, 1986; Swanson, Harris, & Graham, 2013; Vaughn & Linan-Thompson, 2003).

Eligibility Criteria for Enrollment in a LD Program

Oman's MoE has set criteria for determining student eligibility for the LD program. While the conditions mentioned below are inconsistent with the requirements stated in the Individuals with Disabilities Education Improvement Act – IDEA (2004) in the U.S., they reflect a strong determination to start a program for the purpose of providing services to Omani citizens. Current criteria include:

1. The students' academic achievement is not commensurate with his/her age or ability in one or more areas including oral expression, listening comprehension, written expression, basic reading skills, reading comprehension, arithmetic operations, and/or mathematical reasoning.
2. The evaluation team finds a large discrepancy (MoE criteria do not indicate the degree or level of discrepancy) between cognitive abilities and one of the areas mentioned above. This discrepancy could be found between achievement and cognitive abilities or between achievement levels in different academic subject areas.
3. The evaluation team excludes cases from being considered for LD if the discrepancy between cognitive abilities and levels of academic achievement is large but due to visual, hearing, motor, intellectual, emotional disabilities or the result of environmental, cultural, or economic disadvantages.
4. Students with LD require specially designed teaching methods since the pedagogical approaches being implemented with typically developing students are not suitable.
5. There are intra-individual differences in normal development and maturation as determined by the outcome of the diagnostic process.

6. The presence of minimal brain dysfunction is a potential cause of learning disabilities.

These six conditions are based on an outdated set of criteria for determination eligibility for special education services. There is little research evidence to back up these criteria with much to suggest the lack of research evidence (Arter & Jenkins, 1979; Dean & Burns, 2002; Salvia & Ysseldyke, 2001; Smith, 1991). These conditions have in the past resulted in the U.S. in both the over-identification of children having LD as well as the under-identification of others and became a considerable source of disagreement in the field (Epps, Ysseldyke, & Algozzine, 1983; Ysseldyke, Algozzine, & Epps, 1983; Ysseldyke et al., 1983). Overall, these criteria are not totally reliable in differentiating among students as having or not having LD (Lyon, 1994; Moats & Lyon, 1993; Shinn, Ysseldyke, Deno, & Tindal, 1986). They are extracted from the literature and then regarded as a set of criteria that should apply to every student suspected of having LD. In addition, it is entirely conceivable that children with emotional as well as other disabilities can also experience learning disabilities, but it is currently impossible to tell whether one led to the other or if they are co-occurring. Finally, the existing research does not support the supposition that LD students have brain damage or minimal brain dysfunction. This is quite outdated and does not apply to the large majority of students with learning disabilities (Galaburda, 2005; Rourke, 2005).

Steps of the Diagnosis Process

Based on the Guide to Learning Disabilities Program (2014/2015) that has been reviewed by the author to provide technical comments on its content for a future revision, and on observing field practices, the following steps are currently used in Oman to decide whether or not a student has a learning disability:

Step 1: Referral: The regular classroom teacher refers the student with suspected learning problems for assessment by filling out a referral form. The LD teacher observes the referred student in the regular classroom with respect to attention, interaction with others, and classroom performance. The purpose of this observation is to obtain a second opinion on the student's performance issues and/or to determine how a student responds to an intervention (e.g., different teaching approaches) implemented in that setting. If this initial step does not yield positive results, the LD teacher starts the diagnostic process.

Step 2: Initiating the Diagnostic Process: A team of specialists, in cooperation with parents, conducts an assessment to determine the presence of suspected LD.

Areas of assessment include language and math. Tests developed by MoE are used to determine the student's present level of performance. The following procedures are broadly used as guidance:

1. Conduct a clinical observation, interview, and carrying out a case study. The LD teacher starts the diagnostic process by undertaking a classroom observation, conducting interviews with the student, with his or her teachers, and communicating with parents to obtain a written approval for conducting the assessment. A social specialist with a degree in sociology or social work then conducts a case study to rule out students who are not eligible for enrollment in the program. The social specialist is available in schools to help students and their families deal with behavior problems and prepare behavioral management plans in cooperation with school administration, psychology specialists, teachers, and parents. Other duties of the social specialist include surveying families who have students with suspected LD; studying their cases and collecting detailed personal information; preparing case study reports in cooperation with teachers of the students with LD; planning and executing guidance and awareness programs targeting students with LD, their parents, and teachers; establishing a positive relationship with parents to encourage them to follow up on their children's school progress and to help them overcome difficulties that they may encounter when communicating with teachers; and tracking frequent absenteeism, its causes, and providing suggestions for solutions.
2. Administer checklists and rating scales (filled out by the regular classroom teacher based on past knowledge and experience with the student) related to academic readiness skills (e.g., letters, sounds, number identification), behavior, and attention. Teachers of students with suspected LD administer achievement tests primarily in language and math. These tools are provided to teachers by MoE for data collection on all students referred to the program.
3. Administer perceptual tests (undertaken by the LD teacher) that assess memory (visual and auditory), eye-hand coordination, and visual and auditory discrimination. Perceptual tests are utilized first and followed by academic tests.
4. Determine the number and names of students eligible for enrollment in the LD program, the type(s) of difficulty they experience and its extent, and their daily class schedule regarding when and how many

times a week they have to visit the resource room for assistance. This step is included here to finalize the outcome of the diagnostic process before final approval. The logic behind including this step is that the staff who conduct the diagnosis also determine the students' class schedule in the resource room and related issues.

5. Approve the diagnostic report. This report indicates whether or not the student is eligible for LD services. Usually, it is prepared by the LD teacher and later presented to the academic supervisor and the school principal for final approval.

It appears from examining current practices that clearer guidelines should be in place with actual involvement from other school personnel. The outcome of the diagnostic process currently used in Oman cannot confirm that underachievement is the result of LD or any intrinsic or extrinsic factor such as poor teaching, the type of tests being used, or other issues related to personnel and test administration procedures. These steps are not fixed and personnel roles and duties in the referral process are subject to change. Based on personal interviews with the teachers of students with LD in classroom settings and while they were enrolled in the one-year diploma and MA programs for learning disabilities, it appears that the current steps in LD diagnosis have resulted in a liberal approach to program admission. This has created a situation in which many students enrolled in the program, similar to the situations in surrounding countries, do not show evidence of intrinsic LD, but rather, experience academic difficulties due to other causes, including poor teaching, social, or other disabling conditions such as emotional or intellectual disabilities (Al-Hilawani & Abdullah, 2010; Al-Hilawani et al., 2008).

There is no mention in the above steps of administering an IQ test to exclude factors such as low intellectual ability as a cause for academic difficulties. Two positions could be adopted here. The National Joint Committee on Learning Disabilities (2010, June) states that IQ scores are not a good indication of intellectual ability, and that they are not needed to ascertain the presence of a learning disability. A second position is presented by the School Psychology Division (16) of the American Psychological Association (n.d.). This organization states that IQ tests may be used as part of a comprehensive assessment and evaluation of learning disabilities to rule out intellectual disability when it is suspected. That is, intelligence tests may be used for exclusionary purposes, but not as evidence for inclusion in a LD program. This position is consistent with

the federal definition of learning disabilities in the U.S. (IDEA, 2004) and with implementation of the hybrid model (Fletcher, Denton, & Francis, 2005) presented later in this article as an approach through which to identify and determine which students should be enrolled in the LD program. Therefore, the use of IQ tests is suggested in this paper, along with performance on social and adaptive behavioral scales, as exclusionary criteria for intellectual and other disabilities (Kavale & Forness, 1998). Otherwise, the learning disability construct becomes a slippery slope where the outcome is identifying a non-categorical group called students with high-incidence disabilities (Fuchs, Mock, Morgan, & Young, 2003), which includes all students with mild disabilities.

In sum, it is important to note that the available tests and instruments being used for diagnosis are for screening purposes and not for determining eligibility. During academic testing, determining present levels of performance focuses on oral reading and arithmetic operations without a clear reference to the types and sub-types of difficulties like listening, reading comprehension, and the components of written expression. Also, literature (Bradley, Danielson, & Hallahan, 2002; Kavale & Forness, 1987; Kavale & Mattson, 1983; Lerner, 1985; Lyon, 1994; Smith, 1991; Vaughn & Linan-Thompson, 2003) indicates that perceptual tests used in the process cannot rule out maturation lag as a factor for underachievement. It is critical to stress in this context that over two decades ago the diagnosis of LD in many countries moved away from considering this disability a perceptual disorder. As a result, the focus of assessment and teaching has moved toward supporting students to develop basic academic skills rather than focusing on hypothetical factors that years ago were thought to underlie learning disabilities when the disability was viewed from a medical rather than an educational model. Overall, evidence fails to indicate a real connection between performance on perceptual skills tests (which, in the case of Oman, have been brought from Jordan and are currently being implemented without real adaptation to the Omani context) and learning disabilities. This tradition of using perceptual skills tests has been in practice in the region (i.e., the MEAG and other countries in the region) due to the influence of the work of Kirk and Chalfant (1984) on academic and developmental learning disabilities. It was among the first textbooks translated from English into Arabic in the late 1980s.

Remarks

Oman's guidelines for diagnosing LD among school-age children are out of focus, out of date, and need to be realigned with what we know about LD today. It is essential to note that the LD field is advancing so rapidly that meeting current best practices for identification and eligibility purposes can become cumbersome, not to mention that they can lead to disagreement on how best to proceed (Algozzine & Ysseldyke, 1986; Ysseldyke, 2001; Ysseldyke & Algozzine, 1983). LD services in Oman are still in their initial stages so there is much room for improvement. There is a need for formal and informal measures to assess and evaluate the various types of LD. The country still needs large numbers of educational and support staff specialized in LD to work as teachers and consultants. This could explain why services have not yet been extended to high schools, but rather, offered only up to grade four and (in some schools) to grade six. Hopefully, the continuous and diligent efforts and partnerships between Oman's MoE and SQU will improve LD services. These improvements can be discerned from the types of services, consultations, and professional development programs being requested and implemented, not to mention pursuing academic accreditation for CoE programs.

Proposed Guidelines for Identifying and Determining LD

This section presents the proposed guidelines for identifying students in Oman who are academically challenged due to suspected LD. These guidelines are adopted from the U.S. Federal Register (2006) and from IDEA (2004), with modifications added based upon the author's professional experience to suit the status quo in the region. The suggestion to implement the U.S. knowledge base and criteria as a frame of reference is advocated here because the region has not yet developed its own sound criteria and guidelines.

The overall influence of U.S. special education legislation and conceptualization of LD is obvious in this region when considering that many of the first generation of faculty in special education, who initiated and impacted special education services and programs, graduated from U.S. universities. This effect also appears when examining laws and publications in the Middle East Arab countries, such as the MEAG, when attempting to implement the learning outcomes published by the Council for Exceptional Children (CEC) for accreditation purposes, when initiating academic degrees in LD that follow LD programs offered at accredited U.S. universities, and when experts and guest

speakers are invited from the U.S. for consultations and presentations (Al-Hilawani, 2009; 2011; Al-Hilawani et al., 2008). The most circulated definition of LD in the region is the federal definition mentioned in IDEA or the *National Joint Committee on Learning Disabilities (NJCLD)*, but without delineating satisfactorily the proper guidelines for identifying and determining LD. There are gaps and missing details regarding how to adhere to the proper and systematic implementation of LD identification.

The suggested guidelines presented in this paper are put together to fill in gaps and to provide needed steps and information on LD identification procedures by utilizing a synthesis approach to identifying students with suspected LD both in Oman and other countries in the region (Fletcher et al., 2005). These guidelines are designed for optimum services and policy changes in LD. They show what steps to implement to differentiate between students with LD and those without LD. Full implementation of these guidelines will take time, but they are expected to be an improvement. One obstacle is the scarcity of culturally-specific standardized tests (norm-referenced and criterion referenced tests) in all areas needed to conduct accurate diagnosis in Oman. Future projects in the region should develop such tests and other measures for proper assessment and identification.

Considering practices that have been in place since the term LD first became known in the region in the late 1980s, it is time to adopt and specify a set of research-based criteria that can be used to advance services and knowledge in this field. Adopting international standards in the assessment and diagnosis of LD was first voiced in an international conference on mild disabilities in the region about a decade ago (Al-Hilawani et al., 2008). Currently, students who are being served in the region in LD programs are a mix of those with low average intellectual abilities, including students who fall under the term *slow learning* or have mild intellectual or emotional disabilities, as well as those who are underachieving due to social, instructional, or/and health issues. Adopting the approach as presented in this paper has the potential to unify and create consistencies in service delivery and research outcomes for students with LD, which is currently best described as chaotic. Although this approach may not be an ideal solution, it provides a framework as to how the process of identifying LD should be dealt with in a still-developing region with a focus on providing comprehensive assessment in all areas of suspected disabilities. The next section of this paper provides an illustration of the proposed synthesis approach (i.e., guidelines).

The Evaluation Team

To determine eligibility for enrollment in the LD program, the following individuals should be involved: (1) the student's parent or guardian; (2) a general education teacher qualified to teach students who are similar in age and/or grade level to the student being assessed or referred for assessment; and (3) a qualified education professional with the training and experience to conduct diagnostic testing (e.g., psychology specialist, speech-language pathologist, remedial reading teacher, learning disability teacher), as well as other professionals needed to conduct comprehensive assessment and evaluation processes.

Eligibility Criteria

Following are the recommended conditions to determine the existence of learning disabilities that require special education services.

(1) **Classroom Observation and Review of Academic and Behavioral Records.** Conducting observations in the learning environment (e.g., regular classroom) should be required to document areas of difficulty in academic performance and behavior. Observation is conducted by a qualified education professional such as an LD or remedial reading teacher prior to referral. A review of longitudinal academic and behavioral records as well as pertinent medical results by a member of the evaluation team will assist in discerning learning trends of the students to document potential underachievement patterns.

(2) **Clear Evidence of Significant Academic Underachievement.** There should be significant underachievement in one or more of the following eight specified academic areas as documented by the observations and review of academic and behavior records where LD might be manifested or present, based on IDEA's approach to LD: (a) oral expression; (b) listening comprehension; (c) written expression (spelling, handwriting, punctuation marks, grammar, and ideation); (d) basic reading skills; (e) reading fluency; (f) reading comprehension; (g) mathematics calculation; and (h) mathematics problem-solving (previously known as mathematical reasoning).

The presence of underachievement should be clearly demonstrated by the student not achieving sufficiently, compared to peers of his or her age. This should be considered concurrently with the fact that the student has been provided with adequate learning opportunities, educational experiences, and instruction suitable for his or her age or grade level standards. Priority should be

given to using criterion-based curricular performance and expectations compared to norm-based reference performance or class or school level performance, especially if the class or school level performances are low. When norm referenced assessments are used, underachievement should be considered when the student's performance is one or more standard deviations below the mean.

(3) **Use of the Response-To-Intervention (RTI) Framework.** Generally speaking, RTI refers to a problem-solving model that includes multiple levels of interventions being provided within the general education setting by regular classroom teachers in collaboration with other education specialists before attempting to identify or refer students who may be diagnosed as having a learning disability. Utilizing this framework, official referral for diagnosis does not occur until a student has not responded to multiple layers of scientifically-based instruction and intervention. Literature on RTI (e.g., Fuchs & Fuchs, 2007; Fuchs et al., 2003; Johnson, Mellard, Fuchs, & McKnight, 2006; Mellard, 2004) revealed that students involved in an RTI model are provided with effective teaching and instruction by their classroom teacher and the teacher monitors the students' progress. If students do not initially respond, they receive different instructional approaches and/or additional strategies by the regular education teacher or by another qualified education specialist in a smaller group. Students' progress is then monitored over an extended period of time (e.g. six weeks). If the students in question still do not respond, either a formal diagnostic process is instituted using the RTI framework to determine whether they are eligible for special education services (if RTI is used as an identification process) or a formal special education evaluation is conducted (if RTI is used as a justification for initiating a comprehensive assessment and evaluation process).

The RTI approach is an integral part of the guidelines proposed for identifying students with learning disabilities because it focuses on delivering appropriate instruction and performing progress monitoring. This is imperative to make certain that the apparent underachievement is not due to a lack of proper instruction and/or student motivation. The data collected during this process should be reviewed by the evaluation team to show that:

- The student was provided with suitable instruction in regular education settings by qualified teaching staff;

- There is documentation of frequent formative assessments of achievement that serve as an indication of the student's progress, or lack thereof, following instruction.

(4) **Profile Analysis.** Profile analysis should be undertaken to show strengths and weaknesses in students' achievement compared to their intellectual development. The results of academically-based formative assessments (e.g., Curriculum-Based Measurement - CBM) conducted on an ongoing basis should be analyzed based on the student's age across different academic areas (e.g., word analysis skills, reading comprehension, math calculation and problem-solving skills). Such analysis is designed to identify patterns of strengths and weaknesses and can be applied to classroom performance and achievement to show intra- and inter-individual differences using the CBM approach or other standardized psycho-educational assessment tools. Intellectual development, academic age, and grade-level expectations are required to compare strengths and weaknesses in performance or achievement. Profile analysis is meant to show that students with LD do not have a flat cognitive and academic profile. Rather, students with LD should portray a profile of strengths and weaknesses based on the areas in which the LD is demonstrated (Compton, Fuchs, Fuchs, Lambert, & Hamlett, 2012; Huang, Bardos, & D'Amato, 2010; Stuebing, Fletcher, Branum-Martin, & Francis, 2012).

(5) **Exclusionary Factors.** It must be determined that the lack of a student's response to scientifically research-based intervention or the presence of underachievement is not primarily the result of visual, hearing, motor, intellectual, or emotional disabilities, nor the outcome of cultural, environmental, economic and/or limited language proficiency. Administering social and adaptive behavioral scales and assessments, along with conducting a case study and performing clinical judgment during data collection to obtain comprehensive information on the student, should help determine whether the LD has co-occurring disabilities or emotional/behavioral challenges or may have come about due to different cultural and social backgrounds. This is a team process and decision that would be less likely to unfairly deny LD services to a qualifying student. Definitions of learning disabilities (e.g., IDEA, 2004) include acknowledgment of these exclusionary factors, meaning these factors could not explain students' learning needs. It should be noted that a discrepancy between intellectual development and achievement in areas related to the suspected LD is no longer a requirement for identifying students with

learning disabilities in most countries. This method, as used in the U.S., lacked empirical support until recently and led to inconsistent identification of students with learning disabilities (Fuchs et al., 2003) to a degree that its scientific base has been questioned (Stanovich, 2005; Lyon, 2005).

CONCLUSIONS

The goal of this paper was to review, analyze, and propose improved guidelines and procedures to identify and determine which students in Oman experience LD and should be eligible for the LD program. The review and analysis of LD status in terms of assessment and evaluation is applicable to other countries in the region. Therefore, the proposed guidelines can be used to guide assessment, identification, and remediation practices to improve students' lives in the whole region. That is, the guidelines are designed for optimum services and policy changes in approaching LD assessment and identification. They show what steps to implement to differentiate between students with and without LD. The intention is to highlight the pitfalls of current practices and propose objective assessment and identification – something that is not being addressed in a thorough manner in the region currently. Implementing these guidelines will take time and when they come into effect, they are expected to produce better results than the status quo.

One issue to address is the availability of standardized tests (norm-referenced and criterion referenced tests) in all areas necessary for carrying out accurate diagnoses. In Arab countries, there is a shortage of sound, culturally-specific standardized tests needed for assessment. Using a test standardized in one Arab country and applying it to another Arab country is inappropriate due to variations in linguistic nuances, behaviors, customs, and social traditions. Therefore, each country should standardize its assessment and identification instruments. Also, to determine eligibility for services, a statement is required to show whether the student has academic or behavioral difficulties and the basis for such a conclusion. The student's academic performance and pertinent medical results affecting school performance are all needed in order to determine if the student is experiencing LD. Finally, the approval of each team member is required to indicate whether the final diagnostic report reflects that professional's conclusion.

Proper implementation of the suggested guidelines, when needed resources are made available, will not only shape the future of service delivery, but also

improve research in this area. Studies of participants suspected of experiencing learning disabilities are being conducted in the region, but this research is inconclusive due to the absence of sound assessment and identification procedures (Al-Hilawani et al., 2008). As a result, the term *low achievement* or *underachievement* has been used in research to refer to groups of students who have academic difficulties, including learning disabilities (Al-Hilawani, 2000; Al-Hilawani & Abdullah, 2010). This practice should change when the suggested guidelines are implemented and the LD terminology is used based on a specified set of criteria.

Finally, quality services can only be provided when better programs are developed that prepare qualified and capable teachers and specialists in LD. The final goal is to help students with LD pursue their advanced education, fulfill their ambition to reach their potential, and finally to become prosperous, independent, productive citizens. The constructive attitudes and efforts, as well as the good intentions of MoE and SQU officials, usher in a new era for better services as gaps and obstacles being pinpointed and highlighted in this paper promise better student outcomes.

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Children with Autism in Ethiopia: Diagnosis, Laws, and Educational and Behavioral Intervention

Waganesh Zeleke
Duquesne University, USA
zelekew@duq.edu

Abstract

Since the late 1990s, the law, education, and intervention regarding childhood developmental disorders in Ethiopia have experienced significant reforms and development. However, education and intervention for children with severe developmental disabilities, especially children with autism spectrum disorders (ASD), still suffer the greatest challenges in the field. This paper aims to give readers an overview of the current situation of children with ASD in Ethiopia. The paper first addresses the issues of prevalence of ASD and offers an introduction to the diagnostic process. A review of legislation and policy related to disability and access to education services for children with disabilities and a description of current intervention options and access to educational services for children with ASD are provided. The paper introduces different service providers in Ethiopia, their roles and implications for future research in the field.

Keywords: *autism, Ethiopia, special needs education, behavioral intervention*

Cultural Background

Originally called Abyssinia by the West, Ethiopia is one of the oldest nations in the world with a history that spans more than 3,000 years. With an estimated population of 85 million (Central Statistical Agency [Ethiopia], 2013), Ethiopia stands second as most populous nation in Africa. The country is home to diverse cultures with more than 80 language groups. Eighty-five percent of the country's population lives in rural areas. Limited access to healthcare, combined with widespread illiteracy, poses some of the greatest risks to addressing the issue of disability in the country. Thus, complications associated with health care, delivery systems, and educational and intervention services are factors that contribute to high prevalence rates of disability in Ethiopia (Lewis, 2009).

Disability Research

Research in the area of disabilities is limited, resulting in a significant lack of knowledge about different forms of disabilities in Ethiopia (Lewis, 2009). The 1994 Census in Ethiopia reported that the number of persons with disabilities consisted of less than two percent of the total population (ACPF, 2011a; Tirussew, 2005). However, this number appears to be low when compared with disability rates from other developing countries provided by international organizations such as the World Health Organization (WHO) (10%, 1993) and the United Nation Development Program (UNDP) (7%, 1997). According to the National Plan of Action for Children, the number of persons with disabilities in

Ethiopia was estimated at around 4.9 million in 2003 (United Nations International Children Emergency's Fund (UNICEF), 2007), while current estimates put the number around 6.5 million (Lewis, 2009). The total number of school-age children with special needs in Ethiopia was between 1.7 and 3.4 million (Ministry of Education, 2006). However, the total number of children with disabilities enrolled in school is extremely low.

Special education in Ethiopia can be traced back to 1925, when a Western missionary first established a special school for individuals with visual impairment in Dembidolo town. However, the modern development of special education on a national scale didn't begin until 1994, when the Ethiopian government ratified Access for Education Policy special provisions for special needs education in Article 2.2.3. This policy demands the necessity of special units and classes for students with special needs (Federal Democratic Republic of Ethiopia, 1994). Since then, the country has undergone profound economic and social changes, and special education has experienced reform and development. Special classes within ordinary schools were established for children with disabilities nationwide (Temesgen, 2014). However, the services of these schools are limited to children with visual and hearing impairments, and for children with intellectual disabilities from age 3 to 8 years. Most children with severe, multiple disabilities, such as profound cognitive impairments and autism spectrum disorders, are still kept away from both school and community life.

Although autism was identified in the 1940s and official reports on its prevalence were documented in the Western world, there is not much scientific research in Ethiopia related to autism. In Ethiopia, the first official diagnosis of autism was reported in 1986 by Ayele Gebre-Mariam at Black Lion Hospital, in the *Ethiopian Medical Journal*, four decades after Kanner (1943) first published his groundbreaking paper on early childhood autism. In 1986, Gebre-Mariam reported a case involving a five-year-old boy with autism and hydrocephalus. Gebre-Mariam speculated that asphyxia around the time of birth and the resulting brain damage led to the child's autism. Before this publication, there are no official records about the prognosis of children with autism in Ethiopia. The next report was in 2002, when Zemi Yenus opened the Joy Center for Children with Autism and Related Developmental Disorders in Addis Ababa (Feinstein, 2010). As a mother of a child with autism and a pioneer, Yenus played a key role in creating public awareness in the country about autism and its characteristics. Since 2002, a growing number of parents have brought their children to public and community agencies, including the Joy Center, for possible help. However, regardless of the growing number of children with ASD, services such as diagnosis/assessment, education, and behavioral intervention are in their infancy at both the governmental and public school levels. Only children with ASD who reside in the capital city of Addis Ababa have opportunities and access to informal assessment/diagnosis, education, and intervention. These opportunities are very limited and are provided by parent-owned centers and community-based agencies.

Prevalence of Autism

Accurate figures on the prevalence of childhood developmental disorders such as autism are difficult to find for most developing countries, including Ethiopia, due to the cultural fact of hiding the problem, a lack of awareness, stigma related to disability, and also partly due to the low level of attention given to it by various fields (Tirussew, 2005; Temesgen, 2014). According to the world program of action concerning persons with disabilities, in most countries at least one person out of 10 has a physical, developmental or sensory impairment, and at least 25 percent of any population is adversely affected by the presence of disability (Tirussew, 2006). Autism in Ethiopia is still relatively unknown, but prevalence studies of general developmental problems and intellectual disabilities indicate that these

problems are at least as high as in developed countries (WHO, 2006). The Nia Foundation, the leading organization providing educational and intervention services to children with ASD in Ethiopia, states:

If one in every 150 children are diagnosed with autism in the U.S.A, we could fairly say that with Ethiopia's population of more than 80 million, we can estimate to have over 530,000 children suffering from autism and related developmental disorders (Nia Foundation, 2008).

Recently, the Nia Foundation reported that it made informal diagnoses of more than 500 children with ASDs (Nia Foundation, 2008). The Nehmia Autism Center, located in Addis Ababa, has reported enrolling more than 50 children with ASDs and having more than 150 on their waiting list in 2014 (R. Abayneh, personal communication, June 20, 2014). While these numbers indicate the presence of children with ASD in Addis Ababa, they are not recommended to be used as the predictors of the prevalence of autism in Ethiopia, due to the lack of more systematic empirical evidence. However, for two main reasons it is unquestionable that the number of children with ASD in Ethiopia could be higher than what the two centers for children with ASD reported. First, the high level of stigma of developmental disorder could deter parents from bringing their children for diagnosis. Second, most attempts to diagnose ASD have been made only in the capital city of the country. If one assumes a level of prevalence of 1 in 68 children in Ethiopia, and considering Ethiopia's population of more than 80 million people, there would still be at least 1.2 million individuals affected by ASD nationwide. Given the low level of available interventions, this is a staggering number.

Recognition, Referral, and Diagnosis

Prompt recognition of possible autism enables a child and his/her family to start their journey on the pathway to a formal diagnosis. In the Western world, both the general public and parents have many opportunities to be aware of signs and symptoms of possible autism, and access to the possible referral resources to accurately diagnose autism and identify the necessary interventions and treatment (Samadi & McConkey, 2011). This type of path is almost unthinkable in a country like Ethiopia because disability is experienced differently due to certain influencing contextual factors such as transportation, accessible schools, and health care. Culturally-based beliefs and attitudes about people with ASD, social stigma associated with disability, and inconsistency of terms used to describe the experience of

children with ASD are some of the contributing factors making the referral, recognition, and diagnosis processes difficult in Ethiopia.

Geographically, approximately 85% of the Ethiopian population resides in remote, rural areas. Given other factors, such as financial constraints and technical limitations (e.g., lack of experts in autism and unavailability of a systematic framework for identification and diagnosis of autism), it is extremely difficult to identify and diagnose individuals with autism properly. For example, many individuals with both autism and cognitive impairments have been simply diagnosed as having only cognitive impairments (e.g., mental retardation) due to poor awareness of ASD among medical professionals in Ethiopia (Morris, 2006). It is noted that usually only children with classic autism (i.e., early childhood autism) are likely to be identified or receive an official diagnosis of autism in Ethiopia. Comparatively few professionals (i.e., mostly psychiatrists) know about high functioning autism and/or Asperger syndrome or their distinct differences from classic autism.

Schools typically act as a vehicle for identifying children's disabilities (Tirussew, 2006). On the contrary, in areas where schools are not accessible, most parents discover their child's disability at a very late stage, precluding the possibility of early intervention. When parents recognize the different autistic characteristics of the child, they take the child to general medical practitioners in local health centers or hospitals. Unfortunately, most medical doctors at this level fail to identify the problem or make an accurate diagnosis (Morris, 2006). In very few cases will parents be referred to other mental health professionals (such as psychiatrists, pediatricians, or psychologists, or local Non-Government Organizations (NGOs)), who are only located in Addis Ababa.

Like in many developing countries, there are no standardized diagnostic instruments used to diagnose children with ASD in Ethiopia. The diagnosis and first treatment of autism is still largely based on the medical model (Morris, 2006). Assessment and autism diagnostic services are provided through a clinical interview and observation by a handful of psychiatrists. Only psychiatrists, and on some occasions, psychologists, can make such a diagnosis and Ethiopia has only a very small number of medical doctors who are trained in psychiatry. It is estimated that only 44 psychiatrists for about 85 million people (WHO, 2006), not to mention the proportion among them who specialize in child psychiatry and diagnoses, such as autism. Therefore,

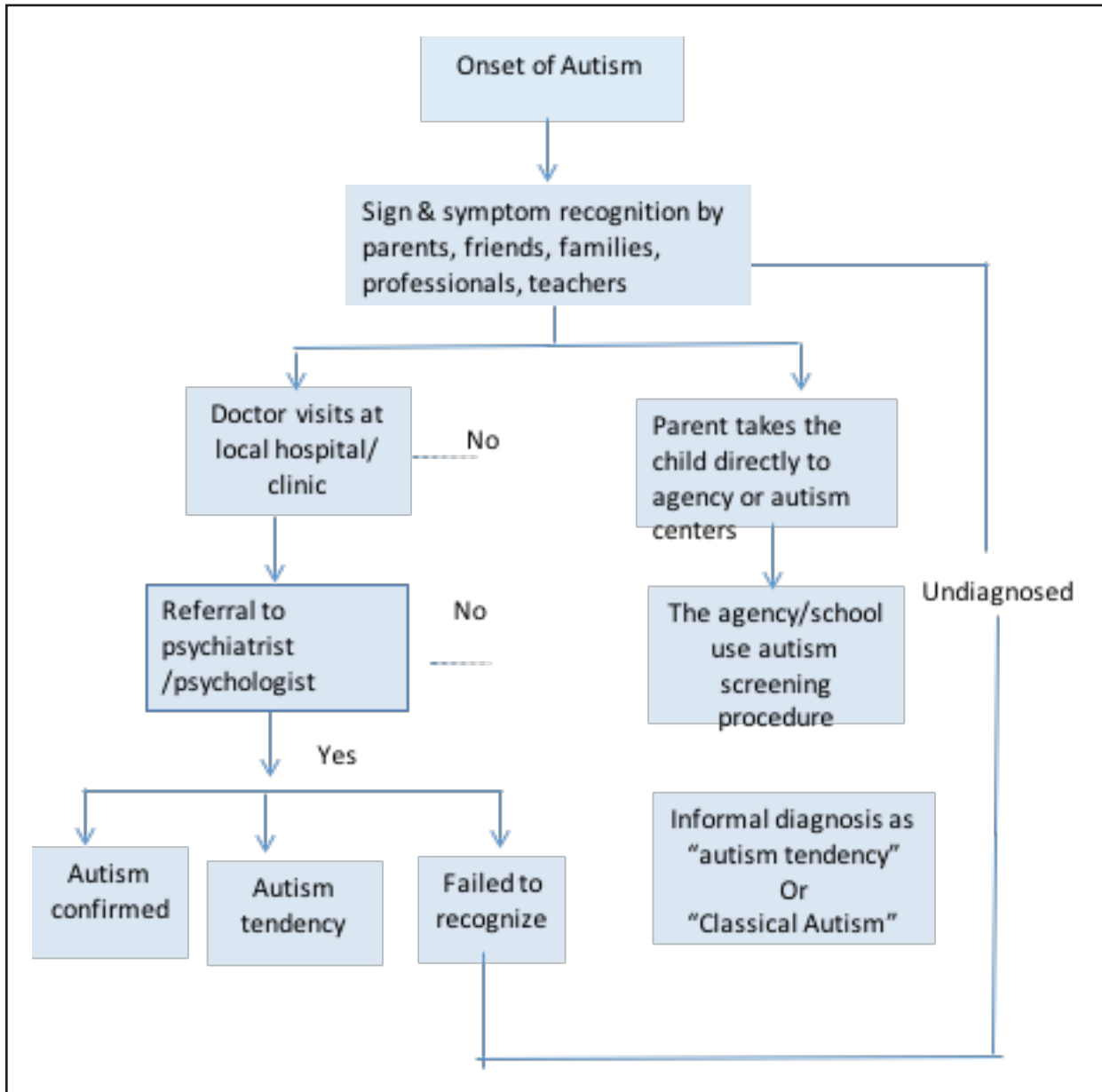
most children with autism can receive a diagnosis only in Addis Ababa rather than in local hospitals in different regions. This situation causes most parents to go directly to the autism centers for informal diagnosis and assessment. The autism centers, which primarily employ practitioners with bachelors' degrees in psychology or social work, tend to conduct informal diagnoses with labeling such as "having the tendency of autism" or "classical autism spectrum disorder."

In general, the path of recognition, referral, and autism diagnosis in Ethiopia can be viewed in two ways – formal and informal. The formal path, based on DSM V, includes taking the child to the medical doctor and includes the following steps: 1) The doctor interviews the parent(s) or guardian(s) in order to get some basic information about the child's developmental history and symptoms of concern; 2) The doctor conducts structured observations and basic multi-component assessments on the child in the following areas: cognitive abilities, motor skills, language and speech development, social skills, and adaptive behaviors; and 3) The doctor may refer the child to a psychiatrist. If there are valid concerns based on assessment results or will use autism-specific screening instruments and diagnostic criteria to make an official diagnosis.

However, not all diagnostic processes involve all of the steps mentioned above, depending on the professional's individual competence and credentials. Unlike common practices in Western countries, systematic observation of the child in multiple settings (e.g., school, home, community) is not commonly conducted in Ethiopia, nor does the diagnosis usually involve a multidisciplinary diagnostic team (i.e., including pediatrician, child psychiatrist, neurologist, or other related professionals such as speech and language pathologist, or occupational therapist). In Ethiopia, there is an apparent lack of undergraduate or graduate training in the fields mentioned above. The whole diagnostic process for each case usually lasts 15-30 minutes; it is always less than an hour. On the other hand, some parents may take the child to autism centers or agencies for identification and treatment. Most of the diagnostic assessments made at the autism centers are informal, without using any assessment tools or procedures. In this way, the agency or the center will use only autism screening procedures and provide an informal diagnosis to the child. Figure 1 presents the pathway for diagnosis of autism in Ethiopia.

Recently, it is common to see professionals in non-Western countries having translated and/or adapted many of the world's most reliable assessment instru-

Figure 1. The pathway for Autism Diagnosis in Ethiopia.



ments for the diagnosis of autism, such as the Child Autism Rating Scale (or CARS, Scholper et al., 1988), the Autism Behavior Checklist (or ABC, Krug et al., 1980), and the Checklist for Autism in Toddlers (CHAT, Baron-Cohen et al., 2000) for young children. The practice of making accurate diagnoses has not yet started in Ethiopia.

There are several issues related to the diagnosis of autism in Ethiopia. First of all, compared to other career options, being a psychiatrist doesn't seem to be as appealing or respected as being a physician or a dentist in terms of social and economic status in Ethiopia, so there has been a longstanding, serious shortage of

psychiatrists (WHO, 2006). In addition, as mentioned earlier, since recognition and identification of autism is relatively new in Ethiopia, many people, including medical professionals, have never heard of the term autism, not to mention knowing how to diagnose a child affected by such a disorder (Haileselassie, 2011).

Second, there are no routine neuropsychological screenings for children in Ethiopia. Children will be brought to a doctor only when their parents, family members, or school detect an apparent abnormality in cognitive and mental development (such as apparent impairments in cognitive, social or language development) or if they are seriously ill. If the parents and

family members fail to do so, or in some cases even though they notice some developmental differences, but do not take the child to the hospital due to financial constraints, these children are most likely to remain unidentified or undiagnosed.

In Ethiopia, if children with average and above intelligence level display serious behavioral challenges in schools, they most likely seen as “naughty,” or having “unusual personalities,” rather than being referred to as having a disorder. As a result of misconception and misunderstanding, there has been very limited policy or legislation to support either educational research or practices involving children with autism until recently. Consequentially, education of children with autism has become a major concern. Most children with autism are deprived of free and appropriate educational services (Morris, 2006).

Laws and Policies Related to Children with Disabilities in Ethiopia

The Government of Ethiopia has adopted and implemented a number of laws, policies, and standards pertaining to people with disabilities. The Constitution of the Federal Democratic Republic of Ethiopia, adopted in 1995, guarantees the rights of persons with a disability, including anti-discrimination and other provisions derived from international human rights instruments providing protection of fundamental rights and freedoms (MoLSA, 2012). For example, the State has responsibility provision of necessary rehabilitation and support services for people with disabilities (*ibid*, Article 41(5)).

In Ethiopia, children with ASDs were absent from public law and policy documents, health, education, and social development plans until 2006. The Ministry of Education launched the Special Needs Education Program Strategy in 2006. The strategy aims to ensure access and quality of education for all children, including children with special education needs. According to the Special Needs Education Program Strategy Document, the responsibility for providing primary education for all school-age children, including pupils with special educational needs, rests with Woreda education offices, the lowest administrative structure in Ethiopia’s federal government system (Ministry of Education, 2006; 2008). Although the Program Strategy does not mention learners with disabilities specifically in its strategic aims, it talks almost exclusively about learners with disabilities in its discussion of strategic priorities.

The Ethiopian government’s Growth and Transformation Plan (GTP) 2010-2015 also establishes disability as a cross-cutting sector of development where focus is

given to preventing disability and to providing education and training, rehabilitation and equal access, and opportunities to persons with disabilities (Ministry of Finance and Economic Development, 2010). The emphasis on inclusive education is reflected in the National Plan of Action of Persons with Disabilities (2012-2021), a plan that aims to make Ethiopia an inclusive society. It addresses the needs of persons with disabilities in Ethiopia for comprehensive rehabilitation services, equal opportunities for education, skills training and work, and full participation in the life of their families, communities, and nation (ACPF, 2011b).

Access to Education Services for Children with Disabilities

In Ethiopia, provisions of education and intervention services to children with disabilities are very low or non-existent. Most existing special needs educational services are urban-based, and focus only on children with overt physical or sensory impairments. Children with intellectual impairments in Ethiopia are least likely to be supported to receive education because general education teachers do not have the necessary training and are not patient enough with the students in the mainstream schools and fellow students do not understand their difficulties. While there are a few special schools, they are too far from home and too expensive for most citizens (ACPF, 2011a, 2011b; Weldeab & Opdal, 2007; Tirussew, 2006).

The Ethiopian government attempted to implement two different education provisions for children with disabilities, including inclusive education (serving all students in one system) and integration education (serving various groups in different, parallel systems) (Lewis, 2009). Special classes and units, which are of the second type, are the ones used widely as far as special education programs are concerned. In different regions of the country, there are programs located on ordinary school premises, with very little interaction, social or otherwise, with the rest of the school. Special education staff may be involved in all the non-classroom activities of the school. Sometimes the special education unit is a “school-within-a-school” with certain autonomy. Special classes teach children with special needs separately, but those who attain skill levels equivalent to those needed in mainstream classes are accordingly transferred to the latter, or attend some lessons in them. The country’s Special Needs Education (SNE) Program Strategy indicates that teachers’ lack of awareness of all children’s rights to education is a key reason why children with disabilities are turned away from mainstream schools. It also highlights that special units and schools

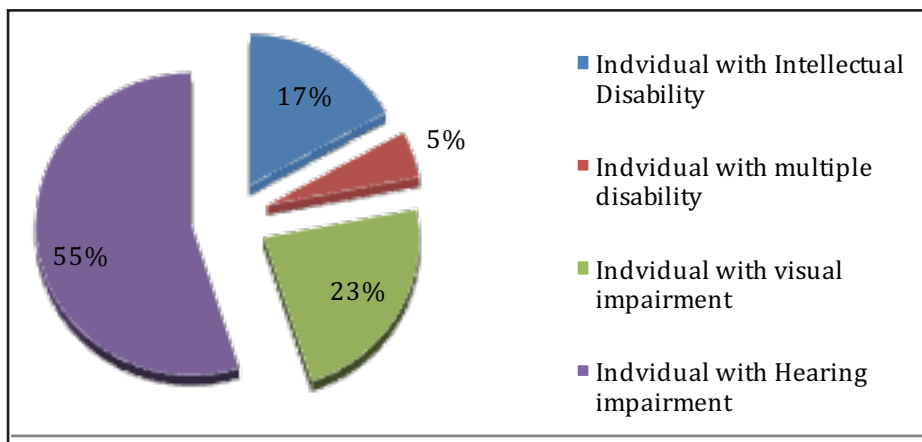
are mainly in urban areas and have long waiting lists (Tirussew, 2006; Lewis, 2009; Ministry of Education, 2008).

Although there has been a definite increase in the number of children with disabilities attending recognized special education facilities, in both special units/classes and special schools, the rapid population increase in Ethiopia means that the percentage of children served has stagnated at *less than one percent*. This is compounded by the urban bias of existing services, despite the fact that up to 85% of children with disabilities live in rural areas. It is also necessary to note that educational access by itself does not guarantee success in any educational programs. In the special needs program, there is a significant lack of specially designed curriculum, syllabi, and/or modules designed to meet the educational needs of children with autism spectrum disorders in the segregated classrooms.

It must be noted that less than 1% of children with special needs have access to education in Ethiopia (Lewis, 2009; MoE (Ministry of Education), 2008). Most children (99%) with disabilities are far less likely to go to school or to stay in school, for a variety of reasons including poverty, inaccessible schools and public transport facilities, and public prejudice. A recent study carried out by the African Child Policy Forum (ACPF) on the situation of children with disabilities in Ethiopia showed that many such children were not going to school because their parents could not afford transportation and related costs (ACPF, 2011a, 2011b). The study also revealed that household poverty affected school-going children as much as it did out-of-school children. When it comes to children with ASDs, access to education is very low, primarily because government, public or private schools are exclusively closed to this population, regardless of parents' ability to cover the child's educational expense and accommodations.

In the United States, children with a diagnosis of autism are eligible for special education services. However, in Ethiopia, a child with the same label is most likely to be rejected by public regular schools because special education services are only available in special schools, not in regular schools. Public regular schools are encouraged, but not mandated by law, to accept children with disabilities, including children with high-functioning autism. Most special schools are ready to provide

Figure 2. Andrew: Education provision through special classes within mainstream schools by disability type in Ethiopia (ACPF, 2011c).



special education to children with visual and hearing impairments, and those with intellectual disabilities (see Figure 2).

By contrast, the types and coverage of educational services for children with disabilities in Ethiopia is low and the quality of the limited provision that exists is not up to acceptable standards. There is a clear tendency, however, for the frameworks for special education and general education to move toward each other – albeit slowly (Tirussew, 2006). This move should bring about change in both special schools and ordinary schools, towards a fruitful marriage of the two based on the best interests of the child with the disability. For this to happen, special schools must develop an outward-looking stance and be prepared to take on new roles (Hegarty, 1993; Tirussew, 2005). Furthermore, in a country like Ethiopia, the governing attitudes towards persons with disabilities are not positive. The full acceptance of the rights of children with no discrimination is the key. It necessitates positive attitudes. On the other hand, even if attitudes are changed, much still needs to be done in the society to facilitate the inclusion of children with autism in the regular school system.

Behavioral Intervention and Education for Children with Autism

The overall situation of autism intervention in Ethiopia is far from satisfactory. Current treatments and behavioral interventions for individuals with autism in Ethiopia mainly include education, sensory integration training and related therapies, including behavior management. The medical intervention is highly determined by the following factors: the individual's unique condition, the availability of treatments, and the family's financial ability. It should be pointed out that

none of these treatments are free to families of children with autism in Ethiopia. At this point, Ethiopia does not have a mature social security or welfare system like most Western countries, thus family financial constraint has become the biggest obstacle to children with autism from receiving interventions in Ethiopia.

Despite the fact that research in Western countries has demonstrated Applied Behavior Analysis (ABA) to be the most effective treatment available for children with autism (Schreibman, 2005; Weiss, 1999), the use of sound ABA techniques with children with autism is not yet common practice in Ethiopia. This is mainly due to a lack of professionals or researchers who are expert in ABA or can use these techniques to treat children with autism in Ethiopia.

When it comes to educational services, children with ASDs in Ethiopia have been deprived of their right to education for centuries (Fenistein, 2010). Due to financial constraints in educational systems, a serious lack of special education experts, and the growing population of children and youth with disabilities, offering every child with special needs an appropriate public education is still impossible in Ethiopia. Children with ASD do not have a place even in the public schools with a special needs education section. Encouraging efforts have been made in the past decade to begin educational and intervention service provision for this population, though it is limited only to Addis Ababa. As a result, few educational opportunities have been established for children with ASD in the country. Today, children with autism may receive behavioral intervention and educational services from: (a) psychiatric clinics in the government-run hospitals or private clinics, (b) parent-owned autism centers (local NGOs), (c) private schools (have small rooms for children with autism), (d) community-based organizations that provide more rehabilitation and intervention, or (e) parents at home.

The psychiatric clinics in the government-run hospitals or private clinics mostly provide a diagnosis and make referrals to the autism centers or community-based organizations for educational and behavioral intervention service, but only in Addis Ababa. Some higher-functioning children with autism may be able to attend a few private schools in Addis Ababa through the practice of inclusion. The practice of inclusion in Ethiopia can be literally translated as “attending school in regular classrooms” or “learning in regular classrooms.” As in many cases in a developing country, much of the work being done to develop education for children with autism is in the form of NGO-funded projects, which do not necessarily continue after the ini-

tial support period, and are often not scaled up. Accordingly, there are a handful of community organizations in major cities, which provide more rehabilitation and behavioral intervention services for children with ASD.

For the last 10 years, parents of children with autism in Ethiopia have also been taking the lead in raising awareness among the general public and fighting the stigma attached to disabilities through different activities, such as organizing mass walks, fundraising events and conferences, giving media interviews, producing documentaries, and writing newspaper articles. As many parents became aware of the benefit of early intervention for their children with ASD, more and more children with ASD are present for behavioral intervention and educational services in schools and autism intervention centers.

As described earlier, the major and key educational service providers for children with ASD in Ethiopia are two parent-owned autism centers: Joy Center for Children with Autism and Nehmia Autism Center. Both of these nonprofit centers are located in Addis Ababa. Access to centers run by parents of children with autism is mostly restricted to well-educated and more affluent families, and these centers also have long waiting lists.

The Joy Center for Children with Autism was the first of its kind in Ethiopia and was established in May 2002 by Zemi Yenus, herself a mother of a child with autism (Feinstein, 2010). The center has worked to create full integration of children with ASD in their communities through public awareness, rehabilitation, care service, and support. Since its establishment, the center has brought significant changes to the functioning skills of more than 65 children with ASD, the attitudes among the general community, and the psychosocial capacity of parents of children with autism and related developmental disorders. The services provided by the center tend to be broader in scope; they include providing informal diagnosis and assessment, training (social skills, self-help skills, sensory integration, etc.), therapy (speech, occupation, sensory stimuli), education (functional academics and physical education), and awareness and advocacy programs for the general public. Even though this center existed as a first-of-its-kind a decade ago, there are not enough scientific or research-based publications on the type and frequency of the services provided and their effectiveness. Most information about the services the center provides is available to the public through mass media, such as CNN, BBC, or personal reflections of different visitors. For example, Rhona Slingerland, a traveler and blogger who visited the center in 2009 states:

The center has a sensory and massage room, a beginning academic room where letter sounds are learned, and an advanced learning room where they work on basic computer programs and start to learn to read. There is a life skill room where they learn to clean themselves, brush their teeth, make a bed, learn to sit still, play nice together. There's another room where they work on fine motor skills like folding things, stringing beads, and matching shapes. They teach the older ones basic cooking skills and basic life skills so that they can hopefully one day take care of themselves (Slingerland, 2009).

CONCLUSIONS

Providing effective intervention to children with autism in Ethiopia is a challenging task that requires long-term joint efforts from both researchers and practitioners, as well as ongoing policy and financial supports from both the central and local governments. In Ethiopia, only a handful of organizations are providing autism services that include informal assessment/diagnosis, educational, and behavioral interventions. However, little is known about the types and effectiveness of interventions received from these service providers. Having locally-trained special education teachers, psychologists, speech therapists, and occupational therapists doing assessments and delivering services is a more effective way to address the problem than relying on intermittent help from volunteers. Ethiopia has a long way to go to make this plan work. For example, Ethiopian universities still do not offer degree-level courses in speech therapy or occupational therapy. A degree in special education seems to be a rarity as well (Tirussew, 2006).

Providing interventions and educational services without empirical evidence may waste resources, and impact the development of the field especially in a country like Ethiopia, where human and material resources are very limited. The increase in the number of students with ASD, along with the lack of evidence about the effectiveness of available interventions, converge to create a critical need for future research to focus on examining the nature of interventions provided to children with ASD in Ethiopia.

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I am Working For ____: Successfully Using Token Reward Systems

Gwendolyn P. Diamond

Franklin Special School District, USA
diamondgwe@fssd.org

M. Alexandra Da Fonte

Vanderbilt University, USA
alexandra.dafonte@vanderbilt.edu

Miriam C. Boesch

University of North Texas, USA
miriam.boesch@unt.edu

Abstract

Token reward systems can be used in school settings to increase the motivation of students, specifically those with disabilities. The use of these systems can enhance students' participation in instructional activities. However, to use token systems effectively, the system must be individualized and tailored to meet the needs of the child. In order to individualize the token system for each student, teachers should (1) identify an array of back-up reinforcers for the student; (2) identify the number of tokens the student must receive to earn the chosen back-up reinforcer; (3) identify what type of token will be used; and (4) identify how long students will need to wait before exchanging their tokens for the back-up reinforcer. As a result, the purpose of this paper is to outline how to effectively identify and use token-reward systems in the classroom.

From a behavioral perspective, finding out what motivates someone to behave in a certain way is critical in changing a person's behavior. This concept of motivation is particularly important in the education of all students, including those with disabilities (Michael, 2004). One way to increase a student's motivation to participate in instructional activities is through the use of reinforcers. Reinforcers are preferred items or activities (stimuli) that a student receives after the completion of a desired behavior, which increases the likelihood that the student will engage in the same desired behavior in the future (Alberto & Troutman, 2013). When teachers use reinforcers, they encourage the student to remain engaged during the instructional activity. As a result, reinforcers are useful in teaching students with disabilities new skills and in helping students to make progress towards their Individualized Educational Plan (IEP) goals.

For preferred stimuli to be used as reinforcers, several factors are recommended. First, teachers should conduct *preference assessments* (i.e., procedures designed to identify preferred stimuli for each student; Clay, Samaha, Bloom, Bogoev, & Boyle, 2013; Mangum, Fredrick, Pabico, & Roane, 2012). Second, preference assessments should be conducted regularly given that

students' preferences may change over time (Carr, Nicolson, & Higbee, 2000). Third, a variety of reinforcers from the main four categories, (1) social, (2) activities, (3) tangibles, and (4) sensory should be identified for each student. This will ensure minimal satiation that may occur as a result of using a single reinforcer on a continuous basis (Podlesnik & Shahan, 2009).

The Token Reward System

When teaching a new skill, teachers should deliver reinforcers immediately after the desired skill is observed. As proficiency increases, the delivery of the reinforcer should be gradually faded to approximate a more natural, or variable, schedule of delivery (Alberto & Troutman, 2013). However, students with severe disabilities, including those with autism, typically have difficulty waiting for reinforcers to be given; thus, waiting may lead to problem behaviors. One way to transfer stimulus control is through the use of *token reward systems* (Alberto & Troutman, 2013; Ayllon & Azrin, 1965; Cooper, Heron, & Heward, 2007). Both individual and group token reward systems can be tailored to student needs. With token reward systems, students earn tokens (e.g., poker chips, check marks, stickers, coins) when they engage in desired behaviors. A pre-specified

number of tokens must be earned before students may exchange tokens for *backup reinforcers* (i.e., preferred stimuli previously given after each desired behavior). As students learn that they can earn tokens that can be exchanged for a reinforcing stimulus, the tokens themselves become reinforcing (Alberto & Troutman, 2013).

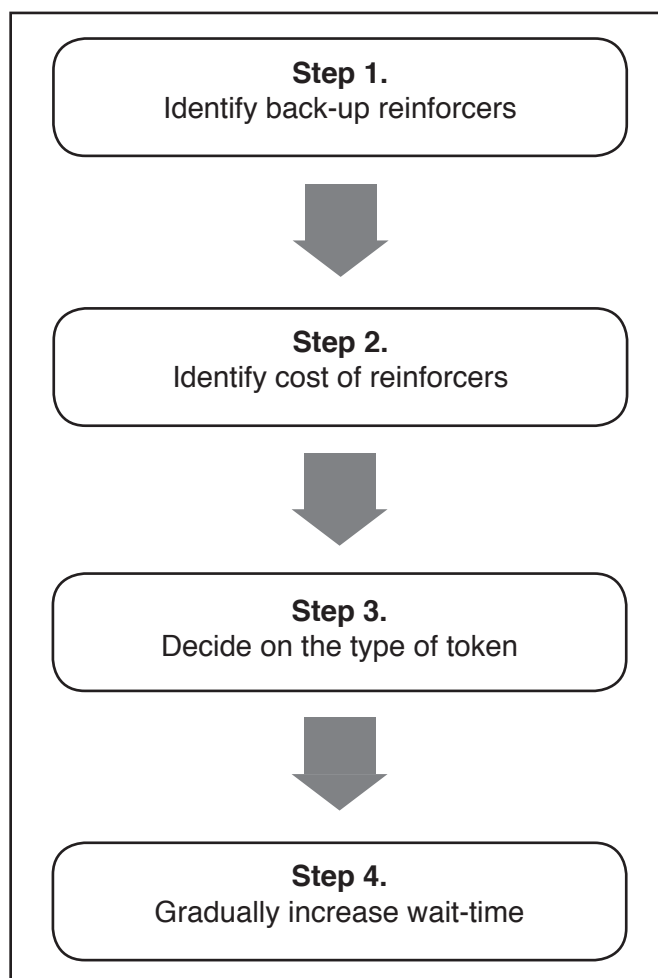
There are numerous benefits to using token reward systems. Tokens can be delivered quickly, without interfering with instruction and fade the necessity of delivering a reinforcer after every correct response (Alberto & Troutman, 2013). In addition, tokens that are paired with praise enhance the likelihood that praise will also become a reinforcer, which is a more natural reinforcer (Dozier, Iwata, Thomason-Sassi, Worsdell, & Wilson, 2012). Token reward systems can help reduce satiation given that a variety of back-up reinforcers are used and are not delivered after each desired behavior (Alberto & Troutman, 2013). Another benefit is that token reward systems can be easily embedded into daily instructional practices in that they can indirectly teach students concepts of money by requiring students to earn tokens to purchase preferred items, especially if teachers use coins as tokens (Matson & Boisjoli, 2009). Token reward systems can be used to target both academic (Tarbox, Ghezzi, & Wilson, 2006) and behavioral (Klimas & McLaughlin, 2007) goals. Hence, they can support students with a wide variety of needs.

Using Token Reward Systems with Students with Severe Disabilities

When individualizing token reward systems for students with severe disabilities, teachers should (1) identify an array of different back-up reinforcers; (2) identify the cost of the reinforcers (i.e., number of tokens needed to earn a reinforcer); (3) identify what type of token will be used; and (4) identify how long students should wait to select a back-up reinforcer once tokens are earned (see Figure 1 for a summary of this process).

Identify Back-Up Reinforcers. Reinforcers can be identified using a three-step assessment process (e.g., Glover, Roane, Kadey, & Grow, 2008, Graff & Larsen, 2011). This process includes (1) interviewing caregivers, parents, and others who know the student and can identify potential reinforcers (Mangum et al., 2012); (2) conducting a trial-based assessment (Clay et al., 2013); and (3) a choice-based assessment (Call, Troclair-Lasserre, Findley, Reavis, & Shillingsburg, 2012). After several types of reinforcers have been identified from the various categories of stimulus (i.e., tangible, sensory, social, and activities), these rein-

Figure 1. Using token reward systems with students with severe disabilities.



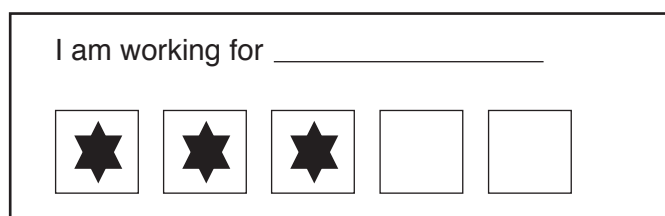
forcers can be offered as choices in a reinforcer menu. Given that students' preferences change frequently, it is best if preference assessments are conducted regularly with the reinforcer menu changing accordingly (Walker, Shea, & Bauer, 2006).

Identify the Cost of Reinforcers. When introducing token reward systems, begin with one token and deliver the back-up reinforcer as soon as the token is earned. For instance, a student may trade one token for one reinforcer immediately upon earning it. After the student learns that tokens can be traded for reinforcers, gradually increase the number of tokens the student needs to obtain a reinforcer. By beginning with a few tokens and minimal requirements for earning tokens, students are introduced to the system and the tokens gain reinforcing value.

Decide on the Type of Token. Consider what type of token is best for the students. While poker chips may work well for some students, some students with severe disabilities may try to put the tokens in their

mouths or may have a difficult time placing the tokens on the token board due to physical limitations. For these students, it may be more beneficial to use tokens that cannot be removed from the token board, such as stickers, checkmarks, or picture symbols next to the student's name. In addition, selecting tokens that are of interest to the student (e.g., pictures of trains or a favorite television character) may help to improve student performance (Kahng, Boscoe, & Byrne, 2003). However, these types of tokens should not be used if the students become distracted by the high interest tokens. Figure 2 illustrates a sample token board in which the student has earned three tokens, but needs five tokens (i.e., stars) to obtain a puzzle.

Figure 2. Example of token reward system.



Gradually Increase Wait Time. During the initial stages of skill acquisition, it is important that students receive reinforcement immediately following the desired behavior. As proficiency increases, gradually increase and randomize the time students must wait before exchanging the tokens for back-up reinforcers. This increases the students' tolerance for the delay (Fisher, Thompson, Hagopian, Bowman, & Krug, 2000). A visual timer paired with the gradual increase in wait time may be beneficial for students with severe disabilities (Grey, Healy, Leader, & Hayes, 2009). The goal is to increase the schedule of reinforcement delivery so the student learns to exhibit the behavior in the absence of immediate reinforcement (Alberto & Troutman, 2013).

CONCLUSIONS

Token reward systems are beneficial for students, including those with severe disabilities who may have difficulty attending to teacher instruction by relying solely on intrinsic motivation. These systems are valuable in that they allow teachers to reinforce correct behaviors/skills without impeding the flow of instruction by delivering back-up reinforcers after a specified number of tokens are earned. This delay approximates

a more natural schedule of reinforcement delivery and minimizes satiation, because an array of reinforcers are used. Individualized token reward systems give teachers the means to shape student behavior and promote overall student success.

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Reversing the Use of Hobson's Choice: Culturally Relevant Assessment and Treatment Practices for Culturally and Linguistically Diverse Learners with Problem Behaviors

Festus E. Obiakor

Valdosta State University, USA
feobiakor@valdosta.edu

Lenwood Gibson

Queens College, The City University of New York, USA
Lenwood.Gibson@qc.cuny.edu

Abstract

Hobson's Choice is a psychological philosophy that prescribes a "take-it-or-leave-it" approach when addressing the problematic behaviors of students. Logically, this choice provides a traditional order in the classroom and gives teachers and service providers the sole power and authority to manage problem behaviors. For many students from culturally and linguistically diverse (CLD) backgrounds, the Hobson's choice approach is an illusory "no choice" perspective that fails to respect different behavioral, learning, cultural, and linguistic styles. This article from the United States analyzes problems associated with this approach to classroom management, particularly for students from CLD backgrounds. To replace this approach, the authors focus on the use of culturally responsive assessment and intervention practices. Culturally relevant functional behavior assessments, behavior management strategies, and instruction are discussed with recommendations for implementation strategies by teachers and service providers. The authors provide final thoughts on how to effectively use culturally responsive strategies for students from CLD backgrounds.

Many teachers entering the field of education may be well prepared by their pre-service training (e.g., university coursework, student teaching) to provide the rigorous instruction needed to improve student learning outcomes. At the same time, some of these teachers may struggle when managing problem behaviors in their classrooms (Fisher, 2012; Pellegrino, 2010). These difficulties may be even more prevalent when dealing with students from culturally and/or linguistically diverse (CLD) backgrounds (Higgins & Moule, 2009; Milner & Tenore, 2010; Ullucci, 2009). With the changing demographics of today's schools, more and more teachers in the United States are likely to work with a wide variety of students from different cultural backgrounds. In recent decades, increased immigration to the U.S. from Latin American and Asian countries has changed the landscape of the American classroom (Lapkoff & Li, 2007). Many of these students are not only attending schools in urban districts, but in suburban schools as well. Furthermore, many new teachers are taking positions in high-needs areas and larger urban districts. The combination of shifting student demographics and the shortage of teachers in high-needs areas can create classrooms that are rich in diversity and at the same time place cultural perspectives in conflict. This is increasingly true when teachers need to also

function as classroom managers and deal with disruptive student behaviors.

Many teachers expect students to come to school prepared both academically and behaviorally. However, this traditional view is rarely seen in the reality of the school or classroom experience. Many CLD students lack the necessary supports and resources to adequately prepare them for academic and behavioral expectations, resulting in varying degrees of challenging behaviors that disrupt the classroom environment and the learning process that take valuable time away from instruction (Haydon, Borders, Embury, & Clarke, 2009; Sutherland, Wehby, & Yoder, 2002). In these situations, teachers are put in the uncomfortable position of being a disciplinarian, which requires them to use some form of behavior management.

Although many teachers are likely to encounter students with some degree of challenging behaviors, few are well-versed in effective behavior management strategies (Higgins & Moule, 2009; Pellegrino, 2010). Without more effective options, or left to their own devices, some teachers may turn to the use of a "take-it-or-leave-it" mentality, also known as "Hobson's Choice." This mentality and approach to dealing with problematic or disruptive behavior essentially presents the "take-it-or-leave-it" scenario in which classroom teachers want

their students to follow their directions or leave their classroom. Some specific manifestations of Hobson's choice include subjecting students to exclusionary practices such as office referrals, after-school suspensions, in-school/out-of-school suspension, and removal from the school district. More often than not, when dealing with problematic behaviors, general and special education practitioners in the U.S. still present CLD learners with a Hobson's choice. These disciplinary practices often increase in severity, ending with students being excluded from the learning environment. Many times it is school administrators who present more formal punishments, but the process is usually initiated by the classroom teachers who may lack knowledge and skill to address students' behavior.

Within the psychological philosophy underlying Hobson's choice, general or special education practitioners may fail to consider that the behaviors of students from CLD backgrounds are in direct conflict with their own belief systems. Furthermore, these teachers may hold unintentional (or intentional) bias towards the CLD students in their classrooms. They may not use a culturally-sensitive lens when assessing causes or outcomes of problem behaviors (Cartledge & Kourea, 2008; Cartledge, Singh, & Gibson, 2008). Instead, these teachers apply a uniform approach to dealing with problematic behavior, which consists of either follow the directions/rules or be removed from the classroom. This choice approach fails to recognize that problem behaviors do not occur in isolation. Repeated exposure to ineffective practices are likely to exacerbate, rather than, correct misbehavior. Exclusionary and authoritarian approaches are also problematic because they are more often used with children from CLD backgrounds (Skiba et al., 2011; Skiba, Michael, & Nardo, 2002; Skiba & Peterson, 2003).

Ineffective behavior management practices contribute to the unequal disciplinary actions in today's schools (Epps, 2001; Kozol, 1991) for students from certain CLD backgrounds. In the U.S, these inequalities are evident in the higher rates at which African-American, Latino, and Native American students are disciplined, detained, suspended, and placed in stigmatizing special education programs (Moreno & Gaytan, 2013; Vincent, Sprague, & Tobin, 2012; Williams & Obiakor, 2009). African American and Latino males, particularly from urban schools, have been disproportionately identified as exhibiting significant behavior problems and in need of special education services, based solely on their behaviors (Ahram, Fergus, & Noguera, 2011; Moreno & Gaytan, 2013; Skiba, Poloni-Staudinger, & Simmons,

2005; Sullivan et al., 2009). To compound the problem, students who exhibit behavioral difficulties are also more likely to be identified as having learning problems and often struggle academically. In fact, research has suggested a strong correlation between academic difficulties and behavior disorders (Bulotsky-Shearer & Fantuzzo, 2011; Bulotsky-Shearer, Fernandez, Domingues, & Rouse, 2011; Halonen, Aunola, Ahonen, & Nurmi, 2006) and the combination of poor academic performance and challenging behaviors has led to the over-identification of African American and Native American students in special education (Vincent, Sprague, & Tobin, 2012).

In many cases, these students are referred for special education services based on information provided by their teachers and as a result fall into a cycle of failure. Once no longer in school, some become entangled in the criminal justice system and are subsequently more likely to become incarcerated (Skiba, Michael, Nardo, & Peterson, 2002; Yawn & Obiakor, 2013). In order to address and prevent these negative outcomes, several questions can be raised when thinking about ways to address this problem. First, what type of assessment practices are being used to identify the root causes for student behavior problems? In addition, are these assessments being conducted in a way that is culturally sensitive or responsive? Finally, once the causes are identified, are the behavior management strategies selected and applied in a manner that is culturally sensitive or responsive? The purpose of this article is to explore ways to improve assessment strategies and provide suggestions to practitioners and others on how to manage challenging behaviors of students who come from CLD backgrounds.

Lack of Cultural Sensitivity or Responsiveness

As stated earlier, although most teachers are likely to encounter some students with challenging behaviors, few are well-versed in effective behavior management strategies. It may not be enough to take a behavior management course as part of a master's program in special education or attend professional development on Positive Behavior Supports and Interventions (PBIS). Effective strategies start with assessment approaches that look for direct causes of behavior problems and are well documented in the research literature (Dufrene, Doggett, Henington, & Watson, 2007; Restori, Gresham, Chang, Lee, & Laija-Rodriguez, 2007; Trussell, Lewis, & Stichter, 2008). Even when these assessments are generally effective, a discussion about how factors of cultural and/or linguistic diversity influence assess-

ment and treatment approaches is warranted (Cramer & Bennett, 2015). A contributing factor to misaligned assessment practices is the apparent cultural disconnect between teaching professionals and their students from CLD backgrounds (Ceballos & Bratton, 2010; Gay, 2002; Obiakor, 2007, 2008, 2012a, 2014; Banks & Obiakor, 2014; Obiakor & Rotatori, 2014). Although U.S. classrooms are now more culturally diverse, the teaching ranks still consist of predominantly White American women from middle-class backgrounds (Smith & Sapp, 2005). This does not imply that these teachers cannot effectively teach diverse classrooms or that more CLD educators are the sole solution to the problem. What it does imply is that even when professionals care and want to help, they may not have the cultural skills, knowledge, and/or capital to tackle the endemic problems confronting their students in and out of school. The argument is that misinformed, ill-prepared, or unprepared teachers tend to incorrectly assess and identify their students. In turn, they can jeopardize a student's future by unintended actions or underlying cultural bias when assessing and managing problematic behavior. Consequently, these teachers resort to (a) solving problems that do not exist, (b) avoiding problems that they should solve, and (c) engaging in fraudulent multiculturalism that leaves students and parents confused about professional intentions and integrity (Obiakor & Rotatori, 2014; Yawn & Obiakor, 2013). At the root of these problems is the lack of cultural considerations when assessing and managing problematic behaviors of CLD students.

From Hobson's Choice to Culturally Responsive Assessment and Intervention

The best chance that teachers have at effectively addressing the problematic behaviors of CLD students in their classroom is to identify the causes or functions of these behaviors. To this end, many schools have various types of assessment tools that are used to help figure out why a student exhibits challenging behaviors. These tools can range from norm-referenced, psychometric assessments to casual observations. One tool that is frequently used by classroom teachers and personnel is a functional behavior assessment (FBA) (Couvillon, Bullock, & Gable, 2009; Majeika et al., 2001; McIntosh & Av-Gay, 2007). FBA techniques have identified the causes of problematic behaviors, but if teachers lack the knowledge of or experience in gathering the appropriate information, the FBA results are more likely to be incorrect (Youngblom & Filter, 2013). Moreover, if teachers hold preconceived perceptions about the

behavior of their students, the first hand "information" gathered during the FBA process is more likely to be biased. In addition, while people and their behaviors are multidimensional, the behavioral assessment/intervention approaches of many general and special education professionals seems unidimensional (Obiakor, 2012b; Obiakor & Beachum, 2005; Skiba et al., 2002). So, how culturally and/or linguistically appropriate are these assessment and instructional/intervention strategies? More importantly, how do these factors influence teachers' perceptions when they complete assessments and implement treatment plans?

Culturally Relevant Functional Behavior Assessments

The use of a functional approach to challenging behaviors relies on specific steps to identify the reasons for misbehavior. These steps include gathering information about what triggers the target behavior, details about the actual behavior, and how teachers (or others) react to the behavior. After enough information is gathered, behavioral patterns typically emerge and the purpose (i.e., the function) of the behavior can be determined. If treatment strategies are based on the function of the behavior, they are much more likely to succeed (Ingram, Lewis-Palmer, & Sugai, 2005; Lane, Smither, Huseman, Guffey, & Fox, 2007).

The FBA process has been well established and is used by many school systems around the United States (Barrett, Bradshaw, & Lewis-Palmer, 2008; Bradshaw, Mitchell, & Leaf, 2010; Eber, Sugai, Smith, & Scott, 2002; Netzel & Eber, 2003). As a result, the use of positive behavioral support systems for students with and without exceptional learning needs have been successful (Bradshaw et al., 2010; Bradshaw, Reinke, Brown, Bevan, & Leaf, 2008). Although the use of positive approaches has been largely beneficial, the FBA process is typically completed by a few individuals that have close contact with target students. Even when properly trained in conducting functional assessments, these individuals are still unlikely to take cultural differences into consideration during the process. While conducting a FBA, teachers should also take a culturally responsive point of view (i.e., look through a culturally sensitive lens) to more accurately assess the challenging behaviors of CLD students.

By developing a culturally responsive view point, teachers can better understand their students' cultural practices and incorporate them into their daily interactions with students. Teachers and other professionals should widen their knowledge base about the cultural

characteristics and contributions of their students' various cultural groups. They need not learn everything about each student's cultural heritage, but should take the initiative to understand important aspects of the different cultures represented in their classrooms. To be culturally responsive in relation to social, communicative, and/or behavioral characteristics, it is especially important for teachers to learn about conflicting differences between their own "norms" and those of their CLD students (Gay & Howard, 2002). This enables teachers to evaluate whether their views and attitudes differ from their students (Obiakor, 2008). It is important to take these differences into consideration when addressing the challenging behaviors of all students and it is particularly useful to consider cultural differences at each step of the functional assessment process as outlined below.

Step One: Antecedents. Antecedents serve as triggers for challenging behaviors and can vary substantially from student to student and from situation to situation. Culturally responsive teachers should consider whether the "identified" antecedents are the result of cultural discontinuity. An example of this can be illustrated in the following scenario from the U.S.:

Ms. Jones wants her students to take out their book for a science lesson, so she asks, "Do you want to get out your science books?" One of the students in her class is an African American boy named James. James does not get out his book and when asked why by Ms. Jones, James replies, "You asked if I want to get my book out and I don't."

In this example, Ms. Jones used an instruction that was veiled in the form of a question rather than using a direct statement. For some students, particularly African American students, the request to take out the science book may seem optional if it is presented in the form of a question. This may be due to the culture of direct language use in many African American communities as opposed to indirect language used by some white teachers (Delpit, 1995).

This example of cultural discontinuity at the antecedent level of the FBA process illustrates potential problems when assessing misbehaviors. It is possible that the antecedent in this example was identified as "presentation of a task demand" or "instructed students to take out their book." Actually, the real antecedent was a request that may have seemed optional to the student due to his experiences within his cultural group. Culturally responsive teachers recognize the potential for their instructions to be misinterpreted and either provide direct instructions or properly record the true antecedent

during an FBA analysis. By doing so, a much clearer picture of antecedent situations can be determined and analyzed.

Step Two: Behavior. This step in the FBA process is where teachers are the most likely to encounter major challenges in terms of cultural responsiveness. Although recording the frequency of the problem behavior is the second step in the FBA process, identifying and defining the behavior occurs before an FBA is started. The role of cultural responsiveness is extremely important when determining which behaviors will be selected for the assessment. Teachers should consider several factors when working with CLD students. They need to determine if the challenging behavior is a result of the student's cultural norms or if it is an unacceptable behavior across all cultural norms. Consider the following scenario from the U.S.:

Ms. Jones is tired of always asking Fernando to clean up his area. Fernando is a first grader whose family just recently emigrated from El Salvador. During many play activities and meal times, Ms. Jones always needs to tell Fernando to "clean up his mess." Fernando is confused because at home, after he finishes eating or playing, his mother or older sister always clean up.

In this scenario, Ms. Jones does not recognize that in Fernando's culture the women do much of the cooking and cleaning; and therefore, Fernando may not understand that he is expected to clean up after himself at school. There are many other examples of cultural discontinuity between the behaviors that students bring to school and classroom expectations. Culturally responsive teachers recognize this disconnect and explores ways to minimize it. Furthermore, they only select behaviors that truly disrupt the student and the learning environment.

Another consideration is a teacher's own biases towards cultural practices of students from diverse backgrounds. A behavior might not need to be addressed, but is selected because of the teacher biases. If the behavior occurs infrequently and/or is not overly disruptive to the learning environment, but just does not "sit right" with the teacher, there is little justification for addressing it. The FBA process can be fairly lengthy and resource intensive; therefore, it should be reserved for serious behavior problems.

In terms of assessing challenging behaviors, culturally responsive teachers first determine if the behavior is truly problematic or if it is a result of cultural discontinuity. If it is the latter, they will recognize any

disconnects and address them by finding a comfortable medium between school expectations and cultural practices of the student. If the behavior is a true problem, it should be carefully defined without the use of subjective terminology or biases. By taking these precautions, the FBA will more likely yield information that can be used to address challenging behavior.

Step Three: Consequences. The final step in the assessment process deals with teachers (or others) reaction to the behavior. It is very important that teachers provide an accurate account of their reactions and the consequences of their account of the challenging behaviors. Their responses can strengthen or weaken the behavior. At times, teachers have react emotionally to challenging behaviors and respond inappropriately, but culturally responsive teachers are cognizant of their reactions to student misbehaviors. Consider the following scenario from the U.S.:

Ms. Jones finds herself frequently getting upset when Peter shouts out comments in the back of the classroom. Peter does not always know the correct answer, but likes when Ms. Jones talks to him. Additionally, Peter's family communicate in a manner that is loud, and boisterous; they frequently talk over each other to make their point. Ms. Jones expects all of her students to raise their hands when they want to talk or answer a questions. When Peter calls out the answer or makes a comment, Ms. Jones chastises him in front of his classmates and tells him that is "not how people talk" and "only rude people talk out of turn." Deep down, Peter actually likes being the center of attention, it makes him feel important, but he also feels bad that Ms. Jones thinks his family is rude.

In this scenario, Ms. Jones does not recognize that from Peter's point of view and upbringing, this is how people talk and communicate. Further, Ms. Jones actually inadvertently reinforced Peter's behaviors by providing so much attention to it. Culturally responsive teachers avoid reacting in a manner that conveys disrespect for the student's cultural norms. Even if they do not agree with some of the behaviors, they avoid calling attention to the cultural difference or singling out the student in front of his/her peers. Culturally responsive teachers recognize the differences between their own expectations and the behaviors of their students; such teachers address the behavior in an appropriate manner. These ideas are particularly pertinent to teachers and students in schools with large diverse student populations.

The use of culturally relevant functional behavior assessments could become a viable option for teachers who are willing to view student behaviors through a culturally sensitive lens (Moreno, Wong-Lo, & Bullock, 2014). Teachers and members of the intervention team who take a culturally responsive approach during each step of the functional behavior assessment might be more successful when identifying the causes of problematic behaviors of CLD students. Once causes are identified, more effective treatment approaches can be implemented.

Culturally Relevant Behavior Management Approaches

The use of functional assessment technology to assess problematic behavior alone is not enough to curtail the issues facing students from CLD backgrounds. Once there is a better understanding of why problem behaviors occur, teachers and other school professionals need to implement effective strategies. The research literature is filled with evidence based strategies that have improved problematic behaviors for all students (Polirstok & Gottlieb, 2006). Such strategies include the use of positive reinforcement (Haydon & Musti-Rao, 2011; Moore-Partin, Robertson, Maggin, Oliver, & Wehby, 2010; Tiano, Fortson, McNeil, & Humphreys, 2005) and social skills instruction (Lane et al., 2003; Leffert, Brady, & Siperstein, 2009; Schoenfeld, Rutherford, Gable, & Rock, 2008).

Although these strategies have proven to be effective for all students, far too many CLD students are still being exposed to restrictive procedures that place them at risk of school failure. Moreover, many students from CLD backgrounds face additional challenges that need to be considered when addressing their problematic behaviors. These challenges include living in poverty, coming from single parent households, and language barriers between school officials and home. In order to adequately address the problematic behaviors of certain CLD students, teachers should engage in approaches that are culturally responsive and culturally sensitive. This section will outline ways that teachers can incorporate culturally responsive and sensitive practices when addressing problematic behaviors as they relate to behavior management, connecting to home and families, and instructional practices.

The use of effective behavior management strategies is central to the success of many students. Students who exhibit problematic behaviors need to be taught how to act appropriately in the classroom and school environments. In recent decades, the use of Positive Behavioral

Interventions and Supports (PBIS) strategies have been very successful in many classrooms (Cressey, Whitcomb, McGilvray-Rivet, Morrison, & Shander-Reynolds, 2014; Fitzgerald, Geraci, & Swanson, 2014; Netzel & Eber, 2003). Even with the success of PBIS, far too many students from CLD backgrounds are non-responsive or only marginally responsive to these strategies (Tobin & Vincent, 2011; Swain-Bradway, Loman, & Vincent, 2014; Vincent, Sprague, & Tobin, 2012). These students might benefit from incorporating culturally relevant approaches with specific behavioral strategies. Recently, researchers have focused on the use of culturally responsive PBIS approaches (Banks & Obiakor, 2015; Swain-Bradway et al., 2014). Several strategies have emerged from this research; two specific strategies that can easily include culturally responsive approaches are the use of positive reinforcement and social skills instruction.

Use of positive reinforcement. Positive reinforcement involves the delivery of desired items, activities, or verbal praise contingent on a pro-social behavior. Positive reinforcement encourages students to engage in the appropriate behaviors more often and behavior change procedures that utilize positive reinforcement have been very effective (Haydon & Musti-Rao, 2011; Moore-Partin et al., 2010; Tiano et al., 2005). Despite all of the good outcomes, the selection of the type of reinforcers can dictate the degree of success. Unless teachers select reinforcers that are truly reinforcing (i.e., they actually increase the appropriate behavior), they will only have a marginal impact of improving behaviors. Furthermore, reinforcers that are not rotated on a regular basis will likely lose their effectiveness and problematic behaviors can resurface.

When selecting reinforcers to use with CLD students, teachers should make sure they are relevant to their students. This requires teachers to have some knowledge of their students' cultural background or make efforts to learn more about what they enjoy. Culturally relevant reinforcers might include using images and language to which CLD students can relate. If teachers use token systems with their students, then something as simple as including culturally representative imagery can have a greater impact and be more effective. Activity reinforcers can become more culturally relevant by using games and activities that are familiar to students from CLD backgrounds. The use of positive reinforcement can be made more effective by ensuring that the objects, activities, or socializations are individualized and connected to the students' cultural background in some meaningful way.

Social skills instruction. Another approach to improving problematic behavior is to provide students with social skills instruction. The research literature contains many examples of successful strategies that use social skills instruction (Lane et al., 2003; Leffert et al., 2009; Schoenfeld et al., 2008). The aim of these strategies is to teach students skills or behaviors that are appropriate to the classroom and prepare CLD students for school success. The elements of effective social skills instruction include the use of role models, role playing scenarios and practice, and social stories that contain morals or lessons. Systematic social skills instruction can be incorporated into the school curriculum or used as small group/individualized instruction.

To make social skills instruction culturally relevant, teachers should have a sound understanding of their students' background. This enables them to include elements in their instruction that are familiar and meaningful to their students. For example, lessons can include positive role models from a student's cultural group and using social stories that have images and language that are relatable to students. Additionally, roleplay and practice scenarios can be tailored to match the environments and situations that students experience. The more students relate to the materials and lessons, the more likely they will be impacted in a positive way.

Connecting with home. Culturally responsive teachers and practitioners understand the importance of the home and school collaboration (Gay, 2002), and attempt to make contact with and establish a strong rapport with parents and the home environment. Such professionals understand that they may have to extend the proverbial olive branch to help mend current and/or past disconnects between the home and school environments. They allow parents and caregivers to become active and equal participants in their child's education. Further, they understand that the environment is important in the creation of an atmosphere conducive to academic and social success (Bluestein, 2008; Kapalka, 2009; Obiakor & Rotatori, 2014; Obiakor & Beachum, 2005). Culturally responsive teachers view parents as allies who help foster connections to their students (Obiakor et al., 2002). They are willing to go beyond the duties of the job description and seek advice and help from those who are more knowledgeable. To a large measure, effective educators and service providers are willing to implement culturally responsive behavior management techniques without prescribed scripts (e.g., "obey my rule") or mandates generated from state legislators. Although these educators and service providers may be overworked, underpaid, and underappreciated, they feel

obligated to be professionals who value their students and their job (Obiakor, 2001, 2007, 2008; Obiakor et al., 2005, 2014).

Culturally Relevant Instruction

The curriculum and instruction are important tools for managing problem behaviors in the classroom (Bluestein, 2008; Kapalka, 2009). Students who struggle academically are more prone to engage in problematic behaviors as an attempt to escape the learning environment or as a way to mask their deficiencies. Understanding this, culturally responsive teachers should focus on preventing problematic behaviors by improving learning outcomes for their students. By bolstering the academic performance of struggling students, they will be less likely to engage in escape-related behaviors to mask their difficulties. As an added layer of instruction when engaging students from CLD backgrounds, teachers and other professionals should incorporate culturally relevant instructional practices.

Culturally relevant curriculum should include the core areas needed for students to achieve academic success (e.g., reading, writing, and arithmetic); however, it should be inclusive of other topics that relate to students' background or that will benefit them immediately and in the future. A culturally responsive curriculum can be adapted to current classroom curriculum and therefore is not difficult to use as a supplement. Even if culturally relevant teaching methods are a required part of the curriculum, the implementation would look different in every class because of the personal idiosyncrasies of each educator or service provider (Gay, 2002; Obiakor, 2001, 2007, 2008, 2014). The instruction or intervention approach can incorporate elements that help the students better relate to their teacher. For example, the use of *verve* and rhythm with some African-American students can create familiarity and improve the flow of a lesson (Franklin, 1992). Additionally, the teacher may want to include some elements of verbal instruction and culturally relevant vernacular to foster rapport with their students (Franklin, 1992). It is critical that teachers and service providers understand and use culturally responsive pedagogy and intervention effectively (Obiakor, 2007, 2008).

Culturally responsive teaching practices can be incorporated into the curriculum in a plethora of ways (e.g., audio, visual, kinesthetic) (Newby, 2006; Obiakor, 2007, 2008). A few examples include the use of hands-on projects and real world tasks, that make assignments more relatable to students' cultural backgrounds. It is a different experience to read about art history than it

is to explore a museum with artwork that represent the various cultures of the student population. In addition to out-of-school field trips, it is necessary to bring in community personalities (e.g., from churches, mosques, or synagogues) who will inspire and expose students to different perspectives than their own. This is also an opportunity to expose students to adventures and places that they may not have experienced or known. These experiences strengthen the mental and psychological health of students, parents, and professionals (Smith & Sapp, 2005).

Another way to incorporate culturally relevant practices into the learning environment is through grouping patterns that help students relate to each other and to the curriculum (Franklin, 1992). Strategies such as cooperative learning (Bui & Fagan, 2013), peer/cross age groupings, and peer tutoring are all effective in improving the learning outcomes for CLD students. For example, students can be gathered into small groups to complete an assignment or project that ties together various elements of their culture. By working together, students may not feel overwhelmed by the assignment and they build a sense of community in the classroom.

School leaders are instrumental in creating environments that are culturally sensitive in order to foster the success of all students (Bluestein, 2008; Kapalka, 2009; Mender, Curwin, & Mender, 2008). The majority of CLD students want to learn, even when they state something different. Many have had difficult experiences in school (i.e., exposure to exclusionary practices) and might be less likely to trust adults. The culturally responsive educator or service provider can recognize these students and place them in situations where success will be within their grasp. It is true that culturally responsive teaching or intervention is not a panacea, but it can help prevent the further marginalization of CLD students. Culturally responsive professionals are creative and caring as they deal with problem behaviors. They get students interested in learning and increasing their positive behaviors (Obiakor & Beachum, 2005).

CONCLUSIONS

Efforts to be innovative in teaching students receiving special education services or in managing their behavior problems can confront unexpected pushbacks (Algozzine, 2014; Obiakor & Algozzine, 1995, 2014). With the recent emphases on transformation, innovation, and continuous improvement in education, general and special educators must respond to socio-cultural shifts in power and paradigms. Hobson's Choice seems tied

to tradition and such a traditional embodiment restricts many necessary innovative choices in identification, assessment, referral, categorization, placement, intervention, and behavior management. Hobson's choice limits the slightest creativity in managing any form of inappropriate behavior. When choices are divorced from the behavior management process, students, teachers, communities, and governments suffer.

Practically, there are numerous assessments and interventions processes associated with behavior management (Kauffman, Bruce, & Lloyd, 2012; Obiakor & McCollin, 2012). Recognizing these processes appears contrary to what Hobson's Choice is all about. The "take-it-or-leave-it" philosophy generally restricts fundamental choices in general and special education and creates "victims" of CLD learners who are already leery about the systems that impact their lives. Since special education focuses on how the potential of individual students can be maximized, it is reasonable to conclude that Hobson's Choice is an anti-special education psychological philosophy that lacks futuristic directions (Gibson & Obiakor, 2014; Obiakor, 2012b; Obiakor, Utley, Banks, & Algozzine, 2014; Obiakor & Yawn, 2014). Additionally, this philosophy assumes an inherent pathology that can only be eliminated by the sole power of the teacher. When human differences are devalued, CLD learners fail to maximize their fullest potential.

This article has focused on how problem behaviors can be reduced or eliminated using culturally responsive/sensitive assessment and treatment approaches, instead of the traditional "teacher-know-it-all" approach that is embedded in Hobson's Choice. This mentality makes dictators out of educators and prevents them from responding appropriately to an increasingly diverse student body. Since the goal is to reduce problem behaviors, every students' physical, mental, emotional, social, and spiritual well-being must be cared for. Further, these students are entitled to assessment and treatment approaches that account for their cultural differences and minimize inherent biases. It is imperative that we reduce problem behaviors in classrooms in order to create a positive culture of learning for all students. This requires support from the student, family, school, community, and government. That is why more well-prepared educators and service providers are needed to help rebuild relationships with parents, and hold students accountable in culturally responsive ways. Professional leaders need to avoid using Hobson's Choice in managing problem behaviors and to help CLD learners to maximize their fullest potential. Finally, our

overall mission must be to value personal realities and experiences, multidimensional pedagogical and intervention strategies, collaborative consultations between professionals and families, and the unique "specialness" in special education.

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Bienvenidos a Todos: Strategies for Supporting Students with Learning Disabilities in a Foreign Language Classroom

Anna V. Osipova

California State University, Los Angeles, USA

Leila A. Ricci

California State University, Los Angeles, USA

Holly Menzies

California State University, Los Angeles, USA

Abstract

Learning a foreign language is a critical skill in the current context of globalization and multicultural communication. Present secondary and post-secondary foreign language classes admit increasing numbers of students with learning disabilities (LD). Given the particular challenges faced by these students in the area of language processing, learning a foreign language in school settings can seem an unsurpassable obstacle. In this article, we describe the learning characteristics of students with LD and present specific teaching strategies that help teachers support these students' acquisition of a foreign language.

Keywords: foreign language instruction, learning disabilities, instructional strategies

Knowing a foreign language is a critical skill in the present context of globalization and multilingual communication. Globalization of the world community demands foreign language proficiency of its members and changes the goals of high school foreign language learning from passing the classes to reaching a level of effective communication. The multilingual community in Europe implemented universal standards for language learning, in which "effective operational proficiency" implies understanding a range of demanding texts and recognition of implicit meanings. These standards also specify that when students study a foreign language, they should be able to use language "flexibly and effectively for social, academic and professional purposes" (Common European Framework of Reference for Languages: Learning, Teaching, Assessment, 2001). The global context necessitates plurilingualism, and the bar of proficiency has risen significantly.

During the last decade, educational policy within the U.S. aimed at inclusion of all students has led to a rapid increase of students with disabilities in foreign language classrooms. While there are some schools where foreign languages are introduced at late elementary school levels, the majority of U.S. schools feature foreign language classes in secondary curricula (Pufahl & Rhodes, 2011). Thus, foreign language learning starts in the U.S. much later than in other countries, and the

majority of students begin their study of foreign languages in adolescence. Meanwhile, research in the field documents certain differences between school-aged foreign language learners of different ages. For example, it is well documented that acquisition of foreign language phonology is more challenging for older language learners (Au, Oh, Knightly, Jun, & Romo, 2008). Therefore, it is possible to hypothesize that the start of foreign language acquisition in secondary grades presents an additional challenge for students with LD. According to the National Center for Special Education Research (2006), 90% of students with learning disabilities (LD) are acquiring a foreign language in inclusive secondary classrooms. Similarly, the number of students with LD enrolled in American colleges and universities is growing steadily, with many of these students being required to fulfill foreign language graduation requirements (National Center for Education Statistics, 2000; Skinner & Smith, 2011; Vickers, 2010). Despite these increasing numbers, however, many students with LD often view mastery of a foreign language as a formidable challenge (Arries, 1999a; Arries, 1999b; Sparks, 2006). Students with LD often share common characteristics that can impede their learning of a foreign language. It is therefore critical that educators at both the secondary and post-secondary levels have a clear understanding of the characteristics of students with LD

as well as specific teaching strategies for facilitating these students' acquisition of a foreign language. Since the 1990s, empirical studies have demonstrated that orthographical, phonological, motivational, and meta-linguistic approaches facilitate foreign language acquisition for students with LD (Ganschow & Sparks, 1995; Lawson & Hogben, 1998; Manchon, 2008). However, foreign language teachers face the competing demands of their own expertise, along with policy and research recommendations, to come up with the most efficient practices to support struggling learners. In this article, we discuss the learning characteristics that make acquiring a foreign language difficult for students with LD. We also present research-based strategies from the field of foreign language instruction to help minimize those areas of weakness and support these students' learning of a foreign language.

Learning Characteristics of Students with LD That Interfere with Foreign Language Acquisition

Learning a foreign language depends heavily on a student's ability to memorize copious amounts of new material, and often in a short amount of time. While there are multiple approaches to foreign language learning and teaching, memorization of new unfamiliar vocabulary, and even text excerpts, represent tasks frequently encountered by foreign language learners. Many learners name memorization as one of the leading strategies that they rely on (McLaughlin, 2013). Similarly, foreign language classrooms feature memorization as a frequent approach to language teaching (Prince, 2013; Macedonia & von Kriegstein, 2013). Additionally, memory skills, and particularly rote memory skills, are considered one of the leading predictors of foreign language aptitude (Winke, 2013). The last 30 years of research on memory processes reveals significant differences in how students with disabilities memorize new information compared to those without disabilities. Those without disabilities effectively use rehearsal strategies and tend to better remember phonemes, sentences, and sentence structure (Downey, Snyder, & Hill, 2000a; Downey, Snyder, & Hill, 2000b). On the other hand, students with LD experience difficulty with learning the phonemes of a foreign language and how they map to its letters (Downey, Snyder, & Hill, 2000a). Additional difficulties are presented by languages that do not have phonemic orthography, such as French, German, and Russian. These languages have multiple phonemes that are represented by letter clusters or multigraphs (e.g. "sch" in German and "eau" in French). While students without disabilities either acquire or create strategies

that aide in language acquisition (O'Malley & Chamot, 1990; Vidal, 2012), students with LD are likely to have difficulty coming up with effective strategies to facilitate their studies of a foreign language (Heiman & Precel, 2003).

The condition of LD by its definition has to do with language processing. Public Law 101-476 in the U.S. identifies LD as a "disorder ...involved in understanding or in using spoken or written language, which may manifest itself in an imperfect ability to listen, think, speak, read, write, spell" (IDEA, 2004). Studies over decades have shown that phonological processing presents a significant weakness for students with LD (Downey, Snyder, & Hill, 2000a; Stanovich, 1985; Velutino, Fletcher, Snowling, & Scanlon, 2004; Wagner & Torgesen, 1987). Thus, processing the phonological system of a foreign language poses considerable challenges for students with LD. Since introducing a new language rapidly presents a new phonological system to students with LD, they can be easily overwhelmed by unfamiliar sounds that they are less likely to distinguish, recognize, and/or reproduce. This further creates difficulties with the new foreign language words that they hear (Gang & Siegel, 2002).

Processing of new information, called encoding, is challenging as well. There are two types of encoding for memorization (Swanson, 1983a). The first type of encoding, semantic encoding, occurs when the student recognizes the meaning or the semantic relationships between words, and as a result, can more easily remember them. For example, instead of memorizing the meaning of the Spanish preposition "a" which means "to", the students can memorize a meaningful unit: "ir a la biblioteca" ("to go to the library"). This way, in a collocation, the meaning of the preposition is more memorable than in isolation. The second type of encoding is referred to as perceptual encoding. In this case, the attention of the listener is focused on the way the words sound (or the phonemes of the language). For those who have difficulty in the area of phonology, recall of information that has been perceptually encoded is problematic. Unfortunately, perceptual encoding is relied on heavily when learning a new language.

An additional area of challenge is the process of rehearsal, which supports encoding and assists memorization. Just as with encoding, there are two types of rehearsal (Swanson, 1983b). The first type is called *recycling* and is the repetition of the new information. This type of rehearsal is usually reserved for single words. When a new word is introduced, the student repeats it until the word is memorized. This is the least

productive but most common type of rehearsal used by students with learning disabilities. The second type of rehearsal is called *active rehearsal*. This consists of stimulus enrichment and elaboration. These are efforts that go beyond repetition, such as making a mental picture to accompany a new word. Difficulties with both encoding and phonetics are thought to be linked (Corriveau, Goswami, & Thompson, 2010). Students with LD may have trouble attaching visual codes to new words, which then interferes with retaining verbal information. Thus, the areas of phonology and recall (encoding and rehearsal), which are critical in learning a new language, are the areas of difficulty for students with LD. However, using a variety of activities and strategies that support these weaknesses will facilitate foreign language learning for students with LD. Since one of the authors of this article worked closely with a team of high school Spanish teachers who were successful in their instruction of this foreign language to students with LD in their classes, we provide examples from Spanish.

Strategies That Support Acquisition of a Foreign Language Phonology

Students with LD require direct instruction in pronunciation and distinguishing between various phonemes in order to successfully process and remember them. While some learners need little instruction to master the sounds of a new alphabet, students with LD require additional practice to commit the sounds to memory and can benefit from techniques drawn from English language acquisition (Valett, 2001). Multisensory activities and focusing students' attention, through direct explicit instruction, to sound details can help students who have difficulty implicitly learning foreign language sounds develop linguistic auditory memory patterns (Sparks & Miller, 2000).

Teaching Alphabet Symbols and Letter Sequencing Within the Alphabet

To teach alphabet symbols and sequencing of letters, the teacher of students with LD can combine memory drills with chanting or songs that follow certain rhythmic patterns (Buss, 2015). Students should be taught to simultaneously trace the letters as they verbally chant or sing. It may be beneficial to also add a few meaningful phrases into alphabet drills because such phrases help set the rhythm and add meaning to the drill. They also give the students a chance to learn not only letters, their sequence and their names, but also a few phrases they could recognize later (e.g. “¿Quieres cantar con migo?”

“Would you like to sing with me?”) or “Otra vez!” (“One more time!”) (Freeman, Coolican, & Graves, 2012).

Teaching Initial Consonant Sound Patterns

Teachers can facilitate development of initial consonant sound patterns by explicitly teaching students to imitate these sounds patterns, which consist of, among others, voiced/voiceless and explosive/nasal. The teacher of students with LD can explicitly describe the sound pattern and model the consonant sound patterns in an exaggerated manner while drawing students' attention to the sound formation. Next, the teacher can follow this modeling with guided practice, during which the students look at mirrors and repeat the sounds while comparing the lip and tongue positions/movements (Buss, 2015). Additionally, tongue twisters (Spanish *trabalenguas*) can be particularly useful in practicing initial consonant sound patterns because these language exercises tend to repeat the same initial sound. Two examples of Spanish tongue twisters are “*Mi mamá me mimo mucho*” (“My mother loves me a lot”) and “*Tres tristes tigres tragaban trigo en un trigal*” (“Three trapped, sad tigers swallowed wheat in a wheat field”) (Matveev, 2008).

Teaching Complex Word Patterns and Multisyllabic Words

Reproducing complex word patterns and sounds is very similar to the process of imitating initial consonant sound patterns. The teacher needs to explicitly chunk the word, isolate the complex word pattern, and model it for students with LD. Through explicit instruction and guided practice, the teacher can then assist students through segmenting the difficult sound patterns within the word, singling them out, practicing their formation, and then blending the sounds of the word into the complete word. It is easier to start pronouncing the difficult word by chunking it from the end, and adding the syllables or chunks one by one. Students frequently have difficulty with unknown multisyllabic words and their endings, in particular. This could be explained by the fact that native or more fluent speakers tend to glide over the endings, which are less stressed than sounds in the initial position. Medial vowels are also known to pose a great challenge for struggling students (O'Connor, 2007). Therefore, starting with the word parts that are less explicit and working backwards towards the beginning of the word scaffolds the process of learning a new multisyllabic word. For example, a long word such as *Trabalengua*, could be taught through the following

sequence:

- gua [gwa]
- lengua [lengwa]
- traba [tra-ba]
- trabalengua

Teaching Intonation, Inflexion, and Rhythm

Mastering intonation, inflexion, and rhythm of a foreign language is a typical difficulty for non-native speakers, because learning these linguistic features goes beyond mere awareness and mimicking, and requires explicit instruction (Verdugo, 2006). Students with LD may have even greater trouble mastering these aspects of a foreign language given the difficulties with phonological processing within this population. Teachers can teach students intonation skills and how to recognize inflexion by using oral modeling and echo responses, followed by individual independent practice. Students can also draw diagrams of sentences, in which arrows mark the rise and fall of the intonation. Also, underlining and highlighting can be used to emphasize stressed syllables or words. Initially, the teacher may make the rise or fall of the intonation more obvious by pairing oral practice with corresponding upward or downward hand or pencil movements. The students should follow and copy the prosodic patterns. For example, the teacher can demonstrate that a drop of intonation marks a statement, while a rise of intonation in a Spanish sentence signifies a question, such as in the following example:

Las lecciones son difíciles.↘ (Statement)

¿Las lecciones son difíciles?↗ (Question)

To support students with LD in understanding the rhythmical structures of the sentences, teachers can use clapping or tapping to demonstrate appropriate rhythm.

Teaching Action Word Sequences and Directions

Difficulty with phonological processing and memory skills contribute to the struggle with foreign language comprehension and acquisition (Palladino & Ferrari, 2008). In this context, comprehending directions in a foreign language often presents a challenge for language learners with auditory processing difficulties. To teach students with LD how to follow action word sequences and directions in a foreign language, teachers can combine the actions and directions with the motions that represent their meaning. For example, a simple game such as “Simon Says” makes memorization of action words and directions fun for students who often experience frustration with learning tasks. In this game, the students can take turns giving each other tasks that are similar to the directions frequently given by

teachers. For example, the students can tell each other, “Simon dice abre tu libro” (“Simon says, ‘Open your book!’”) while pointing to the textbook. This movement-based game enhances student interaction, makes meaning more concrete, and promotes relevance of vocabulary and directions. Furthermore, the repetition that is typical for games such as “Simon Says” helps to facilitate recall in students with LD (Tolbert, Killu, & Lazarus, 2015).

Teaching Reading and Spelling While Scaffolding Phonological Challenges

Teaching Reading in a Foreign Language

Teaching students to read connected text (sentences and paragraphs) in a foreign language can be comparable to reading instruction in English if the foreign language (e.g. Spanish) is similar to English in its syntax and text organization. Teachers of students with LD should model reading, particularly in the early stages of language learning, with special attention to intonation. The text being read (just like an individual sentence) can be marked with intonation arrows, highlighting or underlining to mark words that carry a meaningful emphasis, as well as pauses. Word sequences are especially important as they carry syntactical information marking a statement or a question. In the following example, to draw students’ attention to a word sequence, the teacher can make it apparent through different color cues, indicating the changes in sentence structure:

¿De dónde es Monica?

Monica es de Madrid.

Color-coding makes word sequencing more explicit, highlighting the differences between statements and questions, as well as emphasizing word sequence patterns. Teachers can also follow their modeling of the reading or an audio recording by having students engage in choral or individual reading of the text.

Promoting Attention to the Alphabet

Learning to write in the foreign language can vary in difficulty depending upon the differences between the student’s native language and the foreign language being studied. For languages that have similar alphabets, such as English and Spanish, forming letters is unlikely to present a problem. However, teachers should draw their students’ attention to letters that are not common to the native language. In the example of Spanish, such letters would be ñ, ll, or rr that can be challenging for students with LD whose native language does not have such letters in its alphabet.

Students should be taught specific rules of letter sequencing typical for the foreign language during the instruction of letter-sound correspondence. For example, set letter sequences, such as “cc-” or “-uie-” can be explicitly taught and emphasized during the instruction of words that have these letter sequences. Teachers of students with LD should make the similarities and differences between the native language and the foreign language very explicit. For example, after learning that letter “b” in Spanish sometimes sounds akin to English “v”, students should have multiple opportunities to practice and repeat words that illustrate this phenomenon.

Teaching Spelling in a Foreign Language

Similar to the skills discussed above, learning spelling in a foreign language requires explicit and systematic instruction. Teachers of students with LD should explain the overall spelling system of the foreign language being studied, with particular attention to the similarities and differences between the two languages. For example, it can be noted that in comparison to English, Spanish spelling is more consistent in phonetic patterns. Therefore, the strategy of “sounding it out” can be very helpful for spelling words in Spanish. Students may have a higher rate of success in this domain if presented with specific spelling rules and patterns explicitly and systematically (Cañado, 2006). To facilitate orthographic recall, students can trace the shapes of words that they have difficulty spelling, and highlight the word segments in which they consistently make mistakes. In addition, students should frequently practice correct spelling while sounding out the words. Tracing and sounding out words add a necessary multisensory component to learning of orthographic structures, which has been shown to benefit students who struggle with literacy activities (Cooke, 1997).

Furthermore, students with LD will benefit from practicing subvocal articulation, responding discreetly to the sounds they hear. Fortification of phonemic knowledge, as well as creating organizational patterns for better recall, can be taught through rhymes and sound associations. For example, when teaching conjugation of Spanish verbs to students in a first-year Spanish class, a teacher can facilitate their memorization of personal endings by providing examples of several verbs in the same form (such as “hablo,” “bailo,” or “trabajo”) or giving the students a sentence to memorize (such as “Cuando yo trabajo, no hablo y no bailo” (“When I work, I do not talk and do not dance.”)). The benefit of such instruction is multifaceted: repetition of several

verbs in the same form supports memorization, and similar rhyming endings create a sound pattern that is easier to recall. The memorized sentence also becomes a meaningful segment of speech ready to be used in an appropriate context. Sound-symbol training results in memory training and also introduces the students to the idea of encoding. The idea of graphic representation of a particular sound and the practice that the students get as they learn to decode written symbols are the first instances in which the students learn to encode.

Strategies to Support Vocabulary Recall

Students with LD often experience difficulty with remembering new vocabulary in a foreign language. These students frequently have difficulty with both short-term memory and working memory, the ability to remember information while simultaneously carrying out a relevant task (Swanson, 1993, 1994). As learning a foreign language relies heavily upon memorization of new vocabulary, students with LD benefit from a variety of strategies to enhance their memorization and recall of words in a foreign language. We will next discuss the strategies of using rhymes, cognates, semantic relationships, active rehearsal, and metacognitive techniques to support vocabulary recall in students with LD.

Rhymes and Jingles

Repeating meaningful rhymes and jingles is an excellent practice for learning vocabulary in a foreign language. This type of language exercise has many benefits. Learning poems in a foreign language provides learners with training in several linguistic areas, such as phonetics, morphology, syntax, and vocabulary (Cudak, 2004). Students expand their vocabulary, as well as memorize meaningful sentences and familiarize themselves with the correct word sequence and word usage. Since they learn words in sentences, this memorization includes articles and prepositions that are common for a particular word. Articles and prepositions are linguistic features that are difficult to learn, especially if they differ from students’ native language. For example, the following rhyme can facilitate memorization of vocabulary related to the interior of the house. It could also be illustrated by adding pictures of described objects/locations that would provide learners with visual support:

¿Ha visto usted a mi gato?
Yo no lo veo hace un buen rato.
No está en el dormitorio.
No está en el comedor.
No está en la cocina

Tampoco en el baño.
No está en la sala
Ni en la oficina.
No está en el sótano.
No sé donde está!
Mi gato no esta escondido.
Yo creo que se ha perdido...

Have you seen my cat?
I have not seen him for a good while.
He isn't in the sleeping quarters.
He isn't in the dining room.
He's not in the kitchen.
Nor in the bathroom.
He is not in the living room.
Nor in the office.
He is not in the cellar.
I don't know where he is!
My cat is not hidden.
I believe he got lost.
(Matveev, 2008)

The poem above organizes thematic vocabulary about a house interior into a coherent, logical narrative with rhymes and rhythm. Students who learn this poem add seven different nouns with definite articles referring locations (el dormitorio, el comedor, la cocina, el baño, la sala, la oficina, el sótano) to their vocabulary. They learn these words in context, as well as memorize several set expressions (“hace un buen rato” and “creo que”) and a variety of a serial negation (“no...ni” and “tampoco”). The expression “no está” that is repeated several times reinforces distinction between forms of “ser” and “estar” that are frequently confused by learners. The sequence of locations in the poem is easy to visualize and is supported by rhymes and rhythm.

Singing and chanting, as a foreign language exercise, is very similar in its nature and benefits to the exercise of repeating meaningful rhymes and jingles. Additionally, it has been shown as a highly motivating activity (Brumen, 2011). Teachers can use multiple repetitions of songs and chants with students with LD to help reinforce their intonation patterns and memorizing of words and their sequence. Usually perceived as fun activities by students, singing and chanting are particularly useful when the students can follow along while reading the text of the song. This facilitates their comprehension and eases pronunciation. While these activities are likely to motivate younger students, research emphasizes the beneficial role of singing, chanting, rhyme, and

poetry memorization in facilitating foreign language acquisition and making it enjoyable for learners of all ages (Good, Russo, & Sullivan, 2014; Kennedy, 2014).

Cognates

An effective strategy for teaching a foreign language to students with LD at the initial stages of language acquisition is the use of cognates, or words descended from the same language or derived from a similar form. Teachers can use native language knowledge to support the foreign language acquisition of students with LD if the native and non-native languages belong to the same family of languages. The students will be able to recognize similar roots and word bases. Thus, the recognition of cognates activates prior knowledge and makes the information familiar. The similarity of roots can be used effectively to bolster semantic encoding. Word families and word meaning can be effectively taught by activating students' knowledge of their native language and drawing parallels between the native and foreign languages. It also reduces the stress of the unknown so frequently encountered in foreign language acquisition.

Research shows that paired-associate learning of foreign words that are cognates to the native language is greater than that of non-cognates. Thus, research recommends strategic introduction of cognates especially at the initial stages of language learning (De Groot & Keijzer, 2000; Tonzar, Lotto, & Job, 2009). Therefore, when thematic vocabulary is introduced, it is beneficial for the students' ability to learn a foreign language if the word list has one or several cognates to support students' ability to join the discussion in the second language. For example, if the list of food items for a beginning Spanish class contains such words as “la hamburguesa”, “la pizza”, “los espaguetis” (“hamburger,” “pizza,” “spaghetti”) among other items, the students who struggle with recall will not feel at a loss when asked “¿Que quieres comer?” (“What would you like to eat?”). During the initial stages of language acquisition, it is important to overcome the overwhelming feeling of having nothing to say, and cognates will relieve the stress of this situation.

Partial cognates (words that carry a shade of meaning of a familiar word) are also useful for foreign language acquisition. For example, drawing parallels to the English word “coffee” with its brown color can facilitate memorization of the Spanish word “café” (“brown”). These associations that exist between the second (foreign) language cognates and the familiar words of the students' native language are helpful, and thus should not be ignored during instruction. They can also be

highlighted through the use of pictorial representations that are also shown to facilitate recall (Tonzar, Lotto, & Job, 2009). For example, the same word “café” can be presented on a flashcard along with an image of a coffee bean that is brown in color.

Moreover, cognates can be helpful for recall and production of sounds and letters that are foreign to the native alphabet and phonological system. For instance, such letters and their corresponding sounds as “ñ” and “ll” do not have an equivalent in English; however, these sounds are present in the names of such objects as “piñata”, “piña colada” or “quesadilla” which are familiar to many non-Spanish speakers. Pictorial representations of these objects, the names of which are not translated, along with explicit references to them, can aid the unfamiliar letter recognition and sound production.

Semantic Relationships and Word Families

Students with LD might more easily recall semantically related words, so teaching semantic encoding is recommended as one of the methods that aid the retention of new words (Sagarro & Alba, 2006). While teaching semantic encoding, instructors should demonstrate how to generate associations, categorize items, and incorporate these items into sentences. Associations can be built based on the sound of the new word,

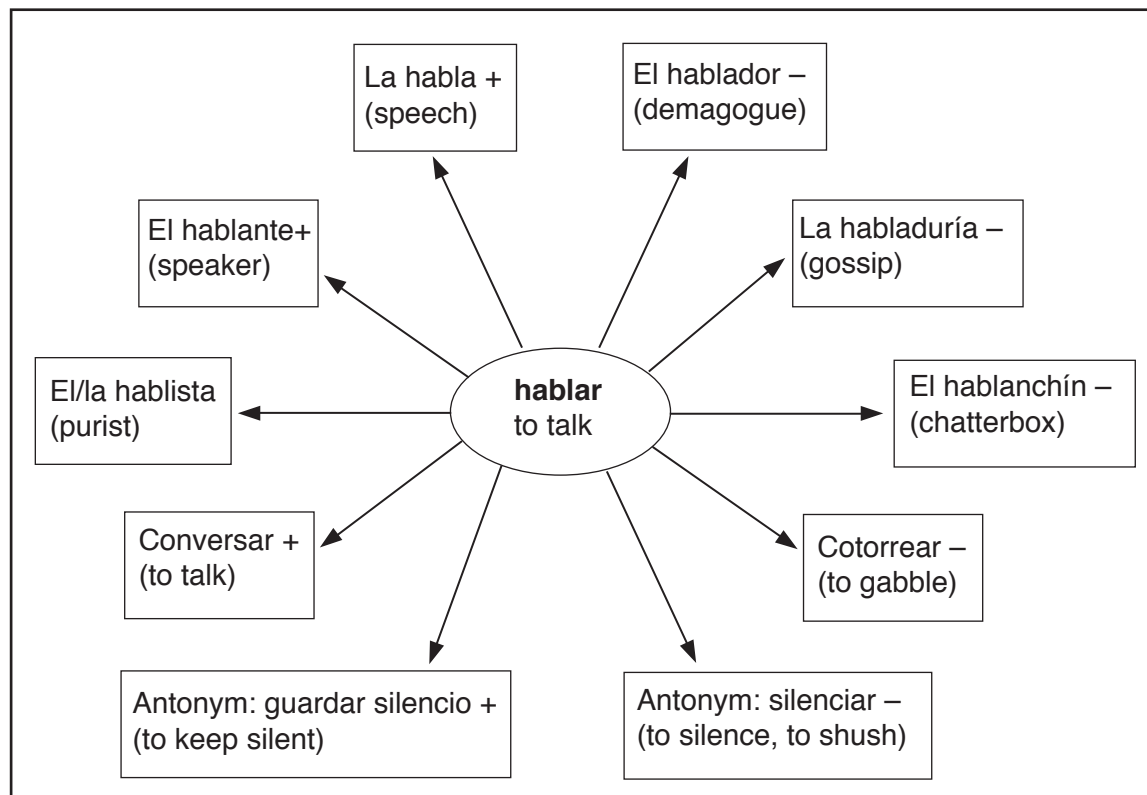
its shape, and the letters that form its spelling. Any additional elaboration of the initial stimulus makes it more accessible for memorization. For example, when teaching the word “blanco,” an instructor may draw an association with the English word “blanch.” Similar meaning, letter shape, and close spelling of the two words facilitate memorization. Similar items could be taught as word family maps or semantic maps. Semantic maps activate prior knowledge and create associative lists. They can also include synonyms, antonyms, and brief definitions.

The diagram presented in Figure 1 below combines a word family map of derivatives of the verb “hablar” with a semantic map that demonstrates the words related to the word “hablar.” In this word family/semantic map, the main word being studied (“hablar” in this example) is written in the center bubble together with its definition in English. Words that are related to “hablar” are included at the top, with synonyms written on the side and the antonyms below. The plus and minus signs contained therein represent positive and negative connotations that are inherent in the synonyms and antonyms of “hablar.”

Incorporating new words into sentences is a common practice among students and instructors. However, it is important to notice that the sentences should be

meaningful, and by their structure should make the meaning of the new word more explicit and obvious. For example, when teaching the concept “rubia” (“fair”), a teacher can create a mini concept map within the description, thus facilitating acquisition of the concept and its attributes: “Elena es rubia: tiene pelo blanco y ojos azules” (“Elena is blonde, has white hair and blue eyes”). It is also good to support

Figure 1. Word family/semantic map for the verb “hablar.”



this description with a picture. Consequently, the new term “rubia” (“blonde”) goes along with familiar words “blanco” (“white”) and “azul” (“blue”) and gains a clear, easily recognizable meaning. All of these skills can be categorized as metamemory skills. Once learned, they become useful strategies the students can utilize when facing a memorization task.

Rehearsal Activities

Active rehearsal activities (discrete reproduction of sounds and words, rehearsal in phrases, etc.) can be an essential tool for successfully remembering new words. Active rehearsal can be effectively used for phonemically-related words in multi-item lists. Students with LD will benefit from being shown the phonemic similarity of the words on the list. Once they become aware of the sound similarities, active rehearsal facilitates recall (Swanson, 1983a). For example, students might be taught that suffix “-cion” corresponds to the English “-tion” and that it forms nouns in Spanish. Following that explanation, a list of words that are phonetically similar in their endings can be introduced as an illustration of this linguistic phenomenon (e.g., “educación”, “revolución”, “información”). Students can then be invited to continue the list while transforming English words into Spanish. This way, the sound of the new suffix will be supported by repetition and multiple rehearsals, as well as cognitively through associations with familiar endings in the native language. Ultimately, all these techniques transform newly introduced linguistic segments into familiar and meaningful units. Students should be given plenty of opportunities to practice observing phonetic similarities. With plenty of practice, they will be able to generalize this skill.

The nature of the material that needs to be memorized has an effect on the efficiency of recall. According to Manolopoulou-Sergi (2004), the complexity and difficulty of tasks play an important role because they might “overload learners’ attentional capacity and consequently lead them to focus on meaning rather than form with detrimental effects for their interlanguage development” (p. 6). Thus, phonemic familiarity effect results in better recall of non-rhyming words. The word length also contributes to the recall: longer words are more difficult to remember (Johnson & Anderson, 1998). This, in its turn, brings up other important factors connected to the notion of rehearsal: rehearsal frequency and the number of items rehearsed together. For some types of word attributes, for example, verb inflections similar to English third person verb ending –s, rehearsal frequency may result in better retention. In Spanish, second person

verb endings are sometimes hard to remember for the second language learners. These word attributes may be hard to distinguish when they are presented orally, due to their voiceless nature, or due to the absence of a similar feature in the primary language of the students. Explicit instruction, accompanied by visual representations and followed by high rehearsal frequency, will facilitate students’ acquisition and retention of such word attributes. When teaching conjugation of Spanish verbs, the –s ending which is voiceless can be highlighted in red on the flashcards or the whiteboard that is used during oral practice: “tu tienes”, “tu hablas” (“you have,” “you talk”).

The frequency of rehearsal needs to be determined on an almost individual basis. Depending on the nature of the student’s disability, and the frequency and variety of language experiences, the number of rehearsal times might differ (Mitchell, Macrae, Schooler, Rowe, & Milne, 2002). However, it is important to explain the necessity of frequent and systematic rehearsals to the students. As for the best number of items to be memorized at once, many authors, including Omrod (2004), suggest lists of seven to ten items. These numbers appear to be most manageable for short-term memory. With an adequate number of rehearsal repetitions and/or after meaningful encoding, the information gets stored in the students’ long-term memory.

Metacognitive Techniques

Metacognitive strategies are effective in helping students monitor and direct their own learning (Troia & Graham, 2002). They help students “learn how to learn” and assist them in becoming more efficient at processing and remembering new information. Rather than expecting students to rely on rote memorization of content, metacognitive strategies are techniques that ameliorate the processing and retrieval deficits that students with disabilities experience. Memory strategies help students to store and subsequently recall new information.

Particularly useful for language learning are those strategies that help students remember new vocabulary (Scruggs & Mastropieri, 2000). They can range from simple activities, such as connecting a word to a personal experience, to more complex strategies, such as the Keyword method (Uberti, Scruggs, & Mastropieri, 2003). This technique teaches students to associate an acoustically similar, but very concrete, “keyword” for the new vocabulary word. In their article on the Keyword method, Sagarra and Alba (2006) explain the technique using the vocabulary word “helecho”

("fern"). During instruction, the word is paired with a picture of a cow being milked and eating a fern leaf. "Helecho" sounds similar to "leche" ("milk"). The vocabulary word (helecho), the picture of a fern leaf, and a definition of the vocabulary word are printed on a flashcard. Students are prompted to remember an image of a cow giving milk and chewing on a fern when trying to recall the definition for "helecho." Students then have an auditory and a visual cue by which to retrieve and remember the new vocabulary word.

CONCLUSIONS

An important part of introducing any type of foreign language learning strategy to students with LD is the use of explicit instruction to teach students the new technique. The teacher should define and model the strategy. Then students need the opportunity to practice with feedback from the instructor. The demonstration is followed by guided practice in which the teacher frequently checks for accuracy of understanding. Guided practice should be followed by independent, but still closely monitored, practice. Multiple opportunities for practice will enhance rehearsal and meaningful encoding of vocabulary. The skill should be introduced and practiced in a number of ways: orally, through speech and listening, in writing, and through reading. A number of modalities in which the material is presented will also assist recall and retention by the students with LD.

Successful foreign language instruction, especially for individuals with LD, depends on several factors, including the individual abilities of the students, their age, their prior literacy history, and the nature of the primary language as well as the foreign language. However, as phonology and recall can be significant areas of difficulty, instruction should focus on fortifying the skills necessary for successful functioning in these domains. Students will benefit most from combined instruction in encoding and rehearsal since these strategies are effective for different memorization situations (single and multi-item lists), and are complementary as well. The strategies within the areas of encoding and rehearsal should be best chosen to fit the developmental level of the students, as well as their needs. As teachers face a formidable task of supporting increasing numbers of students with LD in acquiring foreign languages, the use of some of the strategies presented in this article can facilitate this challenging journey for both teachers and students. Strategy instruction and active strategy use can ultimately lead to greater success with foreign language acquisition, thus ultimately increasing these

students' college readiness, chances for future employment, and enhanced social opportunities in today's global economy.

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Meeting the International Need for Special Educators with Online Education

Darra A. Pace

Elfreda V. Blue

Hofstra University, USA

Abstract

Over the last several decades, recognition of the educational rights of individuals with disabilities has grown from a request for acceptance to a demand for inclusion. While many countries have made progress in inclusive education, the majority of individuals with disabilities lack access to basic education. One explanation for this situation is the dearth of trained teachers, and the lack of access to professional preparation in special education in many areas of the globe. The following article describes one university's response to this situation with the development of an online special education master's degree program.

Professional development in education and an international foundation for the education of students with disabilities, serve as the underpinnings of this article. Issues of creating this program, including curriculum development, the use of online technology, application of Universal Design for Learning, recruitment, and infrastructure are discussed. Challenges and solutions to provide access to knowledge and ability to teach students with disabilities are presented.

Background

Worldwide, 650 million people – about 10% of the global population – live with a disability, making them the world's largest minority. Not only is this a large group, it is one that is increasing in size. According to the World Health Organization (n.d.), as a result of population growth, advances in medicine and extended life spans, the numbers of individuals with disabilities will rise. With an estimated 93 million children as part of this group, serious educational concerns arise. UNESCO (2015) reports that 90% of children with disabilities in developing countries do not attend school. This lack of inclusion in the educational process contributes to an adult literacy rate of 3% for men and 1% for women with disabilities.

The World Health Organization reports that 10% of the world's children – 200 million – have some sensory, physical and/or intellectual impairment. Children with disabilities are the least likely to receive healthcare or go to school and are among the most vulnerable to violence, exploitation, abuse, and neglect (UNICEF, 2013a). According to Joshua Mkwelhiwa (UNICEF, 2013b) of the Malawi Ministry of Disability and Elderly Affairs, "For many children with disabilities, exclusion begins with the first days of life, with their birth going unregistered. Lacking official recognition, these children are cut off from social services and legal protection." Children with disabilities are among the poorest and most vulnerable people in Malawi; fewer than 10% are in school, very much in line with the UNESCO report.

There have been some strides educationally for individuals with disabilities, but these strides have not been universal. Nearly two-thirds of individuals with disabilities live in developing countries and survive on less than US\$1 per day. Only 10% of all students with disabilities have access to primary education. For all intents and purposes, they are socially, economically, and physically excluded and marginalized from mainstream society (Lang, 2007). While some places have evidenced a degree of success (Brodin & Lindstrand, 2007; Ferguson, 2008), many countries' efforts have been fraught with economic, political, and social challenges (Radoman, Nano, & Closs, 2006). Hindrances to the inclusion of students often are the size of the classes and absence of related services that provide medical and physical supports (Eloff & Kgwete, 2007; Dyson, Atkin, Culley, Dyson, 2007). The ongoing issue of excluding students with disabilities from education is not being ignored. Recently, as a result of Article 24 of the Convention on the Rights of Persons with Disabilities (CRPD; UNESCO, 2012), many countries are seeking to implement inclusive educational programs for students with disabilities.

One of the major reasons given for excluding students with disabilities from school has been the lack of trained personnel. UNICEF (2013a) speaks not only about the exclusion of children with disabilities from schools, but the fact that even when they are included, their teachers are not prepared to teach them. Therefore, the world body recommends investing in teacher training. UNICEF recognizes the educational shift to inclu-

sive education, away from segregated special schools with limited access to general curriculum and non-disabled peers. The new paradigm not only prepares teachers for diverse student populations, it develops positive dispositions about the abilities of students. The new design fosters connections to parents and offers them both support and guidance (UNICEF, 2013a).

While most developed countries have university rehabilitation programs, most developing countries cannot afford to establish them. Low and middle-income countries, such as China, Lebanon, and Thailand have established mid-level training programs instead. India has established a regional training center servicing Bangladesh, Nepal, and Sri Lanka as well. (WHO, 2011, p. 110).

As a result of the new international push for including students with disabilities in schools, the Special Education Department at Hofstra University on Long Island in New York decided to explore ways to make special education teacher preparation available for interested international students. The resulting online master's program in special education provides educators and related service personnel with the knowledge and skills needed to include students with disabilities in schools worldwide. The following sections describe the program's initial planning, changes needed as a result of challenges encountered, and outcomes.

Program Challenges

Historically, nongovernmental organizations (NGOs) have provided professional development in education using the Cascade Model (Silova & Steiner-Khamsi, 2008). In the Cascade Model a first group of teachers is trained and once they are considered proficient, they then train a new group of teachers. In the model, training material is created to serve as guides for systematic instructions. Individuals are then trained at different times: first by the experts, then by the facilitators. Follow-up training is used to close any gaps in the facilitators' instruction (Dibacha & Mokhele, 2012).

Silova and Steiner-Khamsi (2008) point out that while this model is commonly used, it is widely criticized for the following reasons:

- Trainers receive only limited preparation to pass on to other teachers
- Trainers do not learn how to train others; they are taught to replicate the sessions they attend;
- The quality of the training deteriorates as it is passed down from level to level, from teachers trained by the experts as facilitators to the next group of teachers;

- Usually, the first-level trainers are not directly involved in classroom practice; and
- By the time teachers attend the workshops, much of the pedagogy is gone and the content comprises extremely broad and abstract ideas.

A Cascade Model program denies teachers direct contact with quality teaching preparation. It perpetuates the issue of limited access to education. As a special education department in a university, the authors of this paper see teacher preparation as a much more complex process that requires in-depth student participation. To meet that level of preparation, the authors considered options for students who could not attend Hofstra's campus programs. They also needed a format that was feasible for special education teacher educators in areas where many resources are limited or not available.

A distance learning online program model offers an answer. It removes the multiple layers of a Cascade Model, eliminating the watering down and deletion of important curriculum by immediately connecting pre-service and in-service teachers with faculty. Students in the courses engage with the knowledge and skills they need to develop or improve their practice for teaching students with disabilities. Their questions and concerns about teaching and learning can be addressed directly by qualified faculty.

Despite many advantages to the online program, there are also possible limitations. Is there an infrastructure to support technology, both in terms of hardware and Internet access? Will certain students be excluded due to lack of computer and Internet availability? These are legitimate and serious concerns. However, the need for special educators all over the world is critical; Hofstra chose to wrestle with these problems at the same time as it tried to offer teacher preparation internationally. Financial issues regarding tuition and technology costs require backing from organizations such as nongovernmental organizations and national departments of education. Efforts to secure tuition-based grants and monetary support go hand-in-hand with program development and sustainability.

In addition, without a grassroots network to provide internship supervision or the installation of very costly supervision software, a difficult decision had to be made about a student teaching component of the program. Special education teaching settings were limited or not in place. University faculty supervision of pre-service teachers was not possible. Therefore, Hofstra decided to forgo certification and offer a program that emphasized pedagogical information and skills curriculum vital to effective teaching.

Philosophical Underpinnings

A number of matters needed to be addressed before the study plan could be created. Hofstra's in-residence programs all have a large clinical component that might be difficult to translate into the online format. The university embedded its existing programs in the philosophy of the American disabilities rights movement and resulting legislation. Although this information could inform the courses being designed, Hofstra realized that international students deal with very different situations and that courses should focus on their priorities and realities, educational infrastructure, high student population in specific disabilities, and stereotypical social attitudes toward disabilities. Of particular importance was the sustainability of the program in countries so far from the home campus.

Hofstra's special education programs are replete with accounts of the fight for education as a right in the United States. The history of modern day special education begins in the U.S. with the *Brown v. Board of Education of Topeka* case. This 1954 case ended racial segregation in U.S. schools and served as a model for parents of children with disabilities to achieve access to education for their children. The history and case law that led to U.S. educational legislation for students with disabilities plays an important role in helping Hofstra's future teachers understand the context of the American educational system.

Internationally, the history of support of individuals with disabilities extends back to the founding of the United Nations in 1945 with foci including individual welfare, social welfare, human rights, respect and inclusion of individuals with disabilities. This paradigm shift that has occurred internationally as a result of numerous UN efforts reflects the American movement geared toward promoting quality of life and inclusion of individuals with disabilities in schools and society at large.

In 1994, the UNESCO world conference on special education highlighted the importance of meeting the needs of all children. The resulting commitment to individuals with disabilities and their educational rights was articulated in the issuing of the Salamanca Statement (UNESCO, 1994), adopted by 94 governments throughout the world as well as 20 nongovernmental organizations.

The educational rights of individuals with disabilities have been recognized throughout the world and have transitioned from the initial need for acceptance and inclusion to access, reform, and an examination of educational practices for children and youth with disabilities. Nations are in accord and are committed to educate

all children. The Flagship Goals articulate a broad international strategy for global reform in education and established the Dakar Forum (UNESCO, 2000). When comparing the goals of the Dakar Framework of 2000 with the Salamanca Statement of 1994, it is easy to see that the world community has moved beyond the basic idea of acceptance. The mandate called for establishing viable ways to make the changes needed for accessible and equitable education for all. Once Hofstra's faculty reviewed the necessary documents for the philosophical underpinnings for the creation of a new program, they turned to the nuts and bolts of creating a meaningful curriculum that served the needs of special education professionals internationally.

Realities of an Online Program

As a teacher preparation program in New York State, Hofstra needs to meet a number of requirements so its teacher candidates can be certified. Students must complete 100 hours of field experiences before they are eligible for the student teaching component of the program. Over time, those field hours have evolved into clinical experiences within courses that involve school visits, observations, and participation in afterschool tutorial programs for students with disabilities in public schools. The creation of field experiences requires groundwork and connections with the local districts.

In an international program, some components may not be possible. The department reassessed what was needed and refined its mission: making special education knowledge and skills accessible internationally, not credentialing teachers. With that realization, the department decided to make it clear that this program would not result in teacher certification in New York State. This understanding freed Hofstra to open the program to related service personnel, education administrators, and other stakeholders in special education in the U.S. and internationally.

Hofstra's special education programs embed cultural competence, culturally responsive teaching, Universal Design for Learning strategies, and collaboration into the coursework. These ideas address the needs of students with disabilities and facilitate the learning of all children. They become the foundation of quality teacher preparation and move the emphasis of inclusive education beyond educational access. These components translate well to a global application of the online program. With the foundations of the program solidly in place, the faculty needed to address the manner of instruction via online teaching.

Online Training

Hofstra's existing special education program served as the starting point for an online training program. However, all but one of the program's courses were taught in a face-to-face traditional format. Faculty needed to learn how to write and teach online courses. Fortunately, the university offers extensive professional development, using the latest technologies. All faculty in the department took the training in developing online courses. Once completed, different faculty took different routes. One professor was already teaching a course online. Faculty introduced online classes into their traditional courses, creating hybrid course formats. The most adventurous faculty converted their face-to-face courses to online versions. It became an invigorating process after the initial anxiety subsided. Professors discovered, shared, and used multiple technology methods, including Voicethread, Blackboard, and Screenomatic. Student feedback helped modify and improve the process.

The application of an online format revealed its advantages and disadvantages. For example, the discussion was asynchronous. On the other hand, students uncomfortable talking in class made comments and actively participated to a greater degree. Without the constraints of a face-to-face class, faculty found themselves including more and longer instructional videos and audio selections as well as more activities, since the time allotted for the class was not limited. For example, students were asked to apply their newly acquired knowledge and skills to selected case studies presented online. The instructing faculty then provided feedback.

Curriculum Development

When developing curriculum for the international teacher preparation, Hofstra started with the courses included in its programs. In the United States, the Individuals with Disabilities Education Improvement Act of 2004 (IDEA) specifies 13 disability categories. In addition, the Rehabilitation Act of 1973, in particular Section 504, provides support and accommodations to students not classified under IDEA, but considered to have a disability, such as students with Attention Deficit Hyperactivity Disorder. Close monitoring of the education of students with disabilities is reported annually to the U.S. Congress, indicating which disability area is most prevalent and how students are being served. This advantage does not exist in all countries.

A recent review of the literature in low- and middle-income countries reports child disability prevalence from 0.4% to 12.7%, depending on the

study and assessment tool. A review in low-income countries pointed to the problems in identifying and characterizing disability as a result of the lack of cultural and language-specific tools for assessment. This may account in part for the variation in prevalence figures and suggests that children with disabilities are not being identified or receiving needed services. (WHO, 2011, p. 103)

This information means that a range of coursework must be offered to address a variety of disabilities. While each geographic region may have a different disability focus, no assumptions can be made about the specific courses required. Therefore, students need a broad curriculum in their study plan that examines cognitive, emotional, physical, sensory, and severe disabilities (see Appendix A).

In addition to the knowledge of disabilities, the special education program curriculum includes coursework on theoretical foundations, dispositions toward individuals with disabilities, curriculum access, strategies and pedagogy, and issues in the field. The challenge is to offer research-based best practices in special education, while contouring that information to particular environments in different countries. What follows is an overview of the program components. (See Appendix A for additional details.)

Foundations

As previously mentioned, faculty chose to use the United Nations mandates for individuals with disabilities as the philosophical foundations for the program including the Salamanca Statement, the Dakar Framework, and the United Nations Convention on the Rights of Persons with Disabilities. This decision serves a number of purposes. First, it connects students across borders by offering a global perspective on the needs and rights of people with disabilities. Second, it provides a historical perspective for disability rights. While each country owns a distinct past in the movement for education and equity for individuals with disabilities, it is important to place that history within an international movement as well. By doing so, students see both the possibilities and the pitfalls of other nations – what is relevant for their country and what may not work.

The introduction course and the capstone issues course serve as bookends to the program. They both introduce and reinforce the philosophical foundations of special education in the past and currently. The curricula of some courses include a number of ideas and topics covered in the first and last courses. However, at the beginning and end of the program, the philosophical

underpinnings and ongoing issues in the field are the main foci of study. Student learning inputs and outcomes include in-depth discussions, research projects, and presentations of important topics in special education.

Increasing Positive Dispositions through Cultural Competence

Teacher dispositions play a key role in student success and achievement. Legislation and advocacy for certain policies do not necessarily translate into acceptance and strong implementation of programs (Campbell, Glimore, & Cuskelly, 2003). Classroom teachers carry this responsibility and their dispositions are crucial in student success and achievement (Good & Brophy, 1997) Each country and the multiple cultures within that country harbor different beliefs and attitudes about individuals with disabilities. Unfortunately, those outlooks are often based on misinformation and negative perceptions that result in a lack of acceptance and segregation.

The history of special education includes a past that requires society to not only understand disabilities, but to accept and include students with disabilities. To remove long-held stigmas, deficit model approaches, and misconceptions of abilities, teachers must develop positive and informed dispositions. By becoming culturally competent, educators develop insight into their own biases, beliefs, and norms. This first step enables teachers to understand how their cultural perceptions of disability influence their teaching and their students' learning. The next step – a nonjudgmental grasp of the values of others – provides teachers with a greater comprehension of not only how different people see the world, but also the values that influence them.

All courses include information on cultural competence and cultural responsiveness. The course on building partnerships with families, however, specifically develops the cultural competences and skills for communication and collaboration across cultures.

Curriculum Access – Universal Design for Learning

This program began as an effort to make the knowledge and skills needed to teach students with disabilities accessible internationally to educators and related personnel. The idea of equity and access of curriculum to the greatest number of students possible is central to all coursework. Therefore, Universal Design for Learning (UDL) fits seamlessly into the program. It plays a key role in instruction in order to reduce barriers to learning.

UDL is a research-based set of principles that provide a framework for using technology, both high and low, to minimize curriculum barriers and maximize learning opportunities for all students (Hall, Meyer & Rose, 2012). UDL provides academic support designed to address specific needs of some students, while making these supports available for all learners. UDL helps meet the challenge of diversity by adapting the curriculum, not the learner. Drawing upon research involving the brain's recognition, strategic, and affective networks to clarify student learning, UDL has the potential not only to increase access to learning, but can transform the learning process itself.

Strategies and Methods to Facilitate Effective Instruction

Lee, Wehmeyer, Soukup, & Palmer (2010) discuss the need for curriculum adaptations and augmentations in order for students with disabilities to access the general education curriculum. They refer to adaptations, specifically UDL, as a means to design curriculum that is accessible without changing the content. Educators who plan universally designed instruction depend upon flexible instructional materials, techniques, and strategies from the outset to meet the needs of the greatest number of students, making curriculum retrofits unnecessary (McGuire, Scott & Shaw, 2006). Teachers can provide students access to the curriculum by implementing instruction that reflects the Center for Applied Special Technologies (CAST) principles of UDL: multiple means of representation, engagement, and expression. In teacher education programs, UDL can facilitate the instructional shift that pre-service teachers must make in order to effectively implement technology to support student learning across the curriculum.

Strategy augmentation refers to additional skills a student may need to succeed in the curriculum. The focus is on providing tools to allow student access to the material, not altering content. The Strategic Intervention Model (SIM) from Kansas University's Center for Research for Learning offers strategies for students to help them understand information and solve problems in reading and mathematics. In addition to UDL and the SIM model, program curriculum includes in-depth examination and application of explicit instruction, culturally responsive teaching, applied behavioral analysis, and positive behavioral supports. These strategic and methodological approaches are incorporated throughout the program.

New Program Approval and Recruitment

After Hofstra's faculty agreed on the program's foundations and the required curriculum, each professor developed online courses within his or her areas of expertise. The courses and the overall program were reviewed and approved by the special education department, the school of education, and the university administration. Upon approval at each level, the application for program registration in New York State was completed and submitted. The New York State Department of Education recommended an outside review since the uniqueness of the program meant that there were no comparable degrees. The president of the International Association of Special Education (IASE) reviewed the program and endorsed it strongly. Once New York State saw the review, the Department of Education approved and registered the online special education master's degree without hesitation. With program registration in hand, Hofstra's graduate admissions and university relations offices developed brochures, a website, webinars, and virtual online open houses specifically for international students. International graduates of the university's local programs were also recruited to the extent possible to serve as liaisons to educational communities in their native countries.

Challenges and Benefits for Faculty and Students

Challenges

Offering an online program has many challenges. University faculty must learn to use technology to deliver instruction, students enrolled in the program must have access to the technology needed to successfully participate in the program, and both faculty and students must develop reliable ways of communicating throughout the program. Technology resources, local infrastructure, and limited funding resources are challenges that can easily dismantle an online program.

Technology Resources. Twenty-first century instruction in teacher preparation programs require university faculty to be educational leaders for individuals matriculating through teacher education programs. They must research educational practice and learning approaches, identify resources for use during class, and determine a course delivery model that meets the needs of global learners. Many of the resources – videos, articles, and online documents – consume a lot of space on the computer. For that reason, faculty must identify an online storage system for course-related resources. Accounts with Google documents, Dropbox, and wiki spaces may provide viable solutions.

Local Infrastructure. Individuals targeted to matriculate through this program must have adequate computer memory, Random Access Memory, and technical supports (e.g., Acrobat Reader for reading PDF documents, video resources – Vimeo, Flash for Macintosh). They must have reliable access to electricity and the Internet. This can be a tremendous challenge for individuals who live in countries where electricity is not always reliable. Locations without reliable electricity could interrupt academic studies for extended periods of time. While university faculty expect assignment submission on a targeted date, students matriculating through the online program may find themselves unable to apprise the instructor of power outages. Flexibility in this regard is extremely important.

Time Zones. Time differences can also inhibit regular communication between faculty and students, depending on where students are located. Communication between faculty and students must be carefully calibrated to ensure access to the instructor.

Funding. The program's sustainability requires monetary support for students. This has proven to be the biggest challenge. Grants, scholarships, and collaboration with outside organizations ensure that students worldwide are able to take advantage of this approach to teacher preparation. Grants can provide the financial support that faculty need to travel to and from distant contexts for professional development, student recruitment, and for building program sustainability with universities who aspire to offer a special education program locally. Awarded grants may also fund scholarships for students interested in the program. This is particularly important in regions of the world where the income potential of most adults is less than \$300 per year. The establishment of financial support is the next step in successfully implementing the program.

Benefits

During the Fall 2015 semester, Hofstra offered courses in the International Special Education program for the first time. Since then, faculty recognized the benefits of the online platform for both faculty and students: building community through asynchronous learning and instruction, and flexibility in curriculum and program mapping.

Building Community in Asynchronous Teaching and Learning. One author taught the initial course on family-school collaboration. The professor, working with a student in Kenya, used Voicethread as the platform for the course. Voicethread allowed the instructor and student to work asynchronously and exchange

comments embedded in Voicethread resources. Voicethread created a sense of connection between the student and the instructor and has resulted in ongoing virtual meetings between the them. The instructor used a video-conferencing resource called “Zoom” to participate in real-time video meetings with the student. Zoom meetings, held at mutually convenient times for the instructor and student, enabled the instructor to provide advice face-to-face and to discuss any course-related issues in real time. For example, the student explained that the final assignment in one course was very similar to another course and it seemed redundant. A simple change was made as a result.

Flexibility in Curriculum and Program Mapping.

Faculty were also reminded of the need for curriculum mapping of assignments and outcomes. Each course strives to allow the student to contextualize the materials within their specific country. In practice, professors needed to make sure that the assignments did not overlap by asking students to repeat information on their individual countries of origin. Faculty learned the importance of mapping assignments from one course to another to prevent assignment repetition. Course assignments should require students to acquire knowledge about contexts and settings beyond their immediate environment. They should encourage application of course content within and without the educational environments where they work or plan to work.

Another insight focused on program flexibility. A student enrolled in the Fall 2015 course expressed her desire to learn about educational assessment in her country. For that reason, she wanted to increase the number of assessment courses initially outlined in the program. An adjustment in the plan of study allows the student to take curricula that meet her own educational goal. This is the type of education preparation that the online program is meant to offer to all students. The purpose is to provide the knowledge and skills needed to teach all students with disabilities within the context of a global society.

This program is intended to serve in areas that may lack viable teaching settings for students with disabilities. Field observations of the current state of special education, coupled with simulated classroom exercises and an online case study, are intended to give students a clinical experience. While this may not completely compensate for a full student teaching experience, it does connect the present-day education reality for special educators in each country with the application of the most current knowledge and strategies in the

field. The program must help to bridge the divide between what currently exists and the potential to expand schools to include all students.

CONCLUSION

The quality of life for students with disabilities relies heavily upon a faculty of teacher educators committed to making a difference. Access to education can change the lives of millions of people facing poverty, isolation, and neglect. Governments worldwide have demonstrated their commitment to ensuring access and equal rights for individuals with disabilities. The Convention on the Rights of Persons with Disabilities (CRPD) effectively places the social responsibility for providing these rights on everyone. The inclusion and proper instruction of students with disabilities in schools requires resources. Paramount among these resources is well-trained special educators.

The online program described in this article offers an opportunity for professionals seeking the knowledge and skills essential to teach students with disabilities in their own context. The program responds to a critical need in special education and the moral imperative to teach all children. It differs from existing programs by focusing on children and youth with disabilities within a global context. Each course requires students to examine the knowledge and skills required in special education within the existing conditions of their country. The program’s foundations are seen through the international lens of the United Nations Convention on the Rights of Persons with Disabilities and the inclusive education that many nations agreed to implement.

Hofstra is only at the beginning of the process of introducing the program and recruiting students. Program designers realize that the challenges are significant, yet they are hopeful that over time, they will reach future special educators all over the world and address the need for curriculum, strategies, and skills to teach students with disabilities in their countries.

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APPENDIX A

Plan of Study for MSED in International Special Education

(31 semester hours [sh])

Inclusive Education (16 semester hours)

Required course:

- SPED 201 DL The Exceptional Child 3 sh

Choose one of the following two courses:

- SPED 204 DL Collaborative Partnerships with Families of Children with Disabilities 3 sh
- or*
- SPED 209 DL Early Intervention: Infant Stimulation 3 sh

Choose one of the following two courses:

- SPED 216 DL Assessment and Diagnosis in Early Childhood Special Education 3 sh
- or*
- SPED 242 DL Psychoeducational Assessment in Special Education 3 sh

Required courses:

- SPED 245 DL Curriculum and Methods for Students with Diverse Learning Needs 4 sh
- SPED 247 DL Creating Effective Learning Communities: New Directions in Classroom Management 3 sh

Nature and Needs of Disability (12 sh.) Choose four of the following five courses:

- SOED 211 DL Knowledge and Strategies for Teaching Students with Cognitive Disabilities 3 sh
- SPED 241 DL Identification and Interventions for Students and Adolescents with Emotional/Behavioral Disorders 3 sh
- SPED 246 DL The Education of Students with Learning Disabilities and Other Associated Conditions 3 sh
- SPED 248 DL Education of Students with Autism Spectrum Disorders 3 sh
- SPED 249 DL Understanding Physical, Sensory and Health Disabilities 3 sh

Research (3 sh)

Required course:

- SPED 310 DL Critical Issues in Special Education 3 sh

Distance Learning: A Viable Option for Professional Development for Teachers of Students with Autism Spectrum Disorder in China

Lisa A. Simpson

Lurie College of Education, USA
lisa.simpson@sjsu.edu

Sharon Qi

San Jose State University, USA

Kan He

Nanjing Technical College of Special Education, China

Qing Qing Tao

Ming Xing Children's Intelligence Training Center, China

Abstract

Identifying students with ASD in the People's Republic of China (PRC) has lagged behind western countries, particularly the United States. Families often have to travel long distances to obtain a diagnosis and then are faced with few treatment options once the diagnosis is made. Recent laws governing special education in the PRC do not specifically address children with ASD; consequently, educational programs for these children are scarce. Though more special education teacher preparation programs are emerging, many are not well equipped to support teachers of children with ASD. Consequently, the need for in-service training in the area of ASD is significant. This manuscript discusses a collaborative two-year professional development project aimed at providing teachers in Nanjing, China, with much needed skills in working with students with ASD. A distance training model was employed to train teachers how to use informal assessment to guide instruction and monitor progress of their students.

Keywords: ASD, professional development, distance training model

Autism spectrum disorders (ASD) are complex neurological disorders defined by deficits in social communication and social interaction across multiple contexts, accompanied by restricted and repetitive patterns of behavior or interests (American Psychiatric Association, 2013). Most recent statistics from the Centers for Disease Control and Prevention (CDC) that gather data using a cross-sectional survey on the number of children diagnosed with an ASD indicate that 1 in 45 children in the United States have been diagnosed with ASD (Zablotsky, Black, Maenner, Schieve, & Blumberg, 2015). These children are guaranteed a free and appropriate education (FAPE) under the Individuals with Disabilities Education Act (IDEA; IDEA, 2006) from birth to age 22. IDEA mandates that children with ASD are assessed properly and begin receiving intervention services immediately after diagnosis.

Children with ASD in the People's Republic of China (PRC), however, are not afforded these same guarantees to an appropriate education or intervention program.

This article describes the challenges faced by families of children with ASD in the PRC, the limited access to education for children with ASD and the lack of teachers trained to work with students with ASD. A collaborative teacher-training project that addresses these issues is detailed with discussion of how others may draw from this project to meet their teacher preparation needs.

ASD and Disability in the People's Republic of China (PRC)

When examining ASD within the PRC, several unique cultural factors must be considered. Though views are slowly changing, children with disabilities are still quite often seen as resulting from parental wrongdoing, particularly of the mother (McCabe, 2008a; Tsang, Tam, Chan, & Cheung, 2003). Long standing traditions within Chinese culture attach a great deal of importance to the family unit and having a family member with ASD or other developmental disability may

be viewed as bringing shame upon the entire family or designate the family as one of a lesser status (Tsang et al., 2003).

The PRC's one child policy brings further unique challenges to families of a child with ASD. For example, there are not equivalent social security benefits in the PRC as there are in many western countries, including the U.S., and it is customary for Chinese children to provide financially for their parents and grandparents (Hu, Turnbull, Summers, & Wang, 2015; H. Tian, personal communication, October 13, 2015). When the child is unable to fulfill this expectation, family members face increased financial burden and uncertainty about who will support them in the future. Families may become fixated upon seeking a cure for the child in order that the child will be able to provide for the parents (H. Tian, personal communication, October 13, 2015). Though families are now permitted to have a second child, few parents consider this option due to the increased economic strain that would result (McCabe, 2008a).

Because of these longstanding views, many parents of children with ASD in the PRC report feeling angry and ashamed about having the child and indicate they are often ostracized when with their child in public (Su, Long, Chen, & Fang, 2013; Wong et al., 2004). Not surprisingly, Chinese parents of children with ASD report higher levels of stress than parents of children with ASD in the U.S. (Wang, Michaels, & Day, 2011). As a result, many Chinese parents experience difficulty with accepting ASD as a lifelong disability and may fervently pursue recovery of the child to a "normal" status (Wong et al., 2004).

Diagnosis and Treatment of ASD in the PRC

The first case of autism was not diagnosed in the PRC until the mid-1980s (Tao, 1987), approximately 40 years after first being identified in the U.S. (Kanner, 1943). Diagnosis in the PRC is based on a medical model and only undertaken by licensed psychiatrists located in large cities (Clark & Zhou, 2005; Huang, Jia, & Wheeler, 2013). Individuals living in rural areas are often unable to obtain an assessment. Even in the large cities, there are only a relatively small number of professionals who specialize in ASD and are qualified to make the diagnosis. Consequently, many families must wait a long time and/or travel long distances for the child to undergo an examination. Thus, obtaining a diagnosis of ASD requires a great deal of initiative, persistence, and financial support by the family (Sun, Allison, Auyeung, Baron-Cohen, & Brayne, 2013).

Families that lack these means or who struggle in this process may delay getting a diagnosis for as much as two to three years after first noticing symptoms (Sun et al., 2013).

Once a child receives a diagnosis of ASD in the PRC, challenges often continue as parents seek treatments. Professionals offer little in the way of recommendations for interventions or educational programs. As few as 20% of children with ASD in the PRC begin receiving services immediately after the diagnosis and only 65% begin services within one year (Sun et al., 2013). For many families, the shock and denial of receiving the diagnosis actually leads them to delay getting treatment. Parents' lack of understanding of ASD and the stigma of having a child with a disability may give rise to a period of "wishful thinking" that the child does not actually have autism, resulting in further delays in finding appropriate interventions (McCabe, 2008a). Misunderstandings about the disorder may also lead families to seek alternative or traditional treatments within Chinese culture, such as acupuncture or the use of herbal remedies. Medical professionals without knowledge of ASD may even lead parents to believe that giving one or two rounds of alternative treatment will rid the child of ASD (Clark & Zhou, 2005; McCabe, 2008a; Wong et al., 2004).

Though hospital professionals diagnose children with ASD in the PRC, only a small number of these hospitals have treatment programs, and those that are available tend to focus on motor development rather than the core deficits of ASD (Clark & Zhou, 2005). Therapeutic approaches, such as music therapy and sensory integration therapy, are also commonly used despite not having proven effectiveness in remediating the core challenges of ASD (Clark & Zhou, 2005; Huang et al., 2013). Early intervention services are not provided by public schools or other public agencies. Thus, lack of coordinated intervention services leaves parents with little information and few resources as they try to navigate a treatment program for their child (McCabe, 2008a).

Prevalence of ASD in the PRC

Surprisingly little is known about the numbers of children with ASD in the PRC. National epidemiological studies have not been conducted, nor has the government released statistics on ASD in the population (Clark & Zhou, 2005; Huang et al., 2013). In 2006, an estimated prevalence rate of ASD related disabilities was found to be 1 in 4202 from the Second China National Sample Survey on Disability (Li, Chen, Song, Du, & Zheng, 2011), and a meta-analysis of published studies calcu-

lated a pooled prevalence rate of 1 in 909 for childhood ASD and 1 in 847 for autistic spectrum conditions (Sun et al. 2013). These statistics are considerably less prevalent than the U.S. figure of 1 in 45 for ASD (Zablotsky et al., 2015). In general it is thought that the reported statistics in the PRC most likely underestimate the actual prevalence of ASD and should be interpreted with caution as significant differences exist in the identification of ASD in the PRC and western countries (Huang et al., 2013; Sun et al., 2013; Sun et al., 2015). For example, few professionals in the PRC are able to diagnose high functioning ASD, and consequently only those children with more classic symptoms of ASD tend to be diagnosed. Furthermore, individuals with ASD who also have an intellectual disability may only be classified under the category of intellectual disability, leaving out the ASD diagnosis altogether (Huang et al., 2013). There are no *Child Find* mandates in place in the PRC, so there are no requirements for local governments to locate children with disabilities within their jurisdictions. Children with ASD who are not brought by their families to a hospital for assessment may not be known to authorities and thus not counted in the prevalence figure. Even with the presumably underestimated statistic, the given prevalence rate would suggest there are well over a million individuals with ASD in the PRC (Huang et al., 2013).

Special Education in China

Although education is highly valued in Chinese culture, compulsory education for children with disabilities is relatively recent. The Compulsory Education Law of China was instituted in 1986 that called for local governments to set up special schools or classes for children who were blind, deaf, or intellectually disabled (Pang & Richey, 2006). Children with ASD, however, were not specifically included in the Compulsory Education Law and, as a result, still face extreme challenges with attending school. The Chinese government does not guarantee financial support for schools that serve children with disabilities (Pang, 2009), so there is little incentive for local schools to accept these children. Most teachers have not received training to work with students with ASD and often families of typically-developing children object to having children with ASD in their child's classroom, leading schools to further resist accepting children with ASD.

There are no laws in the PRC requiring specialized programs or individual supports for children with disabilities as there are in the U.S. In addition, few teachers have been trained in ways to support students

with ASD (McCabe, 2008b, 2012). Students with high-functioning ASD may be able to attend a regular public school if they can be successful without support, but children with low-functioning ASD have few options within the public school system (Clark & Zhou, 2005; McCabe, 2012). In recent years, privately funded schools have opened for children more significantly impacted by ASD. However, the number of schools is grossly inadequate for the number of estimated children with ASD, particularly in rural areas. Many of these schools have been opened by parents of children with ASD who may initially have little training in interventions or appropriate teaching strategies (Huang et al., 2013; McCabe, 2012).

Special Education Teacher Preparation

In discussing teacher preparation for students with ASD, Clark and Zhou (2005) stated the following:

Perhaps one of the greatest challenges for China is to address the severe shortage of adequately trained personnel to address the needs of children with ASD across this vast nation. (p. 9)

Teacher preparation programs in special education have only recently begun to emerge in the PRC. A few higher education institutions, such as Beijing Normal University and Shanghai Normal University, have developed specific programs for teachers desiring to work with students with special education needs (Ellsworth & Zhang, 2007). Nanjing Technical College of Special Education prepares special education teachers and provides a vocational track for college-age students with visual and hearing impairments. Even with these programs, the number of institutes of higher education that prepare special educators is grossly inadequate and constitute only a small portion of the teachers trained to work with children with special education needs (Wang & Mu, 2014). Most teachers of children with special needs receive training at what are considered secondary vocational schools (Pang & Richey, 2006), similar to two-year vocational programs in the U.S. The number of teachers trained in special education cannot begin to serve the sheer number of children with disabilities across the country and, as a result, few students with disabilities are receiving quality educational programs (McCabe, 2012).

Special education teacher training that is available follows a similar format as general education teacher training in the PRC in that the understanding of theory takes precedence over the development of teaching competence (Wang & Mu, 2014). Little time is devoted to honing teaching skills using fieldwork experience.

In the PRC, student teaching comprises only about four weeks of training (Ellsworth & Zhang, 2007), whereas most U.S. teacher credential programs require candidates to complete at least one full semester and many complete two full semesters of student teaching or supervised fieldwork. Thus, in-service training or professional development on the job becomes critical to the establishment of teacher competence and skills for working with students with disabilities (Pang & Richey, 2006; Wang & Mu, 2014; Yu, Su, & Liu, 2011).

Without the proper training, special education teachers struggle to deliver a high-quality educational program to children with disabilities. In particular, special education teachers lack training in developing individualized education programs, differentiating instruction, and obtaining needed resources (Yu et al., 2011). There is no national standard for special education teacher certification and there is no process of accreditation for the institutions providing the training programs, further contributing to the lack of qualified special educators (Yu et al., 2011).

Preparation in Autism Spectrum Disorders

As most teacher preparation programs place a heavy emphasis on theory, there is little preparation in disability specific interventions, again in stark contrast to teacher preparation programs in the U.S. (Liu & Qi, 2006). Preparation programs provide limited information about students with ASD and even less information about the classroom and behavior management techniques needed to work with these students (McCabe, 2008b). Specific teaching strategies for students with ASD are rarely addressed and there is minimal understanding of evidence-based practices for these learners (McCabe, 2012). As a result, there are significant gaps in teacher preparation to support students with ASD.

This lack of pre-service preparation in teaching students with ASD means much of the teacher training comes on the job, largely through watching others, and through trial and error. Though intern programs in the U.S. similarly place teachers on the job with limited practical training, most intern teachers are completing coursework and being supervised by university personnel while on the job (Lee, Patterson, & Vega, 2011). In the PRC, there are few formalized opportunities for ASD-specific training. The training that is available most often comes in the form of reading a book, not through practice, supervision, and feedback – the principle components of effective teacher preparation programs in the U.S. (Brownell, Ross, Colon, & McCallum, 2005). Knowledge of evidence-based practices

is sparse and teaching methods to implement these practices are essentially nonexistent (McCabe, 2012). Teachers receive minimal training in how to monitor student learning or devise educational goals through data collection. Consequently, significant support is needed across multiple levels to produce well-trained teachers who can implement high quality educational programs for students with ASD in the PRC.

Distance Learning Professional Development Project in ASD

Distance education programs have been used effectively to prepare special educators at both the pre-service and in-service levels (Chen, Klein, & Minor, 2009) with research indicating that students are equally able to master content in traditional and online formats (Caywood & Duckett, 2003). Online formats are often seen as beneficial because they allow all students in a course to have an equal voice, not just a select few who may dominate face-to-face sessions. In addition, online discussions have been found to be more substantive than in-class discussions, as they allow students more time to reflect before responding, and ensure all students contribute to the conversation (Baglione & Nastanski, 2007).

Distance learning formats may be particularly useful with in-service educators as these individuals are already working with students and can readily apply strategies learned in the course with their own students. Carefully-designed distance learning programs provide opportunities for educators to implement one strategy at a time with their own case study student and problem solve adjustments that may need to be made for their own unique situation (Chen et al., 2009). Distance-learning programs allow in-service educators to contribute to a community of practice, take ownership of their own learning, and construct their own sense of meaning of course content (Gale, Wheeler, & Kelly, 2007; Ludlow, 2002).

Scope and Rationale for the Project

This distance-learning professional development project was undertaken as a three-way collaboration between university faculty in the PRC and the U.S. and teachers at a private intervention center for young children with ASD in the PRC. The goal of the project was to provide special education teachers at the early intervention site with knowledge and skills to implement effective educational programs for students with ASD. The project took place over two years and included two phases: (a) three days of large group trainings

in the PRC for university students, teachers and administrators, and (b) on-going professional development through a distance-learning model.

Phase One: Initial Visit and Assessment of Need

The Professional Development Project began with the U.S. faculty presenting several large-group training sessions on effective strategies for teaching students with ASD at Nanjing Technical College of Special Education. At this time, visits were also made to two private intervention centers for children with ASD in the surrounding area – one within the immediate area of Nanjing and the other in a neighboring area of Suzhou, China. Training sessions for teachers were also conducted at the two intervention centers. At both intervention centers, the U.S. faculty talked with administrators and teachers about the programs they offered and their program needs.

Challenges reported by administrators. Conversations with administrators of these intervention centers revealed a significant need for teaching methodologies and curriculum for working with students with ASD. One administrator expressed, “I have put together the facility for the children and I have acquired the teachers, however, I have no idea of how to tell them to teach the students or what to teach. I have teachers, but I don’t know how to train them.” The administrators expressed that when teachers were hired, they had very little experience in working with students with ASD and few teaching skills. Observation by U.S. faculty noted that much of the classroom time was spent with whole group activities such as singing songs, eating snacks, and playing outdoors. The U.S. faculty also noted that teachers at both intervention sites were eager for more information about how to work with students with ASD.

The administrator at one site was probed further on specific challenges she faced. The administrator indicated that teachers had very little understanding of how to work with children with ASD when they were hired and few opportunities for training were available in the area. Consequently, training was handled on the job and largely undertaken by this particular administrator. More specifically, the administrator indicated that teachers had little understanding of how to develop individualized programs for students with ASD or how to monitor those programs once developed. Chinese schooling generally involves whole group instruction for all students in the class with examinations as the chief means of monitoring their progress. This method is not particularly effective for students with ASD, yet teachers had little understanding of alternative strategies.

Challenges reported by teachers. Teachers expressed they had great challenges in working with students with ASD as they had little training before being hired as teachers and may have had no prior experience with individuals with ASD. Teachers reported that most of what they did was to try to keep the students happy and make sure they were well cared for, relying on games, songs, and art activities to fill the day. Teachers reported they had no specific ideas about curriculum. As a result, teachers undertook limited instruction in academic or pre-academic areas.

Challenges with assessment. Further conversations revealed almost a complete lack of classroom-based assessment instruments for use by Chinese teachers with students with ASD. Chinese teachers receive little training on assessment methods in their special education teacher preparation. In addition, few assessment tools have actually been developed specifically for Chinese children. Most instruments in use have been translated from western tools and are used for the purpose of diagnosis. The development of an informal assessment tool to report student progress in the classroom was extremely important in advancing the process of educating Chinese children with ASD.

Faculty at Nanjing Technical University of Special Education had begun to develop a practitioner-based assessment instrument for students with ASD (He, 2014); however, as there was little precedent for such an instrument, there were a few challenges that needed to be overcome before it would be ready for classroom use. More specifically, the assessment needed to be moved from a detailed list of skills to a criterion-referenced instrument. In other words, the assessment needed to provide the assessor with specific skills to be observed or measured and the standard by which to measure them.

Other challenges observed by U.S. faculty. Both intervention centers visited were brightly painted with colorful murals on the walls. Classrooms were equipped with furniture, such as child-sized tables and chairs, as well as puzzles, balls, and other games. However, teachers had little understanding of curriculum, teaching methodology, or scope and sequence of skills to be taught. In addition, teachers had no real way to assess student skill levels and monitor progress.

From this informal needs assessment, the collaborative partners prioritized the following areas for the professional development project: (a) assessment of student skills, (b) development of learning targets based on assessment, and (c) monitoring student progress toward learning targets.

Phase Two: Distance Training Professional Development

Due to the great distance between teachers in the PRC and trainers in the U.S., coupled with the high cost of travel, a distance-training model was chosen as the most viable option for professional development. Distance training models have been used successfully to train teachers working with students with ASD in the U.S. (Ludlow, 2002; Ludlow, Keramidis, & Landers, 2007; Maddox & Marvin, 2012), and as such, hold promise for training teachers in other countries.

METHODS

Training Modules

Training modules were developed using PowerPoint by the U.S. faculty and translated into Chinese. Training was delivered via Web Ex in which both screen sharing and video took place. Email was also used to send materials between participants and trainers. Training sessions lasting 60-90 minutes were set up at mutually agreeable times for all parties, which usually meant late afternoon in the U.S. and early morning in China. The goals of the training project were as follows: (a) adapt an original informal Chinese assessment tool for children with ASD to be suitable for use by classroom teachers in the PRC, (b) train Chinese teachers to administer the assessment and evaluate results in order to develop individualized learning goals for students with ASD, and (c) train Chinese teachers to use basic data collection procedures to monitor student progress toward individualized learning goals.

Participants

Participants in the professional development project included the director and two teachers from the early intervention site. The two teacher participants were chosen based on their high level of demonstrated skill with students with ASD, commitment to the project, and willingness to participate. One of the teachers spoke both English and Chinese, while the second teacher participant and the director spoke mainly Chinese. Because resources were limited, including access to the Internet, the school administrator elected to use a train-the-trainer model in which these two participants would then train the other teachers at the site, rather than training all 49 teachers at once using a distance-training model.

Setting

The project took place at a private intervention center, serving 170 students with ASD ages 20 months to 14 years in a large urban area in central PRC. Students are

accepted to the center on a first-come, first-served basis with a diagnosis of ASD from a hospital and travel from all areas of the PRC to attend programs at the center. The center employs 49 special education teachers and 24 assistant teachers to help with students' daily life needs. In addition, one family member is required to stay with each student all day at the school, which is a common practice in the PRC (McCabe, 2012). Most teachers at the site were trained in a two-year program, some attended a three- or four-year university program. However, there is no standardized special education credential in the PRC, so skills are extremely limited even in teachers who completed a three-year pre-service training program.

Students stay at this intervention center for about five years with the hope that they can attend mainstream schools upon leaving. Those who are more significantly impacted are not able to attend mainstream schools. A few of these students may be able to extend their time at the intervention center if there is room, otherwise these students remain with their families upon leaving the center.

Procedures

Part 1: Adapting the Original Assessment Instrument

The Classroom Assessment Tool for ASD (He, 2014) was developed as an eight-module assessment, with a set of skills listed for each of the eight categories (gross motor skills, fine motor skills, language skills, cognitive skills, social skills, self-care skills, visual motor skills, and oral motor skills). While the skills listed were pertinent to each module, the assessment was lacking any measurable format, making it essentially unusable, as teachers would have no way to measure any of the listed skills. To make the assessment a viable instrument, U.S. faculty first chose two of the eight modules to be the focus of the professional development project. The language module and the cognitive module were determined to be the most useful for teachers in designing classroom instruction. These two modules were then reviewed for essential elements needed for classroom instruction and selected from more than 30 items per module down to 10-12 essential items per module for the professional development project. The assessment was adapted by adding clear and specific directions for administering each item, along with criteria for measuring and scoring each item. The assessment was also re-formatted such that there was space next to each item to record data from each assessment opportunity (see Appendix A for a sample assessment item). Materials

were developed for items when needed, such as picture cards for assessing vocabulary word knowledge. With these modifications, teachers were able to read the directions for each assessment item, gather needed materials, administer the item, and record the score correctly using the scoring grid built into the assessment.

Part 2: Training Teachers to Administer and Score the Two Adapted Assessment Modules

A PowerPoint training presentation was developed to provide the Chinese teachers with information about administering and scoring the adapted assessment. Participants from the U.S. and the PRC met via WebEx to complete the training process and answer questions. Following the WebEx session, each of the two Chinese teacher participants administered the assessment to five of their students with ASD over a two-week period (a total of 10 students). Teachers completed a short survey about their experience with the instrument after administering the assessment (see Appendix B for the survey).

Once teachers administered their assessments, another WebEx meeting was held in which teachers were taught to create an Excel spreadsheet with student scores. Using the Excel spreadsheet, teachers determined which items were mastered (80% or more correct) by each student and which items should be the next target of instruction (40-80% correct) for each student.

After teachers charted the assessment scores and identified which items each student had mastered, they were taught to use the mastered items to create a statement of *Present Level of Performance* for each student. Understanding the student's present level of performance was important for teachers to get a clear picture of what the student could do which, in turn, helped teachers understand what skills needed to be worked on next. Using the WebEx training, teachers were provided with models and then given time to create their own *Present Levels of Performance* for each of their five students with feedback provided by U.S. faculty.

Once teachers understood how to use the assessment to determine what students could do now and what students needed to work on next, training focused on creating individualized annual learning goals for each student. U.S. faculty created another WebEx presentation in which they taught Chinese teachers to take the emerging skills (40-80% correct) from the assessment and develop observable and measurable learning goals for each student based on these skills. Chinese teachers were also taught to break the long-term goal into smaller, more manageable, parts (short-term objectives) for the purpose of daily instruction and data collection.

Part 3: Training teachers to monitor progress using data collection

Finally, once the learning goals and objectives were developed for the target students, the Chinese teachers were taught how to collect data to measure progress toward the goal. Examples and feedback were again provided through a WebEx presentation. Teachers were then tasked with collecting data on their five target students for six weeks. At the end of this period, teachers completed one last survey about their overall experience with the professional development project (see Appendix C for the survey).

RESULTS

Findings from the Assessment

Each teacher assessed five students with ASD on both of the adapted assessment modules (Cognitive and Language) and reported the scores. Both teachers were able to administer and score the assessment with relative ease. However, there was one source of confusion that resulted in inconsistencies on some subtests. Most subtests were scored as x/5 (number correct out of 5 items) but some were scored as x/10 (number correct out of 10 items). Both teachers fluctuated on the items that were supposed to be scored x/10 in that they scored some students as x/10 and others as x/5 for the same item. When asked to give feedback on the assessment, both teachers reported that these items were confusing to score (the items with 10 opportunities). Though the specific 10 elements were listed on the assessment, the teachers still seemed confused about how to administer and score these items. The teachers commented that it would be easier to have all assessment items scored the same, with a preference to have each item as the number correct out of five.

In looking at the assessment results as a whole, this group of young children with ASD demonstrated strengths in pointing to basic body parts, matching basic colors, drawing lines, rote counting to 10, imitating opening and closing the mouth, and following basic one-step directions. These children demonstrated challenges in looking at storybooks, assembling simple toys, categorizing objects, understanding quantitative concepts, imitating words, and expressively labeling common items. This abridged version of the original assessment was not designed to give a comprehensive picture of the child, but rather a starting point for teachers to understand how to use assessment to determine student strengths and areas of challenge. Once the

teachers had the assessments scored and placed into an Excel spreadsheet, they could easily see what areas needed to be targeted as the next steps of instruction.

Findings from the Professional Development Training

Both teachers participated in the WebEx trainings and completed the assignments for each training session. Training sessions included the following topics: (a) using assessment results to target areas of instruction, (b) writing individualized learning goals, (c) breaking down goals into manageable objectives, and (d) collecting data to monitor progress. After completing the training sessions, participants were asked to provide feedback about how the training impacted their instruction in the classroom. The teachers reported that understanding the long-term and short-term goals for students helped them plan instruction at the daily, weekly, monthly, and quarterly levels. Further, the data collection on these goals made it possible to provide quantitative feedback to parents on learning targets.

Teachers further expressed that the training on the assessment helped them to see that each student was indeed different and had different areas in which they might need more work. Rather than just planning general activities for the class, they could now see that they needed to understand the individual development of each child. The data collection and teaching goals were related in that teaching was designed based on assessment results. Data could also be collected on a group of students to target instruction on a specific skill that several students needed to work on.

Finally, the teachers expressed that completing the assessment, developing goals and gathering data helped to create a more scientific teaching program. Each student had different goals based on their skill levels, rather than just rushing through the teaching time. The goals and data helped the teacher see if the student truly grasped the skill and could do it at the success rate specified in the goal and in different settings. The project taught the teachers that they may need to prepare several activities for each student for each skill.

Challenges and Limitations of the Project

There were many benefits of this distance-training model of professional development as well as several challenges and limitations. The language difference between the two groups meant time had to be spent in translation and there was the possibility that critical elements may have been lost in translation. The primary author and developer of the instructional materials

spoke only English. The second U.S. faculty member was a native Chinese speaker who translated all of the training materials and conversations during the WebEx trainings into Chinese. Any materials that teacher participants submitted had to be translated back into English, resulting in a significant amount of time spent in the translation of documents and training materials. There were also scheduling constraints due to the time difference between locations and differences in holiday and school calendars.

There was some challenge in helping the Chinese teachers to see why individualized instruction was important for students with ASD, as individualized instruction was not a construct they were particularly familiar with. In the U.S., federal law requires an individualized education plan for each student, which compels special education teachers to stay on track and monitor student progress. Chinese special education teachers are not under the same mandates and there is less concern to collect data as exemplified in the statement, “well, we don’t have those same laws so, yes, it is a good thing, but if we don’t have time, it is OK.” Chinese teachers are more used to a method of whole class instruction, which results in having to think more about monitoring student progress with quantifiable methods, an area with which they have had very little experience.

The small number of participants also limits the generalizability of this project. With only two teachers participating in this distance education program it is hard to know whether other teachers would have the same experiences. Nevertheless, while only two teachers participated in this phase of the project, these teachers will in turn train other teachers at their site, thus increasing the impact of the training across a much larger number of participants.

Finally, this project is limited by the somewhat informal methods employed. There are few systematic supports available in China for the training of special educators, thus program directors are left to craft their own unique training opportunities. This distance-training professional development project was undertaken to meet the needs of these teachers within the resources they had available. Certainly, more formal methods would lend credibility to the outcomes; however, areas of need identified in this project were developed from conversations with teachers and program directors across multiple sites.

DISCUSSION

The teacher participants in this distance-learning professional development project were able to incorporate informal assessment of students and development of individualized learning goals into their teaching practice, concepts with which they had little previous experience. The teachers recognized the benefit of having quantitative data to monitor progress and share information with parents, both critical elements of effective comprehensive treatment programs for young students with ASD (Rogers & Vismara, 2008). Teachers who had little previous experience designing individualized instruction became more aware of individual differences within their class and recognized the need to differentiate lessons. Teachers further recognized that assessment and instruction go hand in hand and that this cycle of planning instruction based on assessment provided a more scientific method of teaching. Thus a critical teaching practice leading to improved outcomes in students with ASD was learned (Rogers & Vismara, 2008).

Results of the project indicate that teachers were able to improve their own skills using this model, ultimately leading to better outcomes for young children with ASD. Given the overwhelming number of teachers needing training in the PRC, many more schools could benefit from adopting a similar distance-training professional development model. This distance-learning professional development project proved to be an effective model of learning for the two teachers chosen for their high skill level and willingness to participate as a teacher leader. Using a train the trainer model, the two participant teachers in this project will now take a leadership role in training additional teachers at their school site, while U.S. faculty fade back to a consultation role. Similar train the trainer models have been used within professional development programs in the U.S. (Whitbread, Bruder, Fleming, & Park, 2007) and hold potential to reach many more special education teachers in the PRC.

This model proved to be cost-effective and feasible and was particularly suitable for this site given the tremendous distance and a language barrier. A similar train the trainer model could be implemented with other early intervention centers as they arise both in the PRC and in other developing countries. Training just a few teachers at first, who then train others, conserves resources while also allowing all teachers to receive much-needed professional development. While this distance-training project was developed and implemented with teachers

in the PRC, there are many other countries that are also trying to develop their special education teacher training programs and could benefit from using this type of distance-training model.

Given the significant need for more teacher training in the area of ASD, a distance-learning model of professional development may allow more teachers in the PRC to receive the training they need. Future projects would do well to formalize methods and specifically include more quantifiable measures, thus allowing for a better understanding of the level of skill development in the teachers using the distance-learning model. More formalized measures, including formative and summative assessments, would also allow for the identification of areas where teachers may need additional support.

CONCLUSIONS

Chinese special education teachers were able to acquire skills using this distance-learning model of professional development. Teachers valued the training and worked hard to improve their skills. Materials submitted by the teachers indicated they had a good grasp of the skills and were able to implement the tasks within their classrooms. Given the paucity of educational programs available for Chinese students with ASD, particularly those needing substantial support (Clark & Zhou, 2005; Pang & Richey, 2006), using a distance-training model of professional development can be an especially useful way to provide teachers in the PRC with strategies to meet the needs of their students with ASD.

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APPENDIX A

Sample Assessment Item

Section IV – Pre-Academic Concepts	Date	Date	Date	Date	Date
30. Child completes a puzzle	score x/5				
<p><u>Materials needed:</u> Picture cards of common items cut in half, inset puzzles with knobs with 3 to 5 pieces, interlocking puzzles with 7-10 pieces</p> <p><u>Purpose:</u> Child is presented with a variety of puzzles and observed to see if he/she can complete correctly.</p> <p><u>Directions 30.1:</u> Present child with picture cards for 5 items cut in half. Tell child to “Put items together. Like this ...” and model placing two halves together for one item. Put cards back with other cards and tell child “Now you do it.”</p> <p><u>Directions 30.2 and 30.3:</u> Present child with puzzle. Take out pieces and place them around puzzle on table. Tell child “Put the puzzle together.”</p> <p>Repeat for 5 puzzles</p> <p><u>Scoring:</u> 1 = for each puzzle completed correctly with no adult help 0 = for each puzzle not completed or incorrect Score this item as x/5</p> <p><u>Mastery:</u> Mastery for this item is 80% or 4/5. Begin with item 30.1 until mastery is achieved, then administer item 30.2. When item 30.2 is mastered administer item 30.3.</p>					
30.1 Brings two parts together into a complete graphic					
30.2 Completes a simple puzzle correctly (3-5 pieces inset puzzle)					
30.3 Completes more complex puzzles correctly (7-10 pieces interlocking puzzle)					

APPENDIX B

Feedback on Assessment

1. How would you rate the ease of the assessment to administer overall?

- Very easy to administer
- Some parts were a little difficult but overall not too challenging
- Very challenging to administer

2. How would you rate the specific directions for administering the assessment?

- Directions were easy to follow – I understood exactly what to do
- Some directions were confusing but I eventually figured out what to do
- All of the directions were challenging and I had a difficult time knowing what to do

3. Were there any specific items / questions on the assessment that were problematic?

Which item? _____

What was the challenge with administering this item? _____

Which item? _____

What was the challenge with administering this item? _____

Which item? _____

What was the challenge with administering this item? _____

4. What was the most challenging thing about giving the assessment? What was the least challenging thing?

Most challenging was _____

Least challenging was _____

APPENDIX C

Feedback on Teacher Training Project

1. As part of this training project you created individual goals for students based on their assessment results. How did creating the goals for each student impact your instruction in the classroom?

2. How did creating the goals and collecting the data for each student impact that student's progress in the classroom?

3. How often did you use the student data to inform your decisions about instruction for the student?
For the class?

SUBMISSION GUIDELINES

The Journal of the International Association of Special Education (JIASE)

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

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The aims of the IASE are to promote professional exchange among special educators and other professionals who work with children with disabilities all over the world, to develop special and inclusive education as a discipline and profession, to encourage international cooperation and collaborative international research, to promote continuing education of its members by organizing conferences, and to foster international communication in special and inclusive education through JIASE.

SUBMISSION GUIDELINES – ALL ARTICLES: FORMAT

Style

Total length of the manuscript is not to exceed 25 pages and should include all references, charts, figures, and tables. Articles submitted must follow the guidelines of the *Publication Manual of the American Psychological Association* (APA), (6th ed.).

Word Processing

Using American English, manuscripts are submitted in Microsoft Word format, using 12 point Times Roman typeface (no bold or italics). The entire document should be double spaced with 0.75 inch margins all around (top, bottom, left, and right), with the exception of long quotations, tables, and charts (single-spaced). Tables, charts, figures, and or illustrations should fit in a 3.25 inch width column and are to be on separate pages at the end of the manuscript. Additionally, a copy of any photos, illustrations or other graphics must be attached electronically in jpeg or similar formats. References are to be in APA style with hanging indents. (*If you do not have access to Microsoft Word, please contact us.*)

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Include this information on a separate sheet:

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The PRAXIS section of this journal is intended for readers to be able to immediately apply the methods/strategies described in the articles in their classrooms. These methods/strategies may be new and unique ideas or they can be effective methods/strategies that some teachers have been using, and believe that by sharing them other teachers can implement them in their classrooms.

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Manuscripts are submitted via e-mail. Attach as one document in the following order: Abstract, Cover Page, and Manuscript, and e-mail it to the JIASE co-editors, Dr. Elizabeth Dalton at elizabethmdalton@gmail.com and Dr. Renáta Tichá at tich0018@umn.edu. Any graphics should be attached as a separate document, preferably in Microsoft Excel.

You will receive an e-mail confirming that we received your attachment.

RETRACTION

In light of information received from Nanyang Technological University (NTU) and from the *Journal of the American Association of Special Education Teachers* (JAASEP) regarding retracted published articles by Dr. Noel KH Chia due to the lack of evidence for data referenced in these articles, JIASE reviewed its publications authored and co-authored by Dr. Chia. One of the retracted articles, “Chia N. K. H., Poh, P. T. C., & Ng, A. G. T. (2009, Winter). Identifying and differentiating children with hyperlexia and its subtypes: A meta-analysis. *Journal of the American Academy of Special Education Professionals*, 71-99,” does appear as a reference in the 2013 issue of JIASE. We hereby retract this reference.

Drs. Elizabeth M. Dalton and Renáta Tichá, Co-Editors, JIASE



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PO Box 170061
Milwaukee, WI. 53217 USA
By Email: cmever@nosd.edu

If you require the journal or newsletter to be sent to you electronically, please note that on this form. IASE membership runs from January 1 through December 31 of each calendar year

REGISTRATION
15th Biennial Conference
International Association of Special Education (IASE)



*Addressing the Exceptional Needs of the Whole Child and Young Adult:
Embracing the Future*

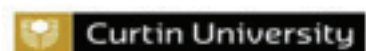
Perth, Australia

June 25-29, 2017

at The Perth Convention & Exhibition Centre

in collaboration with

Curtin and Edith Cowan Universities and the Association of Independent Schools of Western Australia



Please complete the IASE application online by going to www.iase.org. **IASE Federal ID# 43-1974089.**

REGISTRATION FEES (payable in US dollars)

Conference registration includes: Opening Reception, three days of conference sessions with breaks, Wednesday lunch, Gala Dinner, and Conference Proceedings. Conference registrants will receive IASE membership for 2018! Effective February 1, 2017, all conference registration fees increased by US \$100.00. **EXCEPTION:** Conference registration fees for developing countries increased by US \$50.00.

Optional AM Site Tours. **Thursday, June 29, 2017.** Tours will be leaving from the Perth Convention & Exhibition Centre. All tours are US \$25.00. These include: 1. Rocky Bay Foundation (9:30 AM); 2. Wheelchairs for Kids (9:30 AM); 3. Telethon Hearing & Speech Centre (10:00 AM) and 4. Creaney Primary School/Support Centre (10:00 AM).

Payment Options

Method of Payment: Cheque/Money Order. **Make cheques or money orders payable to IASE in US dollars.** Fill out the registration form (online) and postal mail to IASE Treasurer, PO Box 170061, Milwaukee, WI 53217, USA.

Credit/Debit Card: To pay by credit card or debit card, visit our website at www.iase.org and submit your registration and credit/debit card information. **Please contact Debbie at:** debbieg426@gmail.com if you have any problems with your online payment.

Note: All presenters are required to register for the conference by April 1, 2017. All conference participants must register no later than May 1, 2017. Cancellations **MUST** be made in writing for IASE Board approval. Send to IASE, c/o IASE, PO Box 170061, Milwaukee, WI 53217, USA or e-mail debbieg426@gmail.com. Refund information: All refunds are subject to a US \$60.00 processing charge. Cancellations requested by April 1, 2017 receive a full refund (minus US \$60.00); April 2-15, 2017 receive a 75% refund (minus US \$60.00); April 16-30, 2017 receive a 50% refund (minus US \$60.00). No refunds after May 1, 2017.

PLEASE remember to register early as this conference is limited to the first 500 participants.