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Editor's Message

Greetings to all members and friends of the **International Association of Special Education** (IASE). It is a pleasure to introduce you to the 2021 issue of the ***Journal of the International Association of Special Education*** (JIASE), with topics covering a broad range of issues about different aspects of inclusive and special education around the world. Year 2021 has been a difficult one for almost everyone, but especially for children, youth, and adults with disabilities, their family members, teachers, and other support persons, regardless of where we live. As a result, more than ever, IASE is here to connect our members around the globe in sharing their knowledge, experience, and enthusiasm in teaching and working in this field.

The mission of JIASE is to serve as a professional, peer-reviewed journal for the worldwide dissemination of articles focused on research and models of practice to support professionals and volunteers in the fields of special and inclusive education to implement the most creative and effective strategies with their students and others with disabilities. The key to the mission of the journal is our commitment to working with international authors, reviewers, and readers to become skilled and innovative writers, critics, and consumers of international special and inclusive education research, and teaching practices.

In this 2021 issue of JIASE, articles represent research and practice from a variety of countries around the world, including Nigeria, Kenya, Japan, and the United States. The articles cover topics of class size and achievement of students with learning difficulties, voices of students with disabilities in higher education, experience of college students with intellectual and developmental disabilities, and others.

We are always curious about the topics that authors will research and write about next and what new developments are happening in this field on each continent. JIASE is a wonderful outlet to share your research findings, observations about policies, and practices you have tried that you want to share with others.

At JIASE, we are committed to working with first-time authors and contributors who may have not published in a peer-reviewed journal before. We also welcome contributions from seasoned and returning authors.

This publication would not be possible without the dedication, inspiration and encouragement from IASE leadership, JIASE managing editor Thomas J. Donaghy, and our wonderful team of associate and consulting editors who volunteer many hours to provide professional peer review services for the journal. Thank you for all you do!

We are always seeking members who would like to serve as consulting editors for JIASE. If interested, please contact Dr. Tichá directly for more information. Also, please consider submitting your work for publication in future JIASE issues. Publication submission guidelines are located on the IASE website at https://iase.org/journal as well as at the end of this journal issue.

On behalf of the JIASE team, we wish you a healthy and safe 2022 and hope to see you at the 17th Biennial IASE Conference in Ho Chi Minh City, Vietnam, July 10–14, 2022.

With warm regards,
Renáta Tichá, PhD, Editor of *JIASE*

Relationship Between Class Size and Academic Achievement of Students with Learning Difficulties in Kakamega County, Kenya

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Abstract

Class size is an essential factor in student academic achievement. Small class sizes improve student achievement and teacher morale. For this reason, the researchers of this study set out to determine the relationship between class size and academic achievement among students with learning difficulties in secondary schools in Kakamega County, Kenya. The researchers used descriptive survey and correlational research designs. The target population was 36,453 third form and 37,532 fourth form students (eleventh and twelfth grade); 1,288 class teachers; and 12 sub-county education directors. Stratified random, purposive, and saturated sampling techniques were used. Data collection tools included questionnaires, interview schedules, and focus group discussion guides. Data were analyzed using percentages, means, standard deviations, Pearson's (r) correlation and ANOVA. Findings indicated a statistically significant relationship between class size and academic achievement among underachieving students. Findings show that increase in class size leads to decrease in academic achievement among these students.

Keywords: *class size, academic achievement, students with learning difficulties*

INTRODUCTION

As they implement education for all and the Sustainable Development Goals (SDGs), many governments in developing countries have been faced with the challenge of aligning available physical structures and personnel with the student population (UNESCO, 2010; Katiwa, 2016; Njenga, 2019). For instance, the Kenya government introduced a free secondary schooling education program whose target was to increase student enrollment to 1.4 million by the end of 2008. Enrollment increased from 1.18 million in 2007 (639,393 boys and 540,874 girls) to 1,701,501 (914,971 boys and 786,530 girls) in 2010 (Katiwa, 2016; Kapelinyang & Lumumba, 2017). The 100% transition policy led to a population explosion in secondary schools, thus putting strain not only on the physical facilities, but also on the personnel (Njenga, 2019; Teachers Service Commission, 2019). The teacher-student ratio increased significantly, thus reducing the close interaction between teacher and learner.

Notably, efforts towards inclusive education have raised concern about students with learning difficulties in large classrooms. *Inclusion* is a policy and practice of placing students with disabilities and special education needs in a regular class for the purpose of instruction (Zigler et al., 2017; Lerner, 2009). The basis of inclusion is that homes, schools, and society at large should be restructured to ensure that all individuals, regardless of their differences, have the opportunity to interact, play, learn, work, and experience the feeling of belonging, and develop in accordance with their potential and difficulties (Kenya Ministry of Education, 2018). Therefore, implementing inclusive education calls for accommodating students with learning difficulties within all schools and all classrooms. However, concerns are growing about the influence of increasing class size on the academic achievement of students with learning difficulties.

Students with learning difficulties tend to learn and acquire skills at a slower rate, compared to typically-developing students (Abosi, 2007; Ndani & Murugami, 2009; Sebastian, 2016). Sebastian (2016) further elaborated that students with learning difficulties do not keep pace with the teaching-learning process. Williamson and Ryan (2012) described students who have learning difficulties as being characterized by poor concept formation, with difficulties in reading, writing,

and arithmetic skills. These learners struggle to grasp the curriculum, and some may have mild intellectual disabilities with characteristically below-average cognitive abilities and scholastic performance (Borah, 2013; Reynolds & Fletcher-Janzen, 2006; Vasudevan, 2017; Qian, 2008).

Environmental factors such as poverty are argued to have direct and circumstantial impact on learners' academic achievement (Bota, 2007; Ferguson et al., 2007; Olszewski-Kubilius & Corwith, 2017). Poverty limits students' access to financial, emotional, mental, and physical resources, as well as appropriate support systems and role models (Lacour & Tissington, 2011). Furthermore, schools in rural and urban poor environments are characterized by inadequate personnel and poor infrastructural development, resulting in large class sizes (Kihoro & Kabunga, 2016). This leads to the contention that poverty increases the chances that students with learning difficulties will be placed in large class sizes.

The authors of this paper argue that students with learning difficulties are entitled to meaningful learning experiences that enhance feelings of belonging alongside academic achievement. However, obstacles in the school undermine these goals (Bota, 2007; Borah, 2013; Metto & Makewa, 2014; Vasudevan, 2017). Class size is one of the major risk factors in academic achievement of the general student population (Monks & Schmidt, 2010; Owoeye & Yara, 2011; Mirani & Chunawala, 2015). Notably, Sebastian (2016) observed that mass enrollment—and the resulting lower teacher–student ratio—is a risk factor in the academic achievement of students with learning difficulties who generally require more personal attention in classroom instruction.

Wapula (2011) observed that opportunities for students with learning difficulties are almost non-existent in both public and private schools in Botswana. The author of the current paper further noted that children with learning difficulties either perform poorly or drop out of school because they are demotivated and discouraged by large class sizes where they cannot have quality contact with teachers. Furthermore, Williamson and Ryan (2012) argued that because of their "betweenness," students with sheer learning difficulties are not eligible for special education programs. Mwangi (2013) concurs that such students are rarely identified for proper placement. These students eventually quit school or just hang on with little hope of good performance. This is a common scenario in most African countries.

Class Size and Academic Achievement

Class size is a risk factor in academic achievement (Mirani & Chunawala, 2015). Generally, overcrowded classes are linked to falling education standards (Owoeye & Yara, 2011; Sebastian, 2016). It is argued that student achievement decreases as class size increases. Monks and Schmidt (2010) established that class size had a negative and statistically significant impact on student course evaluation. Similarly, Bandiera et al. (2009) found a statistically significant negative (but non-linear) effect of class size on testing results of students in a northeastern university in the United States of America. The famous STAR program in Tennessee involved classes that ranged in size between 15–17 and 22–25 students. It was observed that students from small classes performed better on standardized tests in mathematics and reading in kindergarten to third grade (Monks & Schmidt, 2010). In a follow-up program in North Carolina, with classes ranging between 15–25 students, it emerged that students in smaller classes achieved test scores of .45 and .56 standard deviations higher than peers in larger classes on mathematics and reading tests respectively (Vandenberg, 2012). These findings were supported by Whitehurst and Chingos (2011) who noted that elementary students assigned to small classes outperformed their classmates in larger regular classes by .22 standard deviations.

In a study carried out in Nigeria, Yara (2010) observed that class size influenced academic achievement in mathematics, with those in smaller classes performing better than those in larger classes. Owoeye and Yara (2011) further argued that small class sizes led to less retention, fewer referrals to special education, and fewer dropouts. Notably, Bye (2017) observed that large class sizes hinder the effective working of a teacher as a facilitator who needs to cultivate the learner's self-monitoring and self-regulation skills to achieve learning outcomes. Monks and Schmidt (2010) similarly supported the view, noting that large classes allow students to be more disruptive and give room for disengagement while small classes lend themselves more to pedagogical activities that improve academic achievement.

Arguments in support of smaller class sizes abound. Smaller class sizes not only increase teacher-student contact, but also increase the morale of teachers and reduce stress. Furthermore, teachers are likely to be more creative and less likely to burn out (Yara, 2010). Vandenberg (2012) notes, "Finding engaging, highly-qualified teachers is not enough; the number of students assigned to a teacher is important." (p.12). He

further argues that small class size facilitates individualized instruction and lessens indiscipline cases in class. Blatchford et al. (2007) and Cakmak (2009) assert that larger classes make it harder to differentiate instruction and maintain student discipline. The overriding argument is that class size has a direct influence on the eventual academic achievement of students in general and those with learning difficulties in particular.

However, there are conflicting findings on the effect of class size on academic achievement. Studies carried out in Tennessee (USA) by that state's Department of Education indicated that reducing class size increased student achievement; however, subsequent studies, especially in Asia, contradict the findings (Woessman & West, 2006). Essentially, studies from Asia suggest that reducing class size does not improve academic performance. Jepsen and Rivkin (2009) argue that studies on the effect of class size have limited clarity, while some revealed mixed findings.

In essence, some studies indicate that reducing class size has a large effect on academic performance, while others depict little or no effect. Moreover, other studies have indicated that class size reduction works in some cases, but not in other similar circumstances (Whitehurst & Chingos, 2011; Chingos, 2010). Whitehurst and Chingos (2011) further noted that elementary students assigned to smaller classes performed better than those in regular large classes. However, it emerged that the effect was more visible with boys and economically-disadvantaged children. The study further revealed that class size reduction may have meaningful long-term effect on student achievement only if introduced in lower grades and for children who are less advantaged. Equally, Bandiera et al. (2009) argued that class size had significant impact on student performance but only at the very top and bottom of class-size distribution. Despite many studies on the influence of class size on learners' academic achievement, the findings are inconclusive; hence the need for continuous research.

Intuitively, smaller classes make sense for teachers working with struggling students (Korir & Kipkemboi, 2014; Vasudevan, 2017; Whitehurst & Chingos, 2011). However, as outlined, this assumption is supported by some studies and disputed by others. Furthermore, most of the studies have been undertaken in developed countries and involve the general student population. This study, on the other hand, gives a developing country perspective by examining the influence of class size on the academic achievement of students with learning difficulties in Kakamega County.

METHODS

The study used descriptive survey and correlational research design because the intent was to establish and describe the relationship between class size and academic achievement of students with learning difficulties. Descriptive survey method allows the collection of both qualitative and quantitative data. The design is fairly economical and allows data collection from a large population at minimal cost (Punch & Oancea, 2014; Mertler, 2019). Correlational research design was used to determine the relationships between class size and academic achievement among slow learners. The target population was 73,985 students, 36,453 of whom were from third form and 37,532 of whom were from fourth form (equivalent to eleventh and twelfth grade); 1,288 classroom teachers from forms three and four; and 12 sub-county Directors of Education from Kakamega County.

Stratified random sampling was used to select the schools because they are not homogenous (Kothari, 2004). The strata consisted of schools based on the school type (sub-county, county, extra-county, and national). Saturated sampling was used in selecting the national schools. This study adopted a 10 percent sample size drawn from the target population. A sample of 35 schools was selected, including 129 classroom teachers and two Sub-County Directors of Education. Fisher's formula was used to determine the sample for slow learners because the exact population was not known. The sample of students with learning difficulties was therefore 246. From each selected school, slow learners were selected from the low achievers based on achievement tests. Teacher nomination was key in identifying slow learners to participate in the study. Data were analyzed using percentages, means, standard deviations, Pearson's (r) correlation, and analysis of variance (ANOVA).

RESULTS

To determine the relationship between class size and academic achievement of students with learning difficulties, the researchers first sought to describe the state of class sizes among secondary schools in Kakamega County. The results are provided in Table 1.

Table 1 shows that most class sizes in the study were large, ranging between 31 and above 60. The majority of classes (35%) were 46 students and above. Notably, results from teachers' questionnaires indicated that 18.0% felt that large class sizes negatively influenced the academic achievement of students with learning difficulties to a very large extent while 54.1% felt that

Table 1
Descriptive Findings on Class Sizes.

Statement	1–15	16–30	31–45	46–60	60 and above
Class size for the common subjects	5%	15%	45%	25%	10%
Class Size for optional subject 1	13%	34%	25%	17%	11%
Class Size for optional subject 2	13%	29%	29%	19%	10%
Class Size for optional subject 3	10%	34%	30%	18%	8%
Class Size for optional subject 4	10%	30%	35%	14%	11%
Class Size for optional subject 5	12%	27%	39%	17%	6%

class size negatively influenced the academic achievement to a large extent. This implies that 72.1% of the teachers felt that large class sizes are a risk to the academic achievement of students with learning difficulties in secondary schools in Kakamega County. Most of the teachers indicated that large class size made them resort to the use of passive teaching methods that are more teacher-centered than learner-centered, such as the lecture method. Conversely, the learners interviewed felt that class size does not affect their academic achievement. Indications were that the students with learning difficulties were contented both in large and small class sizes. As one learner put it, "so long as the teacher can be able to offer me assistance when I need" it. This shows that the learners were not aware that a large class size may hinder the teacher from giving them needed assistance.

To test for the null hypothesis—the possibility that there is no significant relationship between class size and academic achievement of students with learning difficulties—the study used the One-Way ANOVA technique. Results are provided in Table 2 and Figure 1.

Results for the ANOVA test, as shown in Table 2, were $F(4, 126) = 2.166, p = 0.047 < 0.05$. This indicated that the class size has a significant influence on the academic performance of students with learning difficulties. For class sizes of 1–15 students, the average or mean score was 45.7813; for class sizes of 16–30 students, the mean score was 42.7857; for class sizes of 31–45 students, the mean score was 39.37; for class sizes of 46–60 students, the mean score was 40.2; and for class sizes of 60 or more students, the mean score was

20.8125. The mean plot (see Figure 1) also indicates a decrease in academic performance as class size increases. The study therefore concludes that having a very large class size is likely to lead to poor performance among students with learning difficulties in secondary schools in Kakamega County.

The correlation analysis indicated a statistically significant relationship between class size and academic achievement of students with learning difficulties. Class size was found to have a negative significant relationship, ($r = -0.199, p = 0.023 < 0.05$). This implies that as class size increases, the academic achievement of students with learning difficulties decreases.

DISCUSSION

The study results indicated large classes, ranging between 31 and above 60 (Table 1). The majority of classes (35%) were 46 students and above. Incidentally, Chokera (2014) found a similar scenario in the study carried out in Akithii Division, Meru County. The majority of class sizes (41%) ranged between 41–50, while 29% ranged between 51 and above. Similarly, Waseka and Simatwa (2016) found the average class sizes in Kakamega County as follows: 18–45 (60.8%) and 50–60 (37.5%). This implies that generally speaking, class sizes are large in parts of the country and in Kakamega County in particular. Comparatively, studies carried out in developed countries depicted classes that ranged between 15–17 and 22–25, such as the STAR research program (Monks & Schmidt, 2010; Whitehurst & Chingos, 2011). It is argued that class size is a key factor in academic achievement (Mirani &

Table 2
Results of One-way ANOVA Test.

Academic Achievement (out of 100%)						
Class Size	**Count**	**Mean**	**Std. Deviation**	**Std. Error**	**Minimum**	**Maximum**
1–15	16	45.7813	19.60439	4.90110	26.00	80.00
16–30	35	42.7857	20.58636	3.47973	15.50	79.50
31–45	50	39.3700	24.32933	3.44069	.00	90.00
46–60	22	40.2045	16.01759	3.41496	15.00	73.50
60 and above	8	20.8125	6.38602	2.25780	15.00	30.00
Total	131	40.0725	21.23550	1.85535	.00	90.00

ANOVA					
	Sum of Squares	**Df**	**Mean Square**	**F**	**Sig.**
Between Groups	3771.731	4	942.933	2.166	.047
Within Groups	54851.331	126	435.328		
Total	58623.061	130			

Chunawala, 2015). Commonly, overcrowded classes have been linked to falling academic standards (Owo-eye & Yara, 2011; Sebastian, 2016). It is argued that student achievement decreases as class size increases. This study lends credence to that supposition.

Yara (2010) observed that academic achievement in mathematics was influenced by class size in a study carried out in Nigeria: students in smaller classes performed better than those in larger classes. Whitehurst and Chingos (2011) also noted that elementary students

Figure 1
Mean Plot for Academic Achievement Across Class Sizes.
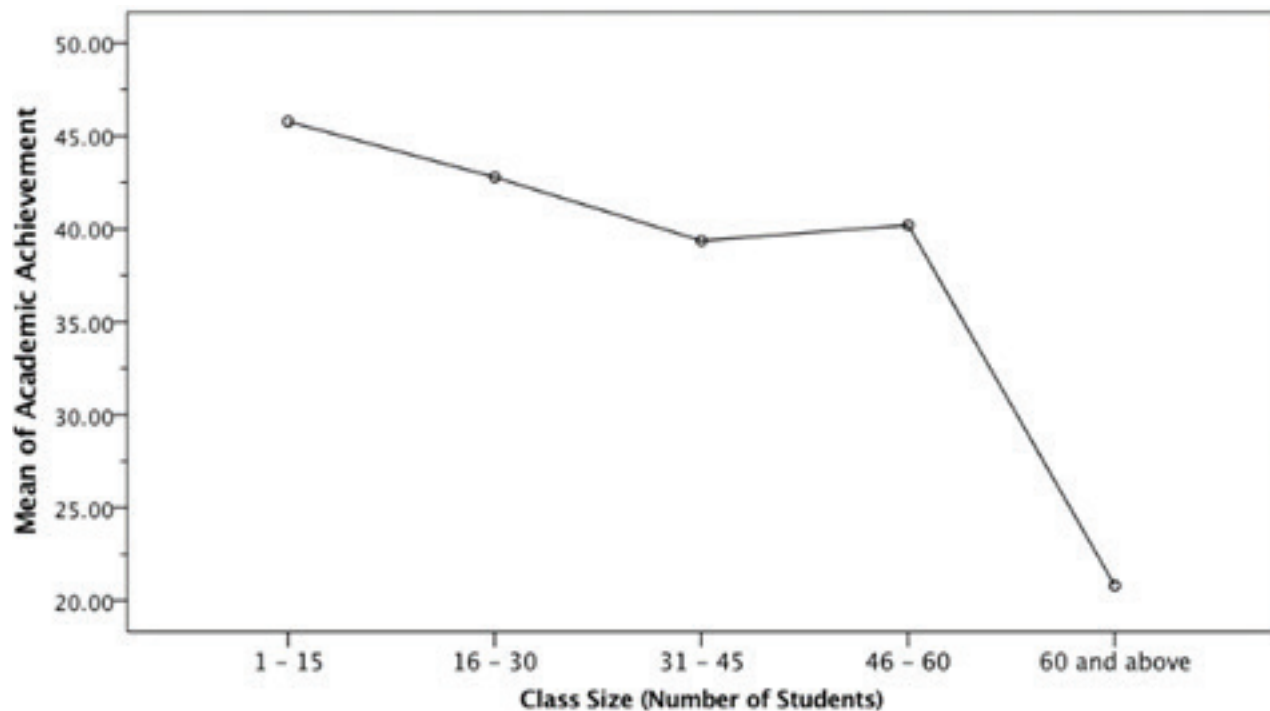
assigned to smaller classes performed better than those in regular large classes. Cakmak (2009) observed that in larger class sizes, teachers spent most of the time meant for academic instruction on class management. In contrast, Smith et al. (2003) noted that while some researches have indicated a negative relationship between class size and academic achievement, their study revealed that reading and mathematics achievement had positive correlation with class size ($r = 0.328$, $p <0.01$, $r = 0.308$, $p <0.01$, respectively), meaning that as class size increased, reading and mathematics scores also increased. This was contrary to the popular assumption that as class size increases, academic achievement will decrease. The current study findings ($r = -0.199$, $p = 0.023 < 0.05$) similarly contradict the findings of Smith et al. (2003) with an indication of a negative correlation between class size and academic achievement of students with learning difficulties.

Comparatively, Vandenberg's (2012) preliminary correlational analysis of results showed a positive relationship between class size and academic achievement. However, this was based on the practice of assigning students with learning difficulties to small classes. Consequently, lower performance in classes with fewer students was primarily based on the fact that they had learning difficulties. Vandenberg's 2012 study ultimately indicated that many teachers believe that smaller classes have a positive impact on student achievement, indicating that class sizes of 20 students or fewer are ideal. Incidentally, Monks and Schmidt (2010) observed that class size had a statistically significant negative relationship on student course evaluation. Students in a small class had a favorable evaluation of the course compared to those in a large class. Similarly, Bandiera et al. (2009) found a significant negative (but highly nonlinear) effect of class size on the test results of students. Monks and Schmidt (2010) asserted that a reduction of class size will lead to significant improvement in student outcomes.

Owoeye and Yara (2011) recommended a maximum class size of 40 students while Vandenberg (2012) advocated for a class of 20 or fewer students. The current study findings depicted that 72.1% of the teachers viewed large class sizes as a risk to the academic achievement of students with learning difficulties in secondary schools in Kakamega County. Most of the teachers indicated that large class sizes made them resort to the use of passive teaching methods that were more teacher-centered than learner-centered, such as the lecture method. Essentially, large class sizes reduce personal teacher-learner interaction, thereby hindering the academic achievement of students with learning difficulties.

Whitehurst and Chingos (2011), Korir and Kipkemboi (2014), and Vasudevan (2017) have pointed to the logic of smaller classes for teachers dealing with struggling students. This study supports the findings that small class sizes are likely to benefit students with learning difficulties because they enable teachers to build a rapport with individual learners and facilitate individualized attention. Conversely, large classes are impersonal and increase class management problems, undercutting the academic achievement of students with learning difficulties. Teachers may need to divide the class into small, manageable groups or use collaborative, cooperative teaching techniques and peer tutoring to overcome the challenge posed by large class sizes.

CONCLUSIONS AND RECOMMENDATIONS

The study findings led to conclusions. Most class sizes in Kakamega County were large, ranging between 31 learners and above. The findings show a statistically significant relationship between class size and academic achievement ($r = -0.199$, $p = 0.023 < 0.05$). This implies that as class size increases, there is a corresponding decrease in the academic achievement of students with learning difficulties.

The conclusions led to recommendations. Teachers should use collaborative and cooperative techniques to assist students with learning difficulties. Peer tutoring should be encouraged to counter the negative impact of large classes. The Ministry of Education in Kenya should strive to keep class sizes at 35 and below, as recommended by the Teachers Service Commission report (2005), in order to facilitate individualized attention and closer interaction between learner and teacher. This is likely to improve the academic achievement of students with learning difficulties.

REFERENCES

Abosi, O. (2007). Educating children with learning disabilities in Africa. *Learning Disabilities Research and Practice*, 22(3), 196–201. doi:10.1111/j.1540-5826.2007.00242.x

Bandiera, O., Larcinese, V., & Rasul, I. (2009). *Heterogeneous class size effects: New evidence from a panel of university students* [Discussion paper CEPR #7512].

Blatchford, M. V., Russell, A., Bassett, P., & Martin, C. (2007). The effects of class size on the teaching of pupils aged 7–11 years. *School Effectiveness and School Improvement, 18*(2), 147–172. https://doi.org/10.1080/09243450601058675

Borah, R. R. (2013). Slow learners: Role of teachers and guardians in honing their hidden skills. *International Journal of Educational Planning and Administration, 3*(2),139–143.

Bota, K. N. (2007). *Grade repetition in Kenyan primary schools: Issues of learning disabilities*. Transaction.

Bye, R. (2017). The teacher as a facilitator for learning: Flipped classroom in a master's course on artificial intelligence. [Paper presentation]. 9th International Conference on Computer Supported Education–Volume 1: CSEDU, 184–195, Porto, Portugal. https://doi.org/10.5220/0006378601840195

Cakmak, M. (2009). The perception of student teachers about the effect of class size with regard to effective teaching process. *The Qualitative Report, 14*(3), 395–408. http://www.nova.edu/ssss/R/QR14-3/cakmak.pdf

Chingos, M. M. (2010). The impact of a universal class-size reduction policy: Evidence from Florida's statewide mandate. *Economics of Education Review, 31*(5), 543–562. https://doi.org/10.1016/j.econedurev.2012.03.002

Chokera, K. M. (2014). *Influence of teacher characteristics on pupils' academic performance in public primary schools in Kenya: A case of Akithi Division, Meru County, Kenya* [Unpublished master's thesis]. University of Nairobi.

Ferguson, H. B, Bovaird, S., & Mueller, M. P. (2007). The impact of poverty on educational outcomes for children. *Paediatrics & Child Health, 12*(8), 701–706. https://doi.org/10.1093/pch/12.8.701

Jepsen, C., & Rivkin, S. (2009). Class size reduction and students' achievement: The potential tradeoff between teacher quality and class size. *Journal of Human Resources, 44*(1), 223–250.

Kapelinyang, R. P., & Lumumba, K. P. (2017). Determinants of academic performance in public secondary schools in Kapenguria Division, Kenya: Assessing the effect of participation in selected co-curricular activities. *African Journal of Education Science and Technology, 4*(2): 164–174. https://www.ajest.info/index.php/ajest/article/view/15

Katiwa, A. K. (2016). *Factors influencing pupils' transition rates from primary to secondary schools in Kitui central sub-county, Kitui County, Kenya* [Unpublished thesis]. University of Nairobi.

Kihoro, M. F., & Kabunga, A. (2016). Class size and learning outcomes: Perceptions of in-service teachers. *Journal of Education, 4*, 1–7. http:erepository.mku.ac.ke/handle/12345689/5644

Korir, K. D., & Kipkemboi, F. (2014). The impact of school environment and peer influence on students' academic performance in Vihiga County, Kenya. *Journal of Education and Practice, 5*(11), ISSN 2222-288x (online).

Kothari, C. R. (2004). *Research methodology: Methods & techniques* (2nd rev. ed.). New Age International. ISBN: 9788122415223

Lacour, M., & Tissington, L. D. (2011). The effects of poverty on academic achievement. *Educational Research and Reviews, 6*(7), 522–527. http://ww.academicjournals.org/ERR

Lerner, J. (2009). Educational intervention in learning disabilities. *Journal of American Academy of Child and Adolescent Psychiatry, 28*(6), 325–342.

Mertler, C. A. (2019). Introduction to educational research (2nd ed.). Sage.

Metto, E., & Makewa, N. L. (2014). Learner-centered teaching: Can it work in Kenyan Public Primary Schools? *American Journal of Educational Research, 2*(11A), 23–29. doi:10.12691/education-2-11A-4

Mirani, S., & Chunawala, S. (2015). Teachers' perception of dealing with mixed ability classrooms [Conference paper]. epiSTEME 6: International Conference to Review Research on Science, Technology and Mathematics Education, HBCSE, Mumbai, India. https://www.researchgate.net/publications/292513387

Mwangi, L. (2013). *Special needs education (SNE) in Kenyan Public Primary Schools: Exploring government policy and teachers' understanding* [Doctoral thesis, Brunel University]. https://bura.brunel.ac.uk/bitstream/2438/7767/1/FulltextThesis.pdf

Ministry of Education, Republic of Kenya. (2018). *Education and training sector policy for learners and trainees with disabilities*.

Monks, J., & Schmidt, R. (2010). *The impact of class size and number of students on outcomes in higher education*. https://hdl.handle.net/1813/74628

Ndani, M., & Murugami, M. (2009). *Children in need of special protection*. Longhorn.

Njenga, N. M. (2019). *Institutional determinants of implementation of the 100 percent transition policy in public secondary schools in Nyandarua Central Sub-County, Kenya* [Unpublished master's thesis]. University of Nairobi.

Olszewski-Kubilius, P., & Corwith, S. (2017). Poverty, academic achievement and giftedness: A literature review. *Gifted Child Quarterly, 62*(1). https://doi.org/10.1177/0016986217738015

Owoeye, J. S., & Yara, P. O. (2011). Class size and academic achievement of secondary schools in Ekiti State, Nigeria. *Asian Social Science, 7*(6), 184–194. doi:10.5539/ass.v7n6p184

Punch, K. F., & Oancea, A. (2014). *Introduction to research methods in education* (2nd ed.). Sage.

Qian, J. (2008). *English classroom interaction between slow learners and teachers: A case study of slow learners at primary level in Suzhou District, China* [Unpublished master's thesis]. University of Oslo.

Reynolds, C., & Fletcher-Janzen, E. (2006). *Encyclopedia of special education: A reference for children, adolescents and adults with disabilities and other exceptional individuals*. Wiley.

Sebastian, V. (2016). Ensuring learning in slow learners. *Educational Quest: An International Journal of Education and Applied Social Sciences, 7*(2), 125–131. doi:10.5958/2230-7311.2016.00029.5

Smith, P., Molnar, A., & Zahorik, J. (2003). Class size reduction: A fresh look at the data. *Educational Leadership*, 72–76. Retrieved from www.asu.edu/educ/eps/EPRU/documents/EPSL-0309-110-EPRU.doc

Teachers Service Commission. (2005). *Study on teacher staffing norms*. Republic of Kenya, Ministry of Education Science and Technology.

Teachers Service Commission. (2019). *Strategic plan for the period 2019–2023*. Republic of Kenya, Ministry of Education Science and Technology.

Vandenberg, K. C. (2012). *Class size and academic achievement*. Electronic Theses and Dissertations. http://digitalcommons.georgiasouthern.edu/etd/408

Vasudevan, A. (2017). Slow learners: Causes, problems and educational programs. *International Journal of Applied Research, 2*(12), 308–313.

Wapula, R. (2011) Education for children with learning difficulties using Botswana as a case study. *Journal of Innovative Research in Education, 1*(1), 67–85.

Waseka, L. E., & Simatwa, M. W. E. (2016). Student factors influencing academic performance of students in secondary education in Kenya: A case study of Kakamega County. *International Research Journals, 7*(3), 72–87. http://dx.doi.org/10.14303/er.2016.138

Whitehurst, G. J., & Chingos, M. M. (2011). *Class size: What research says and what it means for state policy*. https://www.brookings.edu/research/class-size-what-research-says-and-what-it-means-for-state-policy/

Williamson, J., & Ryan, J. P. (2012). The "slow learner" as a mediated construct. *Canadian Journal of Disability Studies, 1*(3). https://doi.org/10.15353/cjds.v1i3.59

Woessman, L., & West, M. (2006). Class-size effects in school systems around the world: Evidence from between-grade variation in TIMSS. *European Economic Review, 50*(3), 695–736.

Yara, P. O. (2010). Class size and students' mathematics achievement of senior secondary schools in southwestern Nigeria. *The Social Sciences, 5*(2), 108–112. doi:10.3923/sscience.2010.108.112

Zigler, R., Lusweti, S., Macmbinji, V., Jumba, V., Kaggi, B., & Namirembe, B. (2017). Situational analysis and development of inclusive education in Kenya and Tanzania. *The Journal of the International Association of Special Education, 17*(1), 11–26.

Classroom Environmental Factors as Correlates of Reading Engagement Among Secondary School Students with Learning Disabilities in Ibadan, Nigeria

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Abstract

The goal of this study was to investigate the relationship between classroom environmental variables (that is, physical classroom environment, availability of reading materials, teacher support during reading instruction) and reading engagement among students with learning disabilities in junior secondary schools (JSS) in Ibadan, Nigeria. The multistage sampling procedure and purposive sampling were used to select three hundred and sixteen (316) JSS 1 students with learning disabilities. Two instruments were used for data collection: Screening Checklist for Suspected Learning Disabilities and the Classroom Environment and Reading Engagement Questionnaire comprising items on the physical classroom environment, availability of reading materials, teacher support during reading instruction, and reading engagement. Data were analysed using Pearson's product moment correlation and multiple regression. Results revealed that the physical classroom environment, availability of reading materials, and teacher support during reading instruction demonstrated significant positive relationships with reading engagement among JSS students with learning disabilities. There were joint and relative contributions of the physical classroom environment, availability of reading materials, and teacher support during reading instruction to reading engagement among JSS students with learning disabilities. It was recommended that teachers and school administrators encourage sustained reading engagement among students with learning disabilities by ensuring that they provide adequate reading instructional support and make the classrooms conducive to reading instruction.

Keywords: *classroom environment, reading materials, teacher support, reading engagement, students with learning disabilities*

INTRODUCTION

Students with learning disabilities spend a greater portion of the school day in the general education classroom where they not only receive instruction in basic academic skills such as reading, writing, and mathematics, but also acquire legitimate social and behavioral traits. This underscores the importance of the classroom. Whether it is the general education classroom, special class or a resource room, the classroom is considered an important place in the school setting. Many skills students develop at school, such as artistic, musical, sports, debating and oratory competences, are first discovered in the classroom as students engage in their daily routines and become successful in these activities.

Learning disabilities are different from intellectual disabilities, hearing or visual loss or other disorders that can interfere with learning. According to the Individuals with Disabilities Education Act (2004) in the United States, a specific learning disability is a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written. It may manifest in the imperfect ability to listen, think, speak, read, write, spell, or do mathematical calculations. Students with learning disabilities are a heterogeneous group of learners whose learning difficulties may vary from one another with majority of them (about 80%) manifesting disabilities in reading (Lerner & Kline, 2006).

Other characteristics of students with learning disabilities include lack of self-confidence, low self-esteem, short attention span, and lack of motivation. Students with learning disabilities do not often read voluntarily and independently. Many of them do not initiate a reading activity or perform actively in class discussions during reading lessons. Without sufficient teacher instructional support, they may be unable to concentrate during reading instruction and fail to devote quality time to their reading tasks. Consequently, these students do not progress smoothly in academics (Lerner & Kline, 2006). The present study focused on junior secondary school students with learning disabilities in Ibadan, Oyo State, Nigeria represents an effort at addressing the limited attention and low reading engagement skills among these students.

Physical Characteristics and the Education System of Nigeria

Nigeria has a land mass of 923,768 square kilometers (Akinyemi & Isiugo-Abanihe, 2014) and an estimated population of 200,963,603 (World Bank Group, 2019). Nigeria's capital city is Abuja, while Lagos is the country's economic hub. The setting of the present study is Ibadan, the second-largest city in the southwest of Nigeria and the capital of Oyo State, which is the fifth largest state in Nigeria. Also, Nigeria's Premier University is located in Ibadan, suggesting that tertiary education in Nigeria largely began in the city of Ibadan. Three predominant indigenous languages in Nigeria are Hausa, Yoruba, and Igbo, while the official language is English.

The national guideline for effective administration, management, and implementation of education in Nigeria is the National Policy on Education (NPE). The NPE specifies three different educational levels. The first level is a compulsory basic education for children aged 0–15 years, comprising one year of kindergarten, six years of primary education and three years of junior secondary education. The second level is senior secondary education for three years while the third level is the tertiary education program, which lasts between two to six years, depending on the course of study and the type of educational institution. There are provisions for secondary school leavers to transit to a university, polytechnic, monotechnic or college of education. Tertiary education programs cover undergraduate, graduate, vocational, and technical education (NPE, 2013).

The focus of the present study is aligned with one of the aims of educating students at the junior secondary school level in Nigeria, which is "ensuring the acquisition of the appropriate levels of literacy, numeracy, communicative and life skills, as well as the ethical, moral, security and civic values needed for the laying of a solid foundation for life-long learning" (NPE, 2013, pg. 4). No student can become literate without becoming engaged in reading. Students who cultivate a positive attitude towards reading and spend quality time reading texts obtain better scores in reading and other literacy activities. Therefore, among others, reading engagement has been identified as a variable of importance in the present study.

Reading Engagement and Students with Learning Disabilities

Reading engagement is a multi-dimensional factor with behavioral, emotional/motivational, and cognitive dimensions. A reader is engaged when he is behaviorally active (reads frequently), internally motivated (enjoys reading), and cognitively active (uses strategies in reading) (Wigfield et al., 2008). Research suggests a relationship between motivation, engagement, and achievement. Motivation is considered a student's entry point, engagement a teaching tool that influences learning outcomes, and achievement the product of engagement (Guthrie, 2001; Guthrie & Wigfield, 2000). Whether students approach reading instruction with either intrinsic or extrinsic motivation, for them to keep attending and learn effectively, they must engage with the lesson.

Engaged learners can decode and comprehend texts, apply reading strategies for comprehension and conceptual knowledge, and are part of a supportive literate community (Guthrie & Wigfield, 2000). Such students value reading, believe they are good readers, choose to read, and complete their reading task successfully. Subsequently, they become confident, competent readers. According to Vacca (2011), being engaged during a class lesson indicates that a student has taken ownership of the lesson. The student experiences increased participation and their interest is enhanced in the task at hand. The possibility of learning new materials is heightened and they actively seek out appropriate books to read (Lutz et al., 2006).

Studies have revealed factors, such as socio-cultural and instructional contexts, that could improve or inhibit reading engagement (Verhoeven & Snow, 2001; Rueda et al., 2001). Also, Wigfield et al. (2008) revealed that reading engagement during class work improves the instructional effects on reading outcomes. The present study was designed to add insight into the physical, material, and social factors in the classroom that can affect reading engagement among students with learning disabilities, especially in the locale of the present study. There has been little research into reading engagement among students with learning disabilities in Ibadan, Nigeria. Previous studies conducted in this locale largely focused on instructional strategies for the improvement of reading achievement. Therefore, the research scope should extend from studying about reading intervention for students with learning disabilities to identifying relationships among instructional factors and reading engagement.

Physical Classroom Environment and Students' Reading Engagement

The physical classroom environment suggests a combination of qualities, such as size of the room, furniture (including desks, chairs, and tables), walls,

floor, shelter, temperature, lighting, color, ventilation, computers, cabinets and shelves for storing students' belongings, noise level (school not located near a railway or high-traffic areas of noisy industries), sanitation, literacy and learning-rich displays, and others, according to the United Nations Educational Scientific and Cultural Organization (UNESCO) International Institute for Educational Planning Learning Portal (2018). The two important education stakeholders who participate in teaching and reading in the classroom are teachers and students. Researchers (Uline & Tschannen-Moran, 2008; Suleman & Hussain, 2014; Ajayi et al., 2017; Umar, 2017) have reported a strong relationship between a stimulating classroom environment and students' academic achievement and/or engagement in learning, yet many classrooms operate below the standard requirements of UNESCO's recommended maximum capacity of 40–45 students per classroom.

The creation of an organized and orderly classroom, establishment of expectations, enforcement of students' cooperation in learning tasks, and dealing with the procedural demands of the class also constitute the indices of a well-managed classroom (Nicholas, 2007). It is predicted that a well-managed classroom would provide a favorable platform for reading engagement among students with learning disabilities. In line with this, Bassey (2012) explained that this wider perspective of classroom management increases engagement, decreases inappropriate and disruptive behaviors, promotes student responsibility for academic work, and enhances academic performance among students.

A study by Ajayi et al. (2017) showed that class size significantly correlated with classroom discipline, engagement, and communication among senior secondary school students in Ekiti State, Nigeria. Aliu (2015) found that a small-sized classroom can afford students the opportunity to effectively engage in reading and learning activities. It was also discovered that a large class size has a strong negative connection with pupils' classroom engagement with reading and their reading scores (Wanni, 2018). In the same vein, King'oina et al. (2017) revealed an unfavorable school climate in public primary schools in Marani Sub-county in Kenya that resulted in poor academic performance among the pupils. Learners in this kind of non-stimulating school environment may be hindered from becoming engaged readers. With concerted efforts of policymakers, school administrators, and teachers, such practices can and should be discouraged.

Availability of Reading Materials and Students' Reading Engagement

Another characteristic of classroom environment that is considered in the present study is the availability of reading materials in the classroom. Gambrell (2011) submitted that one of the seven "rules" of engagement that educators and policymakers ought to consider in reading motivation and engagement is access to a variety of reading materials. This implies that a classroom should be well-stocked with books, magazines, technology resources, and other kinds of texts and materials to interest, motivate, and engage young readers. Flowerday et al. (2004) found that students' reading engagement has a positive relationship with availability of high-interest reading materials, even when the students cannot select their own reading materials.

Studies show that students' motivation to read and become engaged readers increases when their classroom has abundant reading materials and includes books from a variety of genres and text-types, magazines, the Internet, resource materials, and real-life documents (Neuman & Celano, 2001; Kim, 2004; Guthrie et al., 2007). Also, Jones and Brown (2011) found that a book's format (i.e., e-book versus traditional print book), was not as significant to reading engagement as the student's relationship with the story's character and setting. Further, a wide range of reading choices and the opportunity to choose books did influence reading engagement, and eventually reading comprehension. Thus, having a large number and a variety of texts in the classroom could benefit students. Teachers can invite students to read appropriate materials. By so doing, teachers raise students' interest and curiosity in reading and this promotes reading engagement.

Teachers' Support During Reading Instruction and Students' Reading Engagement

Teachers' reading instructional support to students with learning disabilities is another variable in the present study. When teachers follow positive practices in the classroom, students can emulate them, and do better when they practice same. There is the possibility of promoting reading engagement through greater access to books at home and school. The teacher can be a reading model who designs the classroom to promote a literacy-rich, immersive experience (Gambrell, 1996). Teachers help students engage in reading. For example, a teacher can relate freely with the students, create safe and responsive classrooms, and allow students to interact with different texts and with each other about

text. Such teachers allow their students to have a voice in class interactions and let students make choices in learning tasks and reading assignments that build their reading and writing skills (Meltzer, 2002; Meltzer & Hamann, 2004).

It was found that students in middle school were more likely to report engagement if they had teachers who were highly supportive, while students in primary school who experienced teacher support were 89 percent more likely to report engagement in school than those with typical levels of support (Klem & Connell, 2004). Students whose teachers were caring and who received instruction in well-structured classrooms where expectations were high were more likely to report engagement. Other studies have shown that students who receive support from both teachers and peers in the classroom experience higher engagement (Marks, 2000; Stipek, 2002).

Furthermore, Kasten and Wilfong (2007) found that teachers can support students' reading engagement if they provide ample opportunities for independent reading. Teachers who promote reading engagement are those who facilitate social interactions in the classroom both in a qualitative and quantitative manner. A study by Furrer and Skinner (2003) found that teacher support was related to enhanced student engagement from Fall to Spring for students in grades 3–6. Guthrie et al. (2012) explained that teacher support represents a broad characteristic, including assuring success, providing relevance, offering choices, arranging collaborations, and providing themes for learning. Shih (2008) reported that eighth grade Taiwanese students who demonstrated behavioral engagement by paying attention in class, persisting in solving hard problems, participating in class discussions and classroom activities without avoiding difficult challenges, were the same students who reported perceptions of autonomy support from their teachers.

Cho et al. (2010) suggested that to increase reading engagement, teachers of reading should provide opportunities to outside literacy activities, use different texts, provide authentic reasons to read, promote collaboration, offer choices and options, and challenge students. Teacher support emphasizes student-centred instruction that promotes reading engagement. Adeogun and Olisaemeka (2011) found that some school climate factors, such as working conditions, learning environment, home-school relationship, socio-physical environment, safety and security, discipline, and teacher care and support had a significant relationship with students' achievement and productivity.

The present synthesis of literature supports the submission of Ryan (2013) that each element of classroom environment may not have a large effect individually, but when considered together, they can influence a student's ability to learn. Therefore, it is reasonable to propose that the extent to which a relationship exists between classroom environmental factors (physical classroom environment, availability of reading materials in the classroom, and teacher support) and reading engagement among students with learning disabilities in junior secondary schools in Ibadan, Nigeria is yet to be thoroughly examined. These are the premises on which the present study is based.

In view of the foregoing, the present study aimed to investigate the relationship between three classroom environmental variables—classroom physical environment, availability of reading materials, teacher support—and reading engagement among students with learning disabilities in junior secondary schools in Ibadan, Oyo State, Nigeria. Specifically, the present study intended to determine the joint and relative contributions of the three classroom environmental variables to reading engagement among students with learning disabilities in Ibadan, Nigeria. In order to achieve this, three research questions were raised in line with the objectives of the present study:

1. What is the relationship between classroom environmental variables (physical environment of the reading classroom, availability of reading materials, teacher support during reading instruction) and reading engagement among students with learning disabilities?
2. What is the joint contribution of classroom environmental variables (physical environment of the reading classroom, availability of reading materials, teacher support during reading instruction) to reading engagement among students with learning disabilities?
3. What is the relative contribution of classroom environmental variables (physical environment of the reading classroom, availability of reading materials, teacher support during reading instruction) to reading engagement among students with learning disabilities?

METHODS

Ethical Statement

The researcher obtained an ethical approval for the study from the Ethical Review Board of University of Ibadan, Oyo State, Nigeria. Also, participants submitted written informed consent before the study was conducted.

Design

This study adopted descriptive research design using a correlational approach to carry out the objectives of the study. This design was selected to find out the significance of the relationships amongst the variables. With this method, no manipulation of variables was done because the variation had already occurred.

Population

The population of the study consists of all students with learning disabilities in secondary schools in Ibadan, Oyo State, Nigeria.

Sample and Sampling Technique

The total number of 316 junior secondary school class two (JSS 2) students was selected from eight secondary schools within three local government areas (LGAs) of Ibadan metropolis. The study adopted a multiple-stage sampling procedure. The first stage involved random selection of three LGAs from five urban LGAs located within Ibadan metropolis using simple random sampling technique. Subsequently, eight secondary schools were randomly selected. The third stage involved teacher nomination of JSS 2 students with low academic achievement in the eight secondary schools selected for the study. This stage yielded 520 JSS 2 students. The fourth stage involved the use of the Screening Checklist for Suspected Learning Disabilities (Herriot, 2004) to purposively identify the study respondents. Out of 520 JSS 2 students with low achievement, only 316 of them actually had the characteristics of learning disabilities and were selected as study participants. The participants' distribution by gender shows that 134 (42.4%) are males, while their female counterparts accounted for 182 (57.6%). The participants' distribution by age shows that many of the respondents 212 (67.1%) are aged 10–12 years, 95 (30.1%) are 13–15 years, while 9 (2.8%) are 16 and more years, respectively. Further, 124 (39.2%) of the respondents were in private schools, while 192 (60.8%) were in public schools.

Instrumentation

Two instruments were used in this study.

1. *Screening Checklist for Suspected Learning Disabilities* (SCSLD) developed by Herriot (2004): This instrument was used to screen participants for learning disabilities. It is an adapted instrument that contains 70 questions selected from each section of the checklist, namely: reading, written language, oral language, mathematics, social, memory deficits, attention deficits, and executive functions. The researchers scored the 70 items adapted from the SCSLD on a 5-point scale with scores ranging from 0="never", 1="almost never", 2="sometimes", 3="often", and 4="all the time. The highest possible score is 280 where high scores indicate the presence of learning disabilities. Thus, anyone who scored 140 and above would be suggested to satisfy the criteria for a student with learning disabilities. A reliability coefficient of 0.81 was obtained for this instrument using Cronbach's alpha after a trial test on this instrument.

2. *Classroom Environment and Reading Engagement Questionnaire* (CEREQ; Lazarus, 2020): The 30-item self-developed questionnaire comprises two main sections. Section A was used to assess students' demographic data, while section B contains four sub-sections (Part A–D). The questions were designed through a thematic analysis of literature on the various variables of interest in the study. There are 10 items in Part A. These items measure the physical environment of the classroom. A typical item in Part A reads: "My classroom is well illuminated (bright)." There are six items in Part B. The questions measure availability of reading materials in the classroom. Typical items in Part B read: "I have all the prescribed reading texts in my classroom" and "The books in my classroom book corner/library match students' needs and interest." In Part C, there are eight items. These items assess teacher support during reading instruction. Typical items in Part C read: "My reading teacher corrects students' reading errors during lessons" and "Celebrates students' successes in reading; for example, gives them gifts and awards." Part D contains six items that assess reading engagement. Typical items in Part D read: "I enjoy reading independently" and "I read a variety of books; for example, fictions, website, prescribed class texts."

Table 1

Correlation Matrix Showing the Relationships Between Physical Environment of the Reading Classroom, Availability of Reading Materials, Teacher Support, and Reading Engagement.

Variables	Reading Engagement	Physical Environment	Availability of Reading Materials	Teacher Support in Reading Class
Reading engagement	1			
Physical environment	0.503** (0.000)	1		
Availability of reading materials	0.485** (0.000)	0.584** (0.000)	1	
Teacher support during reading instruction	0.450** (0.000)	0.515** (0.000)	0.473** (0.000)	1
Mean	18.41	31.28	18.08	26.89
S.D.	3.25	4.51	3.68	4.26
** Sig. at .01 level				

All 30 items are arranged in a modified four-point, Likert-type scale: Strongly Agree (SA) = 4, Agree (A) = 3, Disagree (D) = 2, and Strongly Disagree (SD) = 1. The maximum score is 120 and minimum score is 30. Experts reviewed the questionnaire for face and content validity. Their suggestions were factored into the final draft. The questionnaire was trial-tested on a small sample which had similar characteristics with the main population of the study but was not part of the sample. The reliability coefficients of the sub-group questionnaires were found to be 0.77, 0.79, 0.84 and 0.70, respectively, using the test-retest method. The retest was taken two weeks after the test was first administered.

The researcher trained and co-opted five research assistants to administer the questionnaires to the respondents. A total of 316 questionnaires were administered and retrieved.

Data Analysis

The data were analysed using the Pearson product-moment correlation coefficient to find out the relationship between classroom environmental variables (physical classroom environment, availability of reading materials, and teachers' support) and reading engagement. Multiple regression statistics were also computed to determine the joint and relative contributions of physical classroom environment, availability of reading materials, and teacher support to reading engagement at 0.05 level of significance.

RESULTS

Research Question One

What is the relationship between classroom environmental variables (physical environment of the reading classroom, availability of reading materials, teacher support during reading instruction) and reading engagement among students with learning disabilities?

Table 1 shows the inter-correlational matrix on relationship that exits between classroom environmental variables (physical environment of the reading classroom, availability of reading materials, and teacher support during reading instruction) and reading engagement among students with learning disabilities. The physical environment of the reading classroom had a significant positive relationship with reading engagement among students with learning disabilities ($r=.503**, p <0.01$). The availability of reading materials in the classroom ($r=.485**, p <0.01$) had a significant positive relationship with reading engagement among students with learning disabilities. Teacher support during reading instruction ($r=.450**, p <0.01$) had a significant positive relationship with reading engagement among students with learning disabilities.

Research Question Two

What is the joint contribution of classroom environmental variables (physical environment of the reading classroom, availability of reading materials, teacher support during reading instruction) to reading engagement among students with learning disabilities?

Table 2
Multiple Regression of the Joint Contribution of the Physical Environment of the Reading Classroom, Availability of Reading Materials, Teacher Support, and Reading Engagement.

R	R²		Adjusted R²	Std. Error of the Estimate	
0.581	0.337		0.331	2.6571	
ANOVA					
Model	**Sum of Squares**	**DF**	**Mean Square**	**F**	**Sig.**	**Remark**
Regression	1119.818	3	373.273	52.872	0.05	Sig.
Residual	2202.701	312	7.060			
Total	3322.519	315				

Table 2 shows that the joint contribution of the classroom environmental variables (physical environment of the reading classroom, availability of reading materials, teacher support during reading instruction) to reading engagement among students with learning disabilities was significant. The table also shows a coefficient of multiple correlation (R = .581 and a multiple R^2 of .337). This means that 33.7% of the variance was accounted for by the predictor variables when taken together. The significance of the composite contribution was tested at $p < .05$. The table also shows that the analysis of variance (ANOVA) for the regression yielded an F-ratio of 52.872 (significant at 0.05 level). This implies that the joint contribution of the classroom environmental variables to reading engagement was significant and that other variables not included in this model may have accounted for the remaining variance.

Research Question Three

What is the relative contribution of classroom environmental variables (physical environment of the reading classroom, availability of reading materials, teacher support during reading instruction) to reading engagement among students with learning disabilities?

Table 3 reveals the relative contribution of classroom environmental variables (physical environment of the reading classroom, availability of reading materials, teacher support during reading instruction) to reading engagement among students with learning disabilities. Physical environment of the reading classroom (β=258, $p < .05$) had significant relative contribution to reading engagement among students with learning disabilities. Availability of reading materials in the classroom (β=238, $p < .05$) had significant relative contribution to reading engagement among students with learning disabilities. Teacher support during reading instruction (β=204, $p < .05$) had significant relative contribution to reading engagement among students with learning disabilities in Ibadan. This implies that classroom

Table 3
Multiple Regression of the Relative Contribution of the Physical Environment of the Reading Classroom, Availability of Reading Materials, Teacher Support, and Reading Engagement.

Model	Unstandardized Coefficient		Standardized Coefficient	T	Sig.	Remark
	B	**Std. Error**	**Beta Contribution**			
(Constant)	4.617	1.153		4.003	0.05	Sig
Physical environment	0.186	0.043	0.258	4.288	0.05	Sig
Availability of reading materials	0.210	0.052	0.238	4.059	0.05	Sig
Teacher support during reading instruction	0.155	0.042	0.204	3.671	0.05	Sig

environmental factors such as physical environment of the reading classroom, availability of reading materials and teacher support during reading instruction, predict reading engagement among students with learning disabilities in Ibadan. In terms of magnitude of contribution, the physical environment of the reading classroom made the most significant contribution to reading engagement of students with learning disabilities in Ibadan, followed by availability of reading materials and then teacher support during reading instruction.

DISCUSSION

The response to Research Question One on the relationship that exits between classroom environmental variables (physical environment of the reading classroom, availability of reading materials, teacher support during reading instruction) and reading engagement among students with learning disabilities showed that these variables had significant positive relationships with reading engagement among students with learning disabilities. The present finding lends credence to several studies which revealed that the physical environment of the reading classroom (Wanni, 2018; Ajayi et al., 2017), availability of reading materials (Flowerday et al., 2004) and teacher support during reading instruction (Marks, 2000; Stipek, 2002) have positive relationships with student engagement, especially in reading.

Research Question Two asks if there is a joint contribution of the classroom environmental variables (physical environment of the reading classroom, availability of reading materials, teacher support during reading instruction) to reading engagement among students with learning disabilities. The finding shows a joint contribution of the classroom environmental variables to reading engagement. This finding reveals that 33.7% of the variance was accounted for by the independent variables when taken together. Table 2 shows that this joint relationship is significant: The F-ratio is 52.872 (significant at 0.05 level). This infers that the joint contribution of the classroom environmental variables to reading engagement was significant. This finding confirms the assertion by Ryan (2013) that each element of the classroom environment may not have a large effect individually, but when considered together, these elements can influence a student's ability to learn.

The result of the third research question on the relative contribution of classroom environmental variables to reading engagement was also significant. This finding supports those of Aliu (2015), Wanni (2018), and Ajayi et al. (2017) who found a positive relationship between class size and students' classroom engagement.

This finding also agrees with the findings of Neuman & Celano (2001), Kim (2004), and Guthrie et al., (2007) which revealed that when students have access to a wide range of reading materials both their reading motivation and engagement improves. The present finding corroborates those of Furrer and Skinner (2003) that teacher support was positively related to student engagement from fall to spring for students in grades 3–6. Also, the finding agrees with Klem and Connell (2004) who reported that middle school students taught by highly-supportive teachers were more likely to demonstrate more engagement in school.

CONCLUSIONS

This study investigated the relationship between three classroom environmental variables (the physical classroom environment, availability of reading materials, and teacher support) and reading engagement among students with learning disabilities in junior secondary schools in Ibadan, Oyo State, Nigeria. Several conclusions can be drawn from the empirical findings arising from this study. Three classroom environmental variables—classroom physical environment, availability of reading materials, and teacher support—have been proven to have a positive contribution on reading engagement among students with learning disabilities in junior secondary schools in Ibadan, Oyo State, Nigeria. A significant joint relationship between these three classroom environmental variables and reading engagement among students with learning disabilities in junior secondary schools in Ibadan, Oyo State, Nigeria has been confirmed. It can also be concluded that besides the physical classroom environment, availability of reading materials, and teacher support, other factors that are not equally represented in the study could contribute to reading engagement among students with learning disabilities in junior secondary schools in Ibadan, Oyo State, Nigeria.

RECOMMENDATIONS

In line with the findings of the study, the following recommendations are made:

1. Teachers and school administrators should encourage sustained reading engagement among students with learning disabilities by providing adequate reading instructional support and making reading classrooms conducive to learning.
2. Junior secondary school students with learning disabilities should be trained to build their self-confidence, participate actively during reading lessons,

acquire skills for group activities, and develop independent reading skills to boost their reading engagement.

3. Teachers, school heads, and administrators should upgrade the structure of classrooms in terms of sound, lighting, illumination, color, wall decorations, seat arrangement, and cleanliness. All these will promote sustained attention, autonomy, and strengthen the reading engagement of students with learning disabilities, and consequently, their reading achievement.

4. Teachers, school heads, and administrators of students with learning disabilities should provide reading materials that are relevant to their students' interests, everyday life or important current events to boost reading engagement of students with learning disabilities.

5. Teachers should create opportunities for book sharing with peers, give students homework and assignments, and give appropriate incentives and reinforcements to their students.

REFERENCES

Adeogun, A. A., & Olisaemeka, B. U. (2011). Influence of school climate on students' achievement and teacher productivity for sustainable development. *US-China Education Review, 8*(4), 552–557.

Ajayi, O. V., Audu, C. T., & Ajayi, E. E. (2017). Influence of class size on students' classroom discipline, engagement and communication: A study of senior secondary schools in Ekiti State. *Sky Journal of Educational Research, 5*(5), 34–41.

Akinyemi, A. I., & Isiugo-Abanihe, U. C. (2014). Demographic dynamics and development in Nigeria: Issues and perspectives. *African Population Studies, 27*(2). https://doi.org/10.11564/27-2-471

Aliu, E. (2015). *Class size and learning environment*. Ibadan, Nigeria: College Press.

Bassey, B. A. (2012). *A wider view of classroom management*. Uyo, Nigeria: Ekong.

Cho, S., Xu, Y., & Rhodes, J. A. (2010). Examining English language learners' motivation of, and engagement in, reading: A qualitative study. *The Reading Matrix, 10*(2), 205–221.

Flowerday, T., Schraw, G., & Stevens, J. (2004). The role of choice and interest in reader engagement. *The Journal of Experimental Education, 72*(2), 93–114.

Furrer, C., & Skinner, E. (2003). Sense of relatedness as a factor in children's academic engagement and performance. *Journal of Educational Psychology, 95*, 148–162.

Gambrell, L. B. (1996). Creating classroom cultures that foster reading motivation. *The Reading Teacher, 50*(1), 14–25.

Gambrell, L. B. (2011). Seven rules of engagement: What's most important to know about motivation to read. *The Reading Teacher, 65*(3), 172–178. doi:10.1002/TRTR.01024

Guthrie, J. T. (2001). Contexts for engagement and motivation in reading. *Reading Online, 4*(8). International Reading Association.

Guthrie, J. T., & Wigfield, A. (2000). Engagement and motivation in reading. In M. L. Kamil, P. B. Mosenthal, P. D. Pearson, & R. Barr (Eds.), *Reading research handbook* (Vol. 3, pp. 403–424). Erlbaum.

Guthrie, J. T., Hoa, A. L. W., Wigfield, A., Tonks, S. M., Humenick, N. M., & Littles, E. (2007). Reading motivation and reading comprehension growth in the later elementary years. *Contemporary Educational Psychology, 32*(3), 282–313. doi:10.1016/j.cedpsych.2006.05.004

Guthrie, J. T., Wigfield, A., & You, W. (2012). Instructional contexts for engagement and achievement in reading. In S. Christensen, A. Reschly, & C. Wylie (Eds.), *Handbook of research on student engagement* (pp. 601–634). Springer Science. doi:10.1007/978-1-4614-2018-7_29

Herriot, C. (2004). *Screening checklist for suspected learning disabilities: Profile sheet*. University of Guelph. Retrieved in 2016 from http://froshability.com/images/Conestoga_Learning_Disability_Screener.pdf

Individuals with Disabilities Education Act of 2004 (IDEA), Pub. L. No. 108–446, 118 stat. 2647 (2004). http://IDEA.ed.gov

Jones, T., & Brown, C. (2011). Reading engagement: A comparison between ebooks and traditional print books in an elementary classroom. *International Journal of Instruction, 4*(2), 5–22.

Kasten, W. C., & Wilfong, L. G. (2007). Encouraging independent reading: Towards lifelong readers and learners. *International Journal of Learning, 13*(10), 1–8.

Kim, J. S. (2004). Summer reading and the ethnic achievement gap. *Journal of Education for Students Placed at Risk, 9*(2), 169–189. doi:10.1207/s15327671espr0902_5

King'oina, J. O., Kadenyi, M. M. M., & Mobegi, F. O. (2017). School climate as a determinant of pupils' academic performance in public primary schools in Marani Sub-County, Kenya. *International Journal of Education and Research, 5*(5), 265–278.

Klem, A. M., & Connell, J. P. (2004). Relationships matter: Linking teacher support to student engagement and achievement. *Journal of School Health, 74*(7), 262–273.

Lazarus, K. U. (2020). *Classroom Environment and Reading Engagement Questionnaire (CEREQ)*. Unpublished monograph.

Lerner, J. W., & Kline, F. (2006). *Learning disabilities and related disorders: Characteristics and teaching strategies* (10th ed.). Houghton Mifflin.

Lutz, S. L., Guthrie, J. T., & Davis, M. H. (2006). Scaffolding for engagement in elementary school reading instruction. *Journal of Educational Research, 100*(1), 3–20.

Marks, H. M. (2000). Student engagement in instructional activity: Patterns in the elementary, middle, and high school years. *American Educational Research Journal, 37*(1), 153–184.

Meltzer, J. (2002). *Adolescent literacy resources: Linking research and practice*. Northeast and Islands Regional Educational Laboratory at Brown University.

Meltzer, J., & Hamann, E. (2004). *Meeting the needs of adolescent English language learners for literacy development and content area learning, Part 1: Focus on motivation and engagement*. The Education Alliance at Brown University.

Neuman, S. B., & Celano, D. (2001). Access to print in low-income and middle-income communities: An ecological study in four neighborhoods. *Reading Research Quarterly, 36*(1), 8–26. doi:10.1598/RRQ.36.1.1

Nicholas, A. A. (2007): *Classroom climate and students' behaviour*. Kaduna, Nigeria: Bill Graphics and Press.

National Policy on Education (2013, 6th ed.). Nigerian Educational Research and Development Council.

Rueda, R., MacGillivray, L., & Monzo, L. (2001). *Engaged reading: A multilevel approach to considering sociocultural factors with diverse learners*. CIERA report #1-012. Centre for the Improvement of Early Reading Achievement.

Ryan, H. (2013). *The effect of classroom environment on student learning*. Lee Honors College, Honors Theses. Paper 2375, Western Michigan University ScholarWorks at WMU, https://scholarworks.wmich.edu/honors_theses/2375

Shih, S. (2008). The relation of self-determination and achievement goals to Taiwanese eighth graders' behavioural and emotional engagement in schoolwork. *The Elementary School Journal, 108*(4), 313–334.

Stipek, D. (2002). *Motivation to learn: Integrating theory and practice* (4th ed.). Allyn & Bacon.

Suleman, Q., & Hussain, I. (2014). Effects of classroom physical environment on the academic achievement scores of secondary school students in Kohat Division, Pakistan. *International Journal of Learning & Development, 4*(1), 71–82.

Uline, C., & Tschannen-Moran, M. (2008). The walls speak: The interplay of quality facilities, school climate, and student achievement. *Journal of Educational Administration, 46*(1), 55–73.

Umar, A. A. (2017). The effect of classroom environment on achievement in English as a Foreign Language (EFL): A case study of secondary school students in Gezira State, Sudan. *World Journal of English Language, 7*(4), 1–10. https://doi.org/10.5430/wjel.v7n4p1

UNESCO International Institute for Educational Planning Learning Portal (2018, September 6). *Brief 2: The physical school environment*. http:// learning portal. iiep.unesco.org/en/issue-briefs/improve-learning/schools-and-classrooms/the-physical-school-environment

Vacca, R. T. (2011). *Content area reading: Literacy and learning across the curriculum*. Allyn & Bacon.

Verhoeven L., & Snow, C. (2001). *Literacy and motivation: Reading engagement in individuals and groups*. Erlbaum.

Wanni, G. M. (2018). Relationship between class size, pupils' engagement in reading and teachers preparation in lower primary public schools in Nyeri South Sub-County, Kenya. M.Ed project submitted to Kenyatta University.

Wigfield, A., Guthrie, J. T., Perencevich, K. C., Taboada, A., Klauda, S. L., McRae, A., & Barbosa, P. (2008). Role of reading engagement in mediating the effects of reading comprehension instruction on reading outcomes. *Psychology in the Schools, 45*(5), 432–445. https://eric.ed.gov/?id=EJ790343

World Bank Group. (2019). *Population estimates and projections/DataBank: Nigeria*. databank.worldbank.org

Impact of Special Education Clinical Experience and Having a Family Member or Friend with a Disability on Pre-service General Education Teachers' Perspectives on Students with Disabilities and Their Attitudes Toward Inclusion

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Abstract

This study is designed to assess pre-service teachers' perspectives on students with disabilities as well as their attitudes towards inclusion before and after a field-based introductory course where pre-service teachers worked alongside their mentor teacher with a specific student. By the end of the course, pre-service teachers' beliefs about general education teachers' ability to meet the needs of students with disabilities as well as their belief in the benefits of inclusion were significantly higher. Students' beliefs about inclusion increased regardless of whether they had spent time with a friend or family member with a disability. Students who did not have an acquaintance with a disability, however, demonstrated more malleable, positive attitudes towards students with disabilities, as well as towards their corresponding professional roles and responsibilities. Implications for teacher educators in the U.S. and in many other countries as well as suggestions for future research were discussed.

Keywords: *teacher beliefs, teacher attitudes, pre-service teachers, inclusive education, disabilities*

INTRODUCTION

The Individuals with Disabilities Education Act (IDEA, 2004) guarantees a free and appropriate public education in the least restrictive environment for students with special needs. Recently, the National Center for Education Statistics reported that 62.2% of students with disabilities spend 80% or more of their time in a general education classroom setting (Snyder et al., 2019), which is significantly higher than the 46.5% reported to have done so in the year 2000. Given the IDEA mandate, and the growing numbers of students with disabilities in general classrooms, school professionals, administrators, teacher educators, and educator preparation programs (EPPs) in general must ensure that general education teachers are equipped to meet the needs of all students, including those with disabilities (Hallahan & Kauffman, 2003; Turnbull et al., 2004).

To reach this goal, pedagogical content knowledge for inclusive education is required (Clarke et al., 2016), but it is not enough; educators' *beliefs* about whether learners with disabilities can be taught effectively in general education classrooms also impacts their teaching success in inclusive settings (Hashim et al., 2014). Research (e.g., Avramidis & Norwich, 2002; Forlin & Lian, 2008) indicated that teachers' positive beliefs regarding instructing students with disabilities in an

inclusive setting strongly contributed to the students' success. This might be, in part, because general education teachers who doubted inclusive education were more apt to hinder inclusive practices (Forlin & Chambers, 2011), and take less responsibility for teaching their students with special needs (Titone, 2005).

Although this study is not on the *mechanisms that underlie* the associations among general education teachers' beliefs in favor of inclusion and their attendant practices, there is much empirical support of these relationships and of the benefits of inclusion in general. Specifically, inclusion enabled learners with special needs to participate in classroom activities and actively interact with their peers without disabilities, while being exposed to the core curriculum (Alasim, 2018; Dessemontet et al., 2011). In addition, research shows that students with disabilities in inclusive settings are not only provided with one-on-one, targeted instruction, but they also receive *more* instruction overall than their peers in special education placements (McDonnell et al., 2000). Thus, if teachers' beliefs towards inclusion influenced their practices, and if their practices were highly consequential to learners with disabilities, then determining how to foster pre-service teachers' beliefs in the benefits of inclusion were, and are, important. The focus of this study is to determine if, and to what degree, these beliefs can be shaped through pre-service

teacher training, as well as how this process varies according to students' past experiences with siblings, friends, and family with disabilities.

Researchers in many countries, including the U.S., have assessed pre-service teachers' perceptions of inclusion and of how to accommodate students with disabilities (e.g., Crowson & Brandes, 2014; Hamman et al., 2013; Metsala & Harkins, 2020; Specht & Metsala, 2018). Some of these studies reveal the salience of teachers' personal experiences in shaping their beliefs. For example, general education teachers' stereotypes and their discomfort with disabilities were negatively associated with their attitudes toward inclusion (Crowson & Brandes, 2014). Pre-service teachers who reported having special needs that made it challenging for them to learn to read—and are, presumably, more comfortable with disabilities—felt more efficacious in supporting students with disabilities using inclusive practices (Metsala & Harkins, 2020).

Other studies have shown that general education teachers' perceptions of inclusion are impacted by their perceived preparedness to teach students with disabilities. Unfortunately, general education teachers often report believing themselves to be unprepared to assume their professional roles in inclusive classrooms (e.g., De Boer et al., 2011; DeSimone & Parmar, 2006; Hardin & Hardin, 2002; Lamture & Gathoo, 2017; Leatherman & Niemeyer, 2005). Specifically, they reported not knowing which instructional strategies to use, and felt inadequately prepared to accommodate their special needs students (Ahsan & Sharma, 2018; Cook, 2002; Ruppar et al., 2016). Apparently, this is why teachers who were not in favor of inclusion believed that separating students with disabilities from their peers without disabilities did not harm the learning of the excluded students (Van Reusen et al., 2000).

Fortunately, some empirical evidence suggested that training experiences were associated with teachers' growing confidence in their ability to support special needs students in an inclusive setting (e.g., Ajuwon et al., 2012; Blanchard et al., 2018; Hamman et al., 2013; Kang & Martin, 2018; Lanterman & Applequist, 2018; Polat et al., 2019; Rakap et al., 2017; Young et al., 2018). Polat et al. (2019) examined the effectiveness of an intervention on pre-service teachers' beliefs about inclusion of linguistically diverse students. The intervention, called *E-Pal exchange project*, was designed to prepare pre-service teachers to support linguistically diverse students in inclusive classes by enabling them to meaningfully and authentically interact with K-12 learners over the course of a semester. To that end,

pre-service teachers exchanged letters online with the students at a public elementary or middle school and received feedback from their instructor who monitored and reviewed their letter exchanges. Results of this study showed that pre-service teachers who participated in the intervention more strongly advocated for incorporating diverse learners in their inclusive classrooms, compared to pre-service teachers in the control group. Lanterman & Applequist (2018) also used online learning (modules on an instructional approach known as Universal Design for Learning) to train pre-service teachers in supporting students with disabilities in an inclusive classroom setting. They concluded that the training module helped pre-service teachers adapt their instruction, making the curriculum more usable and applicable for their students with disabilities.

Results from additional studies suggested (e.g., Hamman et al., 2013; Kang & Martin, 2018; Rakap et al., 2017; Young et al., 2018) that pre-service teachers' engagement in *clinical experiences* were associated with their increasingly positive perceptions of teaching in inclusive classrooms. Specifically, Specht and Metsala (2018) reported a positive relationship between pre-service teachers' perceptions of inclusion and having clinical experiences with students who had disabilities. The same was true for pre-service teachers who had a friend with a disability. Additional research indicated that pre-service teachers felt successful in their roles after using instructional strategies to manage the behaviors of their students with and without disabilities (Young et al., 2018).

Collaboration and reflection within clinical experiences was also reported to be impactful. Hamman et al. (2013) reported an association between collaborating with other teachers and pre-service teachers' increasingly positive perspectives on supporting students with special needs. Consistent with this were findings from Kang and Martin (2018) who asserted that pre-service teachers viewed teaching in inclusive classrooms more favorably when their clinical experiences featured online discussions and resources for inclusive education. Similar results emerged after a hybrid course on inclusion required pre-service teachers to share weekly reflections and respond (Blanchard et al., 2018).

In addition, pre-service teachers' experience with individuals with disabilities (e.g., family members, friends) may impact their future perspectives about inclusion. Goddard and Evans (2018) investigated the impact of diverse factors such as training and demographics on pre-service teachers' attitudes towards inclusive education. Per their results, derived from 56

pre-service teachers from three universities in Australia, they found that pre-service teachers who had family or friends with a disability had more positive views towards inclusion. Similarly, Ahsan et al. (2012) reported that those who interacted with people with disabilities in the past showed higher perceived teaching-efficacy compared to those without these experiences. A recent study by Navarro-Mateu et al. (2020), however, indicated a different finding. Specifically, their survey results, used to measure perceptions of inclusive education, showed no statistically significant differences between those who have friends or family with disabilities and those who do not. Given the differences between Navarro-Mateu et al.'s (2020) findings and those reported by other studies, the authors suggested that the quality and quantity of preservice teachers' interactions with family members and/or friends with disabilities mediate differences in their beliefs; however, this was not assessed in their study.

These findings raise important questions about the importance of providing sufficient and positive training experience for future general education teachers, particularly considering the large percentage of teachers who neither value nor feel equipped to teach in inclusive classrooms. General education preservice teacher training via clinical, reflective practice may be associated with their improving perceptions of teaching learners with special needs, but the extent and conditions of these changes remain unclear. Additionally, the interactions between prior experiences of friends with disabilities and having engaged in pre-service teacher training designed to meet the needs of learners with disabilities have not been explored. Thus, the purpose of this study was to assess general education pre-service teachers' beliefs towards inclusion before and after a course with clinical and online reflection-based components intended to teach learners with special needs. Additionally, this study asked open-ended questions to measure pre-service teachers' beliefs regarding inclusion, before and after participating in the clinical experience. The research questions included the following:

1. What was the impact of reflective online discussion paired with special education clinical experience on pre-service teachers' perspectives on supporting students with disabilities?

2. How did having family member or acquaintances of people with a disability mediate pre-service teachers' perspective on supporting students with disabilities?

3. What were pre-service teachers' beliefs and/or perspectives about inclusion? How did these change over time?

METHODS

Participants and Setting

Ninety-one pre-service teachers participated in this study. They were enrolled in a teacher-training program at a midsize university, within a suburban area in the southeastern United States. Most participants majored in Early Childhood education, followed (in frequency) by Elementary, English and Music education. Most were in their sophomore year of undergraduate study, and 17% were in their junior year. The relative proportion of males to females in this study was 1:4, reflecting the ratio within the population of pre-service teachers in this program. The clinical experience was in partnership elementary or middle schools (the partnerships were with the University). Mentor teachers with five or more years of teaching experience were selected if they (a) wanted to work with teaching interns, (b) were recommended by their principal, and (c) had a student with disabilities in the classroom.

Procedures

The current study was conducted over the course of two semesters within four sections of the required course, "Supporting the Exceptional and Gifted Learners in the General Education Classroom." In this class, the pre-service teachers participated in their clinical experience for approximately 18 hours and collaborated with their mentor teacher to meet the needs of learners with disabilities in the general education classroom setting. The main assignment during the clinical experience was *Case Study* where the pre-service teachers identified strengths and needs of a learner with disabilities, implemented a research-supported strategy for the learner with a disability, co-taught with the mentor teacher, and evaluated assessment results of the learner.

While attending the course, the pre-service teachers were asked to access their Blackboard application, post their daily reflection (i.e., answering reflective questions about their learner with disabilities such as "Do you feel that being in an inclusion classroom has been positive for your student?"), and interact/share with their classmates by replying to each other's posts. Blackboard application is a relatively new feature, which provides young generations' access to online discussion anywhere using their mobile devices (e.g., iPhone, iPad) and share their daily reflections.

The course, focused on supporting exceptional learners in the general education classroom, expanded on the skills that pre-service teacher participants cultivated earlier in their training related to (a) assessment, (b) the implementation of research-based pedagogical tools, and (c) ethical practice. This required pre-service teachers to complete online reflections, meet face-to-face for didactic classwork, and work directly with a student with disabilities—in partnership with an elementary-level or middle school mentor teacher.

During the beginning of the semester, the pre-service teacher participants read about the characteristics of students with disabilities (e.g., learning disabilities, autism spectrum disorder, ADHD, intellectual disabilities), evidence-based practices for students with disabilities, IDEA principles, and IEP. The in-class and online small group discussions covered the main topics.

Data Collection

The data collection procedures were threefold, based on the three research questions of the current study. To answer the first research question about pre-service teachers' perspectives on supporting students with disabilities, the authors administered the Teacher Attitudes Toward Inclusion Scale online (TATIS; Cullen et al., 2010). Several studies have used the TATIS; assessment

Table 1
TATIS Survey Questions.

	Teacher Perceptions of Students With Mild to Moderate Disabilities
1	All students with a disability should be educated in regular classrooms with peers without a disability to the fullest extent possible.
2	It is seldom necessary to remove students with a disability from regular classrooms in order to meet their educational needs.
3	Most or all separate classrooms that exclusively serve students with a disability should be eliminated.
4	Most or all regular classrooms can be modified to meet the needs of students with a disability.
5	Students with a disability can be more effectively educated in regular classrooms as opposed to special education classrooms.
6	Inclusion is a more efficient model for educating students with a disability because it reduces transition time (i.e., the time required to move from one setting to another).
	Beliefs About the Efficacy of Inclusion
7	Students with a disability should not be taught in regular classes with students without a disability because they will require too much of the teacher's time.
8	I have doubts about the effectiveness of including students with a disability in regular classrooms because they often lack the academic skills necessary for success.
9	I have doubts about the effectiveness of including students with a disability in regular classrooms because they often lack the social skills necessary for success.
10	I find that general education teachers often do not succeed with students with a disability, even when they try their best.
	Perceptions of Professional Roles and Functions
11	I would welcome the opportunity to team-teach as a model for meeting the needs of students with a disability in regular classrooms.
12	All students benefit from team teaching; that is, the pairing of a general and a special education teacher in the same classroom.
13	The responsibility for educating students with a disability in regular classrooms should be shared between general and special education teachers.
14	I would welcome the opportunity to participate in a consultant teacher model (i.e., regular collaborative meetings between special and general education teachers to share ideas, methods, and materials) as a means of addressing the needs of students with a disability in regular classrooms.

of its psychometric properties (internal consistency, test-retest reliability, correlated subscales, and convergent validity) indicate that the measure is of sufficient quality (Cullen et al., 2010). TATIS includes 14 questions (see Table 1) based on three themes: (a) teacher perceptions of students with mild to moderate disabilities (POS; items 1–6), (b) beliefs about the efficacy of inclusion (BEI; items 7–10), and (c) perceptions of professional roles and functions (PRF; items 11–14).

To answer the research question about the impact of family members/acquaintances with disabilities on attitudes toward inclusion, participants completed a pretest (before their clinical experience) and a posttest (after their clinical experience). Before their clinical experience, the following questions were posed online (via a Qualtrics survey):

1. Do you have a family member with a disability?

2. Do you have an acquaintance with a disability?

3. Do you feel adequately trained to teach students who have a disability?

4. What is your pre-existing experience with a close family member (e.g., child, sibling, parent) who has/had a disability? What is his or her relationship to you?

5. What is your pre-existing experience with a close family member (e.g., child, sibling, parent) who has/had a disability? Please indicate how much time you typically spent with that person.

6. What is your pre-existing experience with a close family member (e.g., child, sibling, parent) who has/had a disability? Please name the type of disability that s/he has/had.

7. What is your pre-existing experience with a close family member (e.g., child, sibling, parent) who has/had a disability? Please briefly describe the experience.

8. How did your pre-existing experience with a close family member contribute to your perspective/attitude about inclusion?

During the posttest (after their clinical experience with students who have disabilities), pre-service teachers were also asked to respond to the following queries (again, online, via a Qualtrics survey). Their responses were used to answer the research question about pre-service teachers' beliefs and perspectives regarding inclusion.

1. After having taken this class, how have your beliefs and/or perspectives changed regarding inclusion of students with a disability in the general education classroom? (Your feedback is invaluable and means a great deal.)

2. What readings, activities, and/or experiences in this course influenced changes in your thinking, if applicable? Please feel free to be as specific as possible.

3. What professional skills do you wish to cultivate, refine, or strengthen in order to better meet the needs of students with a disability through inclusion? Again, please feel free to be as specific as possible.

4. Lastly, is there anything you wished was covered in this course that might have helped you in working with students with a disability?

Each participant's pretest results were securely saved to compare them with the posttest results. This enabled the authors to identify the impact of each participant's previous experiences (i.e., a family member with a disability and acquaintances of people with a disability) on his/her attitudes towards inclusion.

Data Analysis

For the TATIS, analyses included a comparison of mean scores of Likert-scale data by category, as per paired t-tests, between time one (prior to participating in the course) and time two (at the end of the course). The data were disaggregated between those who did and those who did not have an acquaintance with a disability, as well as between those who did and those who did not have a family member with a disability, and the same analyses were conducted. Use of these parametric analyses revealed whether statistically significant gains or losses emerged as per mean responses on each of the three component scores, or constructs, assessed.

Also appraised were increases, decreases, or relative stability, between time one and time two, on the mean scores for each of the 14 questions in the TATIS, as well as the average component scores and overall score. These trends were evaluated among all participants, and again among only those participants who were either personally acquainted with, or related to, someone with a disability. To avoid committing a type I error, the level for statistical significance was set to .003 (Bonferroni correction, alpha = .05/17 tests).

Finally, qualitative responses were analyzed using constant comparative analysis (Strauss & Corbin, 1998); patterns and themes emerged through coding and were further developed as the data were analyzed. Specifically, participants' answers to the open-ended questions were repeatedly reviewed, to detect emergent themes. After tracking these themes, codes were established. Once the stability of codes for corresponding themes were consolidated, the authors' detected emergent cross-cutting themes, which were collapsed into categories (e.g., gained knowledge, changes in perspectives). This process was repeated until it was clear that no new themes emerged. The authors assessed their inter-rater reliability (there were no discrepant scores), and in the process of developing codes, discussed at length what each code meant, when it was evidenced, and how it differed from other, somewhat similar codes. The trustworthiness of their interpretations was confirmed through these repeated questioning strategies and systematic assessments of clarification.

RESULTS

Several important results emerged from data related to pre-service teachers' beliefs about inclusion and their professional efficacy as general education teachers to meet the needs of their students with disabilities after participating in this field-based course. The sections below show shifts in their beliefs about various facets of inclusion, perspectives on students with disabilities, and the enactment of corresponding practices.

RQ 1: Impact of the Special Education Clinical Experience on Perspectives on Disability

Results from paired-samples t-tests indicated that participants' belief that students with a disability could be better served in a regular classroom (pretest, $M = 3.71$, $SD = 1.28$) increased after having taken the course (posttest, $M = 3.33$, $SD = 1.30$). Mean differences approached statistical significance with an increase of .38 (on a scale from 1 to 5, "1" being "strongly agree" and "5" being "strongly disagree") in response to the corresponding statement, "Students with a disability can be better served in a regular classroom" ($t = 2.749$, $df = 86$, $p = .007$). In addition, more pre-service teachers disagreed with the assertion that general education teachers do not succeed when teaching students with a disability ($M = 4.41$, $SD = 1.40$) after having participated in the class ($M = 4.80$, $SD = 1.58$), $t(85) = -2.256$, $p = .027$. Having said that, these differences and those enumerated below were not "technically" statistically

significant, given the correction in p values [described above] used to reduce the probability of committing a Type I error.

In addition, there was an increase in the average score of BEI or "Beliefs about the efficacy of inclusion" ($t = -2.670$, $df = 86$, $p = .009$) after having completed the course. This means that upon completion of this field-based class, more pre-service teachers supported the use of inclusion to meet the needs of learners with disabilities as opposed to the utilization of traditional "delivery modes" (Cullen et al., 2010, p. 11).

It is important to note that responses to other queries on the TATIS, again, while not statistically significantly different, became more positive, meaning respondents were more in favor of inclusion after taking the course. These shifts related to two factors: "Attitudes towards students with disabilities in inclusive settings" (POS) and "Beliefs about the efficacy of inclusion" (BEI). Responses to queries within the third factor, "Beliefs about professional roles and responsibilities" (PRF), were not more positive; thus, the pre-service teachers did not indicate a greater preference for inclusion after taking the course. This finding will be explored in the discussion section.

RQ 2-1: Impact of Acquaintances of People with a Disability on Attitudes toward Inclusion

As noted previously, the study aimed to determine whether having been acquainted with someone who has a disability partially mediates—or changes the relationship between—the impacts of the course on pre-service teachers' emerging perceptions of inclusion. Therefore, the data were divided into two groups: those who had acquaintances with a disability and those who did not. None of the scores were significantly different between the pre- and posttest for those who were personally acquainted with someone who has a disability. However, results showed that the pre-service teachers who have/had an acquaintance with a disability began the course with more positive attitudes towards students with disabilities in inclusive settings, as compared with those who reported having no such acquaintances.

Accordingly, students who did not have an acquaintance with a disability began the course with slightly less favorable attitudes about inclusion. However, the mean scores related to "beliefs about professional roles and responsibilities" of those who had an acquaintance with a disability were virtually the same as those who had no such acquaintance before taking a course on the benefits of inclusion. This is interesting, since aggregate

results showed that pre-service teachers did not prefer inclusion—as it relates to "beliefs about professional roles and responsibilities"—after taking the course.

Additionally, after taking the course, results showed that the positivity score on Attitudes Towards Students with Disabilities (POS) rose less for pre-service teachers who had an acquaintance with a disability than it did for their peers with no such acquaintance. Specifically, the mean POS scores for those who *did not have an acquaintance with a disability* changed from *M* = 51.82 time 1 to *M* = 48.82 time 2, and the mean POS scores for those who *did have an acquaintance with a disability* changed from *M* = 48.83 time 1 to *M* = 49.10 time 2 (again, positive scores are lower values, negative scores are higher values). Both groups of pre-service teachers—those who had an acquaintance with a disability and those who did not—became more favorable towards their Beliefs Regarding the Efficacy of Inclusion (BEI). The pre-service teachers who *had an acquaintance with a disability* had relative stable beliefs regarding their Professional Roles and Responsibilities (PRF); however, those who *did not have an acquaintance with a disability* had somewhat less favorable beliefs regarding PRF.

This suggests that POS is more malleable for pre-service teachers who did not have an acquaintance with a disability and subject to becoming more positive. These results also show that BEI tends to become more positive, regardless of past experiences. Additionally, PRF is not only more malleable for pre-service teachers who did not have an acquaintance with a disability, but inclusion beliefs do not always change the views of pre-service teachers' about professional roles and responsibilities.

In addition, among those who *were not personally acquainted with someone who had a disability*, the following comparisons approached statistical significance between pre- and post-instruction (1 = strongly agree and 5=strongly disagree):

- Students with a disability can be better served in a regular classroom (*t* = 2.138, *df* = 38, *p* = .039), Pre-instruction mean = 3.87(1.17), Post-instruction mean = 3.44(1.20);

- General education teachers do not succeed when teaching students with a disability (*t* = -2.003, *df* = 38, *p* = .05), Pre-instruction mean = 4.56(1.33), Post-instruction mean = 5.13(1.34);

- Students with a disability lack the social skills necessary for success in a regular education class-room (*t* = -1.149, *df* = 38, *p* < .0005), Pre-instruction mean = 5.13(1.36), Post-instruction mean= 6.05(.793);

- Teacher perceptions of students with mild to moderate disabilities (POS) (*t* = 2.266, *df* = 38, *p* = .029), Pre-instruction mean = 20.77(4.738), Post-instruction mean = 19.41(3.97);

- Teacher beliefs about the efficacy of inclusion (BEI) (*t* = -3.313, *df* = 38, *p* = .039), Pre-instruction mean = 20.56 (4.10), Post-instruction mean = 21.69 (4.34); and,

- Teacher attitudes towards inclusion total score (TATUS Full Scale) (*t* = 2.368, *df* = 38, *p* = .023), Pre-instruction mean = 38.90 (7.680), Post-instruction mean = 35.85(7.872).

The findings above all reflect the trend towards improving beliefs regarding inclusion (POS and BEI) after having received instruction for pre-service teachers who *did not have an acquaintance with a disability*.

RQ 2-2: Impact of a Family Member with a Disability on Attitudes toward Inclusion

Given the findings above suggesting the relevance of experience, analogous analyses were conducted between those who either did or did not report having a family member with a disability. Specifically, the authors analyzed whether pre-service teachers with a family member who has a disability were more in favor of, not in favor of or relatively neutral regarding the benefits of inclusion upon starting this course.

Pre-Clinical Experience

Results show that before taking the course, pre-service teachers who *have a family member with a disability* tended to be more favorable in their Attitudes Towards Students with Disabilities (POS), while those who did not were less favorable. In addition, pre-service teachers who *do have a family member who has a disability* were not more favorable in their Beliefs Regarding the Efficacy of Inclusion (BEI), while those who *did not have a family member* were more favorable. Pre-service teachers who *have a family member with a disability* had less inclusive, more traditional beliefs regarding their Professional Roles and Responsibilities (PRF); however, those who *did not have a family member with a disability* had somewhat more favorable beliefs regarding PRF.

Post-Clinical Experience

After taking the course, the opposite was true. Specifically, pre-service teachers *with a family member with a disability* became less favorable in POS, BEI, and PRF as compared to pre-service teachers who did not have a family member with a disability. This suggests that having a family member with a disability may be associated with more positive views of POS, BEI and PRF initially, but these views are less malleable/subject to change when compared to pre-service teachers who did not have a family member with a disability.

Again, given the degree to which significant differences between the means are simply another illustration of the trends evidenced above, a paired samples *t*-test was conducted to assess the mean differences between each group (those who had a family member with a disability versus those who did not) on each item. Results indicate that pre-service teachers who *have a family member with a disability* believe more strongly that general education teachers do/can succeed when teaching students with a disability, after taking this course ($t = -2.345$, $df = 32$, $p = .025$), Pre-instruction mean = 4.03(1.23), Post-instruction mean = 4.70(1.75). Pre-service teachers who have a family member with a disability also "… would welcome the opportunity to participate in a consultant teacher model as a means for addressing the needs of students with mild/moderate disabilities in regular classrooms" ($t = -2.548$, $df = 32$, $p = .016$), Pre-instruction mean = 1.42(.614), Post-instruction mean = 1.91(.914). This shift in scores between time one and time two was from "strongly agree" to "agree" or "neither agree nor disagree." Thus, the change was not from agreement to disagreement; instead, it was simply diminished agreement.

Alternatively, among those who *did not have a family member with a disability*, the number of respondents who either disagreed or were neutral in their beliefs, prior to instruction, shifted their views towards agreement or strong agreement in response to the prompt: "… students with a disability can be better served in a regular classroom." The difference approached statistical significance between pre- and post-instruction ($t = -2.183$, $df = 53$, $p = .033$), Pre-instruction mean = 3.72, Post-instruction mean = 3.33. Not surprisingly, pre-service teachers who *did not have a family member with a disability* more strongly disagreed with the notion that students with a disability should not be taught in a regular classroom; they also more strongly agreed with the statement, "Students with a disability can be better served in a regular classroom," ($t = -2.392$, $df = 53$, $p = .020$).

In addition, none of the pre-service teachers strongly agreed with this statement, "students with a disability lack the social skills necessary for success in a regular education classroom," before taking this course. However, respondents who *did not have a family member with a disability*, and who either disagreed or were neutral in their beliefs regarding this prompt, prior to instruction, shifted their views *towards strong disagreement* ($t = -2.124$, $df = 53$, $p = .038$), Pre-instruction mean = 5.00, Post-instruction mean = 5.44.

RQ 3: Pre-service Teachers' Beliefs and Perspectives about Inclusion

When analyzing qualitative data about whether pre-service teachers' beliefs and/or perspectives changed after taking the class, the themes that emerged included a new understanding of the benefits of inclusion. A total of 74 respondents answered this open-ended question.

☐ 55 (74%) noted changes regarding their beliefs towards inclusion (*note, some responses were double-coded)

- "I definitely see more now how good inclusion is for everyone and how it helps all parties involved," wrote one respondent.

- "I think it has changed, I know now how to address a student who has a disability," wrote another.

☐ 49% discussed having gained a specific form of knowledge that strengthened their beliefs or cognitions regarding the importance of inclusion

- "I have learned that there are so many different ways to include students with a disability than I initially believed," wrote a respondent.

☐ 28% were fervently committed to inclusion, given their beliefs regarding equity and that all students are capable

- "I believe that it's definitely possible to include these students within the general classroom and it's not only valuable but necessary to do so," wrote a respondent.

- "They are just as capable as everyone else," wrote another.

☐ Approximately 24% noted the retention of their beliefs in the importance of inclusion

- My beliefs haven't changed on the subject, but my mindset is different in the fact that I see more of what can and should be done for students with a disability," wrote a respondent.

- "No, my opinion has not changed; I have always thought inclusion classes were great and should be used," wrote another.

☐ 20% noted belief change in favor of inclusion

- "Now I understand that is important to include every child in general education classroom setting," wrote a respondent.

☐ 11% noted a strengthening in their beliefs regarding the importance of inclusion

- "My beliefs on inclusion of students with a disability after taking this class is strong," wrote a respondent. "I think it is important that students with disabilities are opened up to an inclusive classroom because you do not want to seclude them or single them out just because of their disability. It is important to allow them to take part in a classroom setting because they are equally as capable as doing the work, just with a little extra support and help."

☐ 8% felt more efficacious in fostering inclusion

- "Now I feel more confident with teaching students with a disability," wrote a respondent. "I also learned that patience is key."

☐ 4% talked about how it benefits all students

- "I think that it is slightly easier than most people claim it to be," wrote a respondent. "You do have to adjust your lessons some; however, I believe many of the strategies you use to include students with disabilities also benefit students without disabilities."

☐ 4% reported greater awareness of inclusion

- "I have a better perspective of inclusion now having been in the field experiencing it," wrote a respondent.

DISCUSSION AND CONCLUSION

Both the qualitative and quantitative results suggest that past experiences with friends and/or family who have disabilities influence the degree to which pre-service teachers change their beliefs regarding the benefits of inclusion. Pre-service teachers who did not have past experiences with either a family member or acquaintance with a disability seem more apt to change their beliefs in a positive direction, but they do not always change their perceptions of future professional roles and responsibilities.

Additionally, before instruction, pre-service teachers who had family members with disabilities viewed inclusion more favorably than those who had no such experiences. Notably, only 23 out of 91 respondents had both a family member and an acquaintance with a disability. There were no significant associations between pre-service teachers who had this "double experience" (i.e., with family members and an acquaintance) and their beliefs on inclusion. This does not mean that Navarro-Mateu et al.'s (2020) assertion is inaccurate—that the quality and quantity of pre-service teachers' relationships with friends or family with a disability mitigate their perceptions of inclusion—but additional research is needed to better understand whether these associations exist.

These results also suggest that not all experiences are equally impactful. Differences between mean scores before and after instruction appear to be more fixed among pre-service teachers who have a family member with a disability. As a result, it is important for education faculty members to understand more regarding the type/intensity of their pre-service teachers' relationships with family or acquaintances who have a disability. Variation in the familiarity with and emotional connection to someone with a disability will likely impact the pre-service teachers' receptivity to belief change.

Fortunately, the results of this study indicate that instruction and corresponding experiential learning over the course of one semester can influence pre-service teachers to view inclusion more favorably. Qualitative results suggest that these changes occur through: (a) having gained knowledge on how to best serve students with disabilities in a regular education class; (b) crystallizing their value system regarding the importance of inclusion; (c) feeling more efficacious as a teacher serving students with and without disabilities; and (d) building greater awareness via a combination of all these mutually reinforcing experiences that are often articulated by pre-service teachers as a change in their beliefs.

Thus, understanding whether pre-service teachers had relationships with friends or family members with disabilities is important to establish at the beginning of the semester. This can inform the differentiation of learning

within the class. Additional research on how to foster positive beliefs regarding inclusion among these groups of pre-service teachers is warranted.

LIMITATIONS

The small sample size, as well as the narrow demographic profile of participants, limits the generalizability of these results to other contexts and teachers-in-training. Thus, a future study could examine attitudes towards inclusion with a larger, more-diverse population over a longer time period and strengthen the results. In addition, it is possible that the self-reported data provided by participants led them to over- or under-report to make their responses more desirable (Huang et al., 1998). Future studies, which address these limitations and include the collection of more extensive qualitative data to triangulate results, are likely to advance effective strategies to support students with disabilities and learn from experienced in-service teachers.

REFERENCES

Ahsan, T., & Sharma, U. (2018). Pre-service teachers' attitudes towards inclusion of students with high support needs in regular classrooms in Bangladesh. *British Journal of Special Education, 45*(1), 81–97. http://dx.doi.org/10.1111/1467-8578.12211

Ahsan, M. T., Sharma, U., & Deppeler, J. M. (2012). Exploring pre-service teachers' perceived teaching efficacy, attitudes, and concerns about inclusive education in Bangladesh. *International Journal of Whole Schooling, 8*(2), 1–20.

Ajuwon, P. M., Lechtenberger, D., Griffin-Shirley, N., Sokolosky, S., Zhou, L., & Mullins, F. E. (2012). General education pre-service teachers' perceptions of including students with disabilities in their classrooms. *International Journal of Special Education, 27*(3), 100–107.

Alasim, K. N. (2018). Participation and interaction of Deaf and hard-of-hearing students in inclusion classroom. *International Journal of Special Education, 33*(2), 493–506.

Avramidis, E., & Norwich, B. (2002). Teachers' attitudes towards integration/inclusion: A review of literature. *European Journal of Special Education, 17*(2), 129–147.

Blanchard, S. B., King, E., Van Schagen, A., Scott, M. R., Crosby, D., & Beasley, J. (2018). Diversity, inclusion, equity, and social justice: How antibias content and self-reflection support early childhood preservice teacher consciousness. *Journal of Early Childhood Teacher Education, 39*(4), 346–363. http://dx.doi.org/10.1080/10901027.2017.1408722

Clarke, L. S., Haydon, T., Bauer, A., & Epperly, A. C. (2016). Inclusion of students with an intellectual disability in the general education classroom with the use of response cards. *Preventing School Failure, 60*(1), 35–42. http://dx.doi.org/10.1080/1045988X.2014.966801

Cook, B. G. (2002). Inclusive attitudes, strengths, and weaknesses of pre-service general educators enrolled in a curriculum infusion teacher preparation program. *Teacher Education and Special Education, 25*(3), 262–277. http://dx.doi.org/10.1177/088840640202500306

Crowson, H., & Brandes, J. (2014). Predicting pre-service teachers' opposition to inclusion of students with disabilities: A path analytic study. *Social Psychology of Education, 17*(1), 161–178. http://dx.doi.org/10.1007/s11218-013-9238-2

Cullen, J. P., Gregory, J. L., & Noto, L. A. (2010). *The teacher attitudes toward inclusion scale* (TATIS) (technical report ED509930).

De Boer, A., Pijl, S. J., & Minnaert, A. (2011). Regular primary schoolteachers' attitudes towards inclusive education: A review of the literature. *International Journal of Inclusive Education, 15*, 331–353. http://dx.doi.org/10.1080/13603110903030089

DeSimone, J., & Parmar, R. (2006). Issues and challenges for middle school mathematics teachers in inclusion classrooms. *School, Science and Mathematics, 106*, 338–348. http://dx.doi.org/10.1111/j.1949-8594.2006.tb17754.x

Dessemontet, R. S., Bless, G., & Morin, D. (2011). Effects of inclusion on the academic achievement and adaptive behavior of children with intellectual disabilities. *Journal of Intellectual Disability Research, 56*, 579–587.

Forlin, C., & Chambers, D. (2011). Teacher preparation for inclusive education: Increasing knowledge but raising concerns. *Asia-Pacific Journal of Teacher Education, 39*, 17–32. http://dx.doi.org/10.1080/1359866X.2010.540850

Forlin, C., & Lian, M.-G. J. (Eds.). (2008). *Reform, Inclusion & Teacher Education: Towards a New Era of Special Education in the Asia-Pacific Region*. Routledge. http://dx.doi.org/10.4324/9780203895313

Goddard, C., & Evans, D. (2018). Primary pre-service teachers' attitudes towards inclusion across the training years. *Australian Journal of Teacher Education, 43*(6), 122–142. http://dx.doi.org/10.14221/ajte.2018v43n6.8

Hallahan, D. P., & Kauffman, J. M. (2003). *Exceptional learners: Introduction to special education*. Allyn and Bacon.

Hamman, D., Lechtenberger, D., Griffin-Shirley, N., & Zhou, L. (2013). Beyond exposure to collaboration: Preparing general-education teacher candidates for inclusive practice. *Teacher Educator, 48*(4), 244–256. http://dx.doi.org/10.1080/08878730.2013.796030

Hardin, B., & Hardin, M. (2002). Into the mainstream: practical strategies for teaching in an inclusive environment. *The Clearinghouse, 75*, 175-178. http://dx.doi.org/10.1080/00098650209604925

Hashim, M., Ghani, M., Ibrahim, S., & Zain, W. (2014). The relationship between teachers' self-efficacy and attitudes towards inclusive education in Pulau Pinang. *International Journal of Research in Social Sciences, 4*(7), 24–33.

Huang, C. Y., Liao, H. Y., & Chang, S. H. (1998). Social desirability and the clinical self-report inventory: Methodological reconsideration. *Journal of Clinical Psychology, 54*(4), 517–528. http://dx.doi.org/10.1002/(SICI)1097-4679(199806)54:4%3C517::AID-JCLP13%3E3.0.CO;2-I

Individuals with Disabilities Education Act, 20 U.S.C. § 1400 (2004).

Kang, D. Y., & Martin, S. N. (2018). Improving learning opportunities for special education needs (SEN) students by engaging pre-service science teachers in an informal experiential learning course. *Asia Pacific Journal of Education, 38*(3), 319–347. http://dx.doi.org/10.1080/02188791.2018.1505599

Lamture, S., & Gathoo, V. S. (2017). Self-efficacy of general and resource teachers in education of children with disabilities in India. *International Journal of Special Education, 32*(4), 809–822.

Lanterman, C. S., & Applequist, K. (2018). Pre-service teachers' beliefs: Impact of training in Universal Design for Learning. *Exceptionality Education International, 28*(3), 102–121.

Leatherman, J. M., & Niemeyer, J. A. (2005). Teachers' attitudes toward inclusion: Factors affecting classroom practices. *Journal of Early Childhood Teacher Education, 26*, 23–36.

McDonnell, J., Thorson, N., & McQuivey, C. (2000). Comparison of the instructional contexts of students with severe disabilities and their peers in general education classes. *Journal of the Association for Persons with Severe Handicaps, 25*(1), 54 –58. http://dx.doi.org/10.2511/rpsd.25.1.54

Metsala, J. L., & Harkins, M. J. (2020). An examination of preservice teachers' self-efficacy and beliefs about inclusive education. *Teacher Education & Special Education, 43*(2), 178–192. http://dx.doi.org/10.1177/0888406419873060

Navarro-Mateu, D., Franco-Ochoa, J., Valero-Moreno, S., & Prado-Gascó, V. (2020). Attitudes, sentiments, and concerns about inclusive education of teachers and teaching students in Spain. *Frontiers in Psychology, 11*. http://dx.doi.org/10.3389/fpsyg.2020.00521

Polat, N., Mahalingappa, L., Hughes, E., & Karayigit, C. (2019). Change in preservice teacher beliefs about inclusion, responsibility, and culturally responsive pedagogy for English learners. *International Multilingual Research Journal, 13*(4), 222–238. http://dx.doi.org/10.1080/19313152.2019.1597607

Rakap, S., Cig, O., & Parlak, R. A. (2017). Preparing preschool teacher candidates for inclusion: Impact of two special education courses on their perspectives. *Journal of Research in Special Educational Needs, 17*(2), 98–109. http://dx.doi.org/10.1111/1471-3802.12116

Ruppar, A. L., Neeper, L. S., & Dalsen, J. (2016). Special education teachers' perceptions of preparedness to teach students with severe disabilities. *Research and Practice for Persons with Severe Disabilities, 41*, 273–286. http://dx.doi.org/10.1177/1540796916672843

Snyder, T. D., de Brey, C., & Dillow, S. A. (2019). *Digest of education statistics 2018* (NCES 2020-009). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education.

Specht, J. A., & Metsala, J. L. (2018). Predictors of teacher efficacy for inclusive practice in pre-service teachers. *Exceptionality Education International, 28*(3), 67–82. http://dx.doi.org/10.5206/eei.v28i3.7772

Titone, C. (2005). The philosophy of inclusion: Roadblocks and remedies for the teacher and the teacher educator. *Journal of Educational Thought, 39*(1), 7–32.

Turnbull, R., Turnbull, A., Shank, M., & Smith, S. J. (2004). *Exceptional lives: Special education in today's school*. Pearson/Merrill Prentice Hall.

Van Reusen, A. K., Shoho, A. R., & Barker, K. S. (2000). High school teacher attitudes toward inclusion. *The High School Journal, 84*, 7–18.

Young, G., Specht, J. A., Hunter, F. E., Terreberry, S., McGhie-Richmond, D., & Hutchinson, N. L. (2018). "The first day he kicked shoes at me; the last day he brought me a picture of himself": Investigating the practicum experiences of preservice teachers. *Exceptionality Education International, 28*(3), 83–101.

The Lived Experience of College Students with Intellectual Disabilities

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Abstract

Within a private university in the United States, BUILD is a two-year program for individuals with intellectual disabilities. BUILD provides inclusive opportunities in coursework, employment, residential, and social activities with traditional students, as well as life skills and career training in courses specific to BUILD students.

This empirical phenomenological research study explored the lived experience of students with intellectual disabilities enrolled in the BUILD program. From interviews with six participants, the themes of social experience, independence, safety, and belonging emerged. The findings of this research indicate that the opportunity-rich environment, a network of support, and a community of belonging contributed to the participants' growth in self-determination. Therefore, innovative college programs can be used as an intervention to improve or enhance the self-determination of individuals with intellectual disabilities and these findings offer intervention components to consider in designing and implementing future programming.

Keywords: *intellectual disabilities, post-secondary education, self-determination, diversity, inclusion*

INTRODUCTION

Within a private, faith-based university in the United States, BUILD is a residential two-year program for individuals with intellectual disabilities (ID). BUILD represents one university's attempt to increase post-secondary educational access for students with ID. Simultaneously, BUILD is a pathway toward improved quality of life for individuals with ID.

The purpose of this research study was to explore the lived experience of students with intellectual disabilities enrolled in the BUILD program. Through an empirical phenomenological research design, using the conceptual framework of self-determination, the self-described lived experience of young adults with intellectual disabilities who are attending an integrated residential college program were explored.

Literature Review

Globally, people with disabilities experience poorer outcomes than people without disabilities, including health, education, economic options, and community participation outcomes (World Health Organization, 2011). For example, an increase in a wide range of health conditions and greater risk of developing secondary issues and comorbid conditions are associated with disabilities (Eide & Braathen, 2017). In many countries, children and adults with ID have been isolated within their communities and denied access to educational opportunities and development of vocational skills (Parmenter, 2011; UNESCO, 2010). Lower employment levels for adults with ID can be linked, in part, to higher levels of isolation and lack of education (Dempsey & Ford, 2009).

Specific to the United States, outcomes for adults with disabilities in employment and independent living lag far behind their peers without disabilities. Moore and Schelling (2015) reported that in 2009 the rate of employment for young adults (ages 21–25) with ID (53%) was significantly below those without disabilities (90.2%) and those with ID earned an average hourly salary of $7.25 compared to workers without disabilities earning $20.90. Housing is a marker of independent living and people with ID rarely choose where or with whom they live (Stancliffe, Lakin, Larson, Engler, Taub, & Fortune, 2011) and 64% live with parents or family members as cited in the National Longitudinal Transition Survey-2 (U.S. Department of Education, n.d.).

Intellectual Disabilities and Post-Secondary Education

In countries around the world, programs to include individuals with ID in post-secondary education (PSE) are increasing as an effort to promote inclusion, limit segregation, and improve lifelong outcomes for all people (Strnadová et al., 2018). In 1994, the World Conference on Special Needs Education adopted the principle of education for all in inclusive settings (UNESCO, 1994) and this principle was reinforced in 2000 at the World Education Forum (UNESCO, 2000). In 2006, the UN Convention on the Rights of Persons with Disabilities expanded, among other rights, the rights of

people with disabilities to have an equal opportunity to education and obligated states to provide opportunities for inclusive lifelong education for individuals with disabilities (United Nations General Assembly, 2006).

College programs have emerged in several countries, including Ireland, Canada, Iceland, Australia, and the United States, in which individuals with ID attend college with nondisabled peers (Bjornsdottir, 2017; Corby et al., 2018; Grigal et al., 2011; O'Brien et al., 2009; Plotner & May, 2019; Rillotta et al., 2020). These college and university programs provide a "normative pathway" to positive adult outcomes (Uditsky & Hughson, 2012, p. 299) and an opportunity for people with ID to lead a life similar to peers without disabilities (Corby et al., 2018). Studies have shown that students with ID who attend PSE programs have increased self-esteem, social opportunities, confidence, feelings of independence, sense of belonging, academic and living skills, employment rates, and community engagement (Bjornsdottir, 2017; Corby et al., 2018; O'Brien et al., 2009; Plotner & May, 2019; Rillotta et al., 2020).

In the United States, federal legislation mandates that public schools educate all students with disabilities, including those with ID, within the "least restrictive environment" (IDEA, 2004; PL94-142, 1975) and supports individuals with disabilities participating in PSE (Section 504 of the Rehabilitation Act of 1973; Americans with Disabilities Act, 2008n. However, while school-age students with ID participate in public education, they have not historically had opportunities to continue in PSE (Thoma et al., 2011). According to NTLS-2 data ((U.S. Department of Education, n.d.), in 2009, only 28.5% of individuals with ID reported ever having enrolled in a PSE program and none reported attending a four-year college/university.

The Higher Education Opportunity Act of 2008 (P.L. 110-315) specifically includes provisions to provide students with ID opportunities to attend institutes of higher education, contributing to an increase in inclusive college programs (Jernudd et al., 2019). Think College, a federally-funded center devoted to increasing quality inclusive higher education opportunities for students with ID, recognizes 283 PSE programs for students with ID at four-year colleges (Think College College Search Webpage, n.d.).

Although PSE programs now exist internationally and in the United States, significant variation exists among the structures, supports, and services offered (Bjornsdottir, 2017; Corby, et al., 2018; Grigal et al., 2011; O'Brien et al., 2009; Plotner & May, 2019; Rillotta et al., 2020). Regarding the curriculum, some programs are limited to segregated special education courses and others offer only individualized versions of fully-inclusive offerings. However, the most common structure includes a mixture of both formats (Grigal et al., 2011). Further, the level of integration in the social activities and campus community also varies widely, both by the purpose of the program and the mission of the institution (e.g., a two-year college versus a four-year university). Research is limited on a mixed format integrated postsecondary education program for students with intellectual disabilities that is fully integrated and residential. The purpose of this research is to address that gap from the perspective of the students, a methodology seldom found in studies about people with ID, thus exploring the self-described lived experience of young adults with intellectual disabilities who attend an integrated residential college program.

One Post-Secondary Education Model for Students with Intellectual Disabilities

This research study was conducted at a private, faith-based liberal arts institution located in the United States. The student population of approximately 5,000 is evenly distributed between traditional undergraduate and post-traditional (adult undergraduate, graduate, and seminary students). The majority of the traditional undergraduate students are residential.

Within this institutional context, the BUILD program is a fully residential two-year program for young adults with ID. BUILD students earn an Applied Skills Certificate, while focusing on five benchmarks: self-care, home care, relationships, academics, and employment. BUILD is a mixed program (Harrison et al., 2019), providing inclusive opportunities in coursework, employment, residential, and social activities with traditional students, as well as life skills and career training in courses specific to BUILD students. The BUILD program is housed in the University's Center for Access and Integration and employs eight full-time staff, along with traditional students who serve as mentors for BUILD students in academics, employment, and residential life.

Conceptual Framework

The conceptual framework of self-determination was used to explore the lived experience of students with ID attending an integrated residential college program. Self-determination is an important component of individual quality of life (Lachapelle et al., 2005; Wang et al., 2010; Wehmeyer & Schalock, 2001) and a criterion used to evaluate programs supportive of individuals with ID (Schalock & Verdugo, 2002).

Wehmeyer's causal agency theory of self-determination centers on the dispositional characteristics of individuals to possess and exercise volition to act intentionally and with causal agency (Shogren et al., 2015; Shogren et al., 2008). According to Shogren et al. (2008), self-determination is a personal characteristic that empowers individuals to exercise intention to maintain or improve one's life or circumstances and to make conscious choices based on personal will. Self-determination is not limited to a distinct list of skills but rather encompasses any behavior that furthers a person's ability to impact, direct, or cause events, and to have causal agency.

The social-ecological approach to self-determination considers how the environment influences the development and exercise of self-determination (Walker et al., 2011, Wehmeyer et al., 2003). This approach emphasizes that developing and exercising self-determination occurs in a social context. If self-determination is limited, it is often the result of human factors in the environment; for example, someone else is exerting personal will and controlling the environment. This interpretation recognizes that marginalized people (e.g., people with ID) have fewer opportunities to act intentionally to impact their lives, as minimal opportunities to make choices can limit an individual's development of self-determination.

According to Martin and colleagues (2003), self-determined learning occurs when an individual faces an obstacle to attaining a goal and they attempt to control the event by modifying their response. The individual learns as they alter their thinking, beliefs, and behaviors, while adjusting to the obstacle. In meeting and overcoming challenging circumstances, individuals impact the situation and self-determination grows (Shogren et al., 2008).

METHODS

An empirical phenomenological research design was used to explore the following research question: What are the lived student experiences of students with intellectual disabilities enrolled in a residential mixed program at a private university located in the United States? Empirical phenomenology was appropriate for the study given the dual commitments to represent the participants' unique and authentic perspectives in the analysis and to attend to pre-existing theory and research in contextualization (Aspers, 2009).

Site and Participants

This research study was conducted at a private, faith-based liberal arts institution located in the United States. Having obtained Institutional Review Board approval for the study, all second-year BUILD students, with the approval of their parents/guardians (if applicable), were invited by email to participate in the research.

Of the 12 BUILD students invited, six students agreed to be interviewed. As required by the BUILD program, all of the student participants lived on campus. All participants were second-year BUILD students, ensuring that they had nearly two years of university experience. Four participants were female and two were male, all were between 20 and 25 years of age, and all identified as White. The (required) internships and (optional) co-curricular involvement of the students varied significantly.

Due to ethical, methodological, and logistical concerns, limited research exists in which people with ID are the participants (Iacono, 2006; National Disability Authority, 2009). Thus, in this study the researchers made accommodations to hear the authentic lived experiences directly from the participants (Corby et al., 2015). The researchers were particularly sensitive to the participant's ability to provide informed consent (and if applicable, the need for guardian consent), the language and structure of the interview protocol, and the tone and impact of the interview.

Data Collection

Data for this research study were collected through semi-structured individual interviews (Merriam & Tisdell, 2016) with six BUILD students and guardian/parents, if applicable (Appendix A). The interviews were conducted by three researchers with terminal degrees in related educational fields, two with qualitative methodology expertise and two with education, special education, and/or intellectual disability expertise. The interviews were recorded virtually through Google Hangout and lasted from 35 to 95 minutes.

Each participant responded orally to the semi-structured interview questions, although the communication style and ability varied significantly among the participants. Some participant responses were concrete, bare, and literal, while others were loquacious and detailed. In order to account for this variation, two researchers conducted each interview, to better engage with the participants, hear their answers, and observe and interpret physical and non-verbal responses to the interview questions. Further, the option of interview follow-up

prompts and responding to the interview questions in writing were used to attempt to obtain as much description as possible. After the oral interviews, one participant also responded to the questions in writing.

In a few of these video calls, the researchers observed the participants' parents and/or guardians in proximity to the participant during the interview. Occasionally, participants looked to the parent for clarification; however, parents primarily remained available but unengaged. However, one parent was intrusive to the interview and did not allow the participant to self-describe their lived experience without regular interference. This participant provided further and more differentiated written responses to the interview questions.

Analysis and Procedures

In this research study, the phenomenon being researched was the lived experiences of students with ID enrolled in a residential two-year mixed program at a private university located in the United States. All student participants and their parents/guardians (if appropriate) reviewed their interview transcripts and three modified and/or expanded upon their initial responses. Three researchers analyzed the interview transcripts, individually coded words and phrases, then collaboratively negotiated and developed themes, and ultimately constructed meaning of the phenomenon (Moustakas, 1994). The researchers then used existing theory and literature to contextualize the phenomenon while staying true to the experience of the participants (Aspers, 2009).

Particularly due to the vulnerability of the study participants, the trustworthiness of this research process was paramount. The variety of academic discipline and personal backgrounds represented among the researchers reinforced the process of bracketing and enriched the inter-rater reliability of the collaborative coding process. Theoretical triangulation was achieved through the use of two interviewers, member checking, and a collaborative coding and analysis process, as described above (Aspers, 2009; Morse et al., 2002; Thurmond, 2001).

RESULTS

From the student interviews and written responses, three primary themes emerged: *social experience, independence,* and *safety and belonging*. Although the communication style and ability varied significantly among the students, these themes were clearly emphasized by the respondents as definitive of their student experience.

Social Experience

The social aspect of the student experience was emphasized by all of the participants. Although the expectations, needs, and preferences for interaction and activity varied, all participants referenced relationships and co-curricular activity as significant to their time on campus. Although the participant responses were overwhelmingly positive, conflict among roommates and friends was also described.

Relationships

According to the interview, relationships were a defining component of the BUILD student experience. The connections described included relationships with BUILD students, traditional student BUILD mentors, traditional students, and BUILD staff.

Most student participants highlighted time spent and relationships with friends. As stated in one interview, "Well, most of the time, pretty much every single day... I would spend a lot of time with my [BUILD] friend group." Multiple respondents, un-prompted, named their friends, seemingly proud of the number and network. Interview participants described "doing fun things together and learning new things every day together."

In particular, roommates seemed to be central to the relationship matrix. One respondent stated, "I think with my roommates, they were really like sisters to me." Most participants described spending time with their roommates, including listening to music, playing video games, and "just talking."

However, according to the interviews, there were also important friendships with non-BUILD traditional students. One participant described meeting traditional students who lived in the residence hall, explaining that they "sometimes invited us into their rooms to talk" and another shared that she "still keeps in contact with them." In the interviews, respondents also described developing relationships with non-BUILD traditional students around shared experiences or interests, such as sports, classes, or activities.

The traditional student BUILD mentors seemed to serve an interconnected friendship and support relationships role. The BUILD program included academic, housing, and internship mentors. According to the interviews, these BUILD mentors provided guidance and assistance. For example, participants shared that the housing mentors enforced living and social norms, with one student stating, "They explained...I learned...you can't just walk into someone's room; you would have to knock on their door, and there was some rules about

doing that." Another described the onsite internship mentor as explaining protocols and providing ongoing reminders. The participants indicated that mentors also assisted with necessary tasks, such as waking up, doing laundry, and getting back into their room when they locked themselves out. Another student emphasized the academic support that his mentor provided, stating, "They helped me when things are tough in class. If I had tests or something, they always helped me read. Because I'm a little harder reading a little bit." Other participants seemed to receive the mentors as friends who explained campus jokes, planned fun activities, or accompanied them to sporting events. Simply the accessibility of the mentors seemed to be an important and reassuring relational support for BUILD students.

Co-curricular Activities

In addition to relationships, the student participants seemed to enjoy participating in or attending co-curricular activities. In the interviews, respondents referenced university events, student activities, and BUILD student-specific programming. For some participants, meals, both in the cafeteria and in their apartments, were also social activities.

Some participants were involved in or attended university-wide co-curricular activities, such as choir or vespers (a student-led worship service). Several participants referenced sporting events. One respondent was particularly enthusiastic about games, stating, "I loved sports...hockey, football...hockey is my favorite…" According to the interviews, the traditional student BUILD mentors seemed to facilitate and encourage this engagement.

Other participants seemed more interested in the student and BUILD-specific programming, such as karaoke nights, bowling, residence hall parties, and coordinated shopping runs. One participant even described planning her own party, stating, "It was a Valentine party because no one was doing anything... I was like, 'I'm a single woman and don't really like Valentine's Day because I don't have any significant other to spend it with.' I had sugar, I had lemonade, and I had all appropriate things."

Conflict

Although less frequent in the interviews, a few participants did reference conflict with their roommates and/or other BUILD students. Some of the conflict appeared to be related to basic personality differences. For example, one participant stated, "Sometimes I would clash with their personalities, if I was in a bad mood,"

or another stated, "She was very quiet and I'm very in-your-face; I'm an extrovert." In contrast, a more significant conflict appeared to involve roommates, with a confrontation resulting in a room change; the participant explained, "we [were] fighting a lot. She always told me what to do."

Independence

Student participants were explicit about the theme of independence motivating and defining their student experience, seeming to perceive this opportunity to attend college to be an act of independence. According to the interviews, the participants navigated the daily requirements and demands of living on their own at college and indicated that the college experience enriched and improved their experiences of living on their own.

Independent Living

Participants indicated that one of the primary reasons they enrolled in BUILD was to become more independent. Some indicated general longings for independence, wanting "to learn how to be independent," or "live my life independently," while another referenced specific skills stating, "so I can learn stuff about cleaning and then laundry." Student participants also described the act of living independently on campus and managing their own affairs, including daily routines. One participant stated, "we went on our school iPads. We looked at our calendars to see what class was first and we [would] go to that classroom." Another student included her love of coffee in her morning routine, "then I would make a quick stop at [a local coffee shop]. I really like coffee, so I'll get some coffee. I'll get something for breakfast as well. And then I go to class." Others confessed that it was hard to get up and arrive on time for early classes.

The interviews indicated that students took advantage of many decision-making opportunities to exercise their independence. Participants made choices about eating in the dining center alone or with friends, cooking favorite things to eat, and "choos(ing) the right decisions" regarding exercise and healthy eating. One student explained splitting time between eating in the dining center and eating in the apartment "because I wanted to have like a really good balance." Respondents made choices about how to spend free time, such as attending certain sporting events, hanging out and listening to music, or spending time in the library. One participant reported going to the residence hall common area to "see what was going on... if nothing was happening, I would just go back to my dorm." Another student chose not to go bowling because it was "until midnight." One

participant summarized the experience: "I would just choose to execute my decisions wisely and just make good decisions."

Learning Independent Living Skills

Students reported learning "different stuff about what to do on your own." They learned "independent life skills and how to manage college life" in classes like independent living skills class and math class where students "learned to use money." Participants shared learning numerous skills in jobs and employment class, including "how to act in an interview, what do you wear in an interview," "job etiquette," and "you can't lie on a resume." Mentors supported participants in gaining independent living skills, "helping me doing stuff about cleaning. And then, I always ask them for help if I needed it." Participants learned skills in cleaning, cooking (e.g., "making a souffle and pesto"), folding clothes, washing dishes, and doing laundry, and they reported confidence in being able to perform these skills on their own after college

Hopes for an Independent Future

Interviews revealed that BUILD students are excited to maintain or increase their independence in the future. Most have a goal to live independently in an apartment either alone or with a friend and plans to work in areas of interest, such as working with children or at a church or hospital. Some are actively looking for work by applying at specific employers or utilizing an online job search platform. Participants described working with a government agency and a nonprofit organization to meet their independent living and employment goals. One student hoped for "a good life" that includes "watching different sports on TV, cook foods and work in the kitchen in an apartment." Another student is "really looking forward to what the future holds."

Safety and Belonging

The theme of safety and belonging emerged from a wide range of responses, but with the consistent emphasis on safety within spaces and a sense of belonging created through known campus community. While aspects of this theme intersect with the themes of *social experience* and *independence*, respondents used language that suggested that safety and belonging was foundational to their lived student experience.

Safe Spaces

Most participants emphasized their residence hall room or apartment as an important space that offered a sense of safety. In the interviews, many students seemed to find security and belonging through having their own designated living space, exemplified by one participant stating, "I had my own kitchen and I had my own living room and I shared my bedroom with my other roommate and then I had my own bathroom, too." Another respondent explicitly used the word "safe" to describe her apartment.

Aligned with the relationships referenced in the *social experience* theme and the independent living emphasis of the *independence* theme, participants expressed sentiments of ownership around their living space. Respondents used phrases such as "inviting (a friend) in" or "making them a meal" that demonstrated their sense of confidence in their full belonging in that space. Some participants even referenced "appropriate boundaries" around living spaces, seemingly desiring that their own space was respected, and respecting the space of others.

However, students also highlighted alternative spaces that offered them a sense of safety and belonging. For example, one participant stated, "a lot of the time I would go to the library at the University because I love the library and it was just so peaceful and it was just really calming and the aura of the atmosphere was just really calm." Another student referenced the university auditorium, in which the first few rows of seats were informally reserved for BUILD students, due to the frequency of their usage.

According to the interviews, navigating the physical campus was initially "scary," "big," and caused some anxiety. One participant referenced "memorizing" where the dining center and classrooms were located. A sense of safety and belonging appeared to develop as students learned the campus layout and/or asked for directions.

Sense of Belonging

A sense of belonging seemed to emerge through the integration of the lived student experience. Phrases referencing campus as "home" and "where I want to be" suggest a feeling of belonging. Words such as "helping," "supportive," and "understanding" indicate confidence in the ability to access necessary assistance. One participant stated simply, "I really appreciated just like how the University was so supportive and understanding."

Aligned with the theme of *social experience*, relationship and participating in community activities reinforced the participant's sense of belonging. Respondents used words such as "safe," "relaxing," "accepting," and "connection," indicating belonging was

created amidst those connections. One stated, "Whenever I was feeling different like afraid. If I was feeling like I needed to be with my friends, I would contact [them] and I would just kind of go off base from how my emotions were feeling." Another stated, "everyone was really accepting and kind."

A sense of belonging on campus, physically and relationally, seemed particularly important, considering the challenge of leaving the known comfort and safety of home. As one participant stated, "The scary part was leaving my family." However, the student continued, "I think when my parents left, I felt ok with really cool roommates...They were like sisters to me." Another student concluded, "I decided it was a really great fit. I really love the community."

Additionally, being involved in a shared faith community and participating in worship activities was highlighted in respondents' lived experience. These events included the broader campus, expanding community beyond the BUILD group. Attending chapel and vespers seemed to develop a sense of belonging through "singing songs about God" and "learning about Jesus." One student stated he, "went all the time. It was cool." Students appeared to identify a connection to God and others during these experiences, which deepened their community.

The enthusiasm expressed by participants regarding their lived experience seemed to emanate from a sense of feeling safe and belonging to a community. This theme was summarized as students shared what they loved most about their BUILD experience and what they would tell new BUILD students. Respondents stated they, "loved being a part of the community and experiencing everything." They would tell incoming students to "have fun," "make friends," "talk to mentors and teachers," and "be kind to one another." Lastly, the participants stated they did not want their BUILD experience to end. They wished for a third year.

DISCUSSION

The themes of *social experience, independence*, and *safety and belonging* illuminated how students with intellectual disabilities grew in self-determination through attending an integrated residential college program. Although the findings align with existing research and theory, new insights were also found as to how support and a strong sense of belonging contributed to the participants' increased self-determination.

Beginning with their recollections of wanting to enroll in the BUILD program to become more independent and live on their own, the participants described experience with setting and attaining goals and decision making. In this decision process, students demonstrated their inclinations to be self-directed, suggesting that they were already developing what Wehmeyer et al. framed as "causal agency" (2000). The college experience provided an innovative environment or intervention with a context that positively impacted the self-determination of individuals with ID (Walker et al., 2011). Key components of the college environment/intervention were opportunities to act with autonomy, appropriate supports, and a community of belonging.

Opportunity-Rich Environment

Self-determination is impacted by the environments in which people with ID live and work (Vincente et al., 2019) and the level of autonomy offered (Walker et al., 2011). According to Chambers et al. (2007), the development of self-determination depends more on the environment or context than cognitive abilities and individuals with ID who accessed community settings (to live and work) demonstrated higher levels of self-determination than those in more segregated settings. Historically, individuals with ID have experienced segregated settings with few opportunities to practice causal agency (Wehmeyer & Metzler, 1995). In contrast, BUILD students set and managed their daily routines, chose how to spend free time and with whom, advocated for themselves in relationships, and negotiated solutions to personal or group issues. Participants described navigating the social, practical, academic, and personal aspects of their lived student experience, the decisions they made, and what they learned about themselves.

The myriad of opportunities offered in the college campus environment allowed students to develop elements of self-determination outlined by Burke and colleagues (2020), including choice making, decision making, problem solving, goal setting and attainment, planning, self-advocacy, self-awareness, and self-knowledge. In this environment, participants were empowered to act in ways that made a "real" difference in their lives, to be causal agents (Wehmeyer, 2014). Exemplifying Martin and colleagues' self-determined theory (2003), being a college student also required participants to engage in new roles, adjust their responses based on their engagement in these new roles, and learn from the adjustment process. The opportunity-rich environment provided by the BUILD program and the broader university setting provided opportunities for students to develop and demonstrate greater self-determination.

Network of Support

The participants experienced a network of interconnected supports within the BUILD program and the broader university context, including BUILD specific coursework and designated mentor support. Classes and mentor support were designed to help students learn and practice independent living skills (e.g., cooking, laundry, employment skills, money skills). Participants expressed pride in developing independent living skills and enthusiasm to continue performing these important skills of daily living after college.

Skill-building has been viewed as an important avenue to developing greater self-determination; however, specific skill development is of secondary importance to acting in a self-determined way (Wehmeyer, 2014). Yet participants' confidence in their independent living skills seems to have increased their feelings of being prepared to live independently; they indicated that their plans to continue living independently after college were shaped by their college experiences. This finding aligns with O'Brien and colleagues' research (2009), that individuals with ID who attended a college program began to see themselves differently and as more capable to live independently after college and perceived that others (i.e., people without disabilities) also viewed them as more capable than before they attended the college program. Uditsky and Hughson (2012) also found that college students with ID assumed a new family position as their competence, confidence, and autonomy grew.

Participants viewed student mentors as helpful to problem-solve (e.g., help with getting to class on time or with coursework), operationalize their choices (e.g., go to a sporting event), and guide them to maintain college living norms and expectations. The mentor role is similar to Uditsky and Hughson's (2012) facilitator role "to engage the student in campus life, interpret both student and environment when necessary, and remain in the background as much as possible" (p. 301) and Rillotta and colleagues' peer mentor (2020). Students with ID benefitted from the support of mentors to ease the transition to college life, facilitate academic learning, and provide employment coaching.

The BUILD program provides a "normative pathway" (Uditsky & Hughson, 2012, p. 299) toward positive adult outcomes for people with ID in a college environment that is similar to the pathway of individuals without disabilities. In this integrated experience, students with ID and students without disabilities live and learn together, in contrast to an environment where students with ID live separately from traditional students or learn skills in isolation. Within this typical college setting, assistance is provided to students with ID, varies depending on individual student characteristics, and fluctuates based on skill areas such as academic, social, vocational, residential living, and independent living within a typical college setting.

Community of Belonging

According to research, a student's sense of belonging, or their feelings of acceptance and connectedness, significantly impact their student experience (Strayhorn, 2012). Mahar and colleagues (2013) defined "sense of belonging... as a subjective feeling of value and respect derived from a reciprocal relationship to an external referent that is built on a foundation of shared experiences, beliefs or personal characteristics" (p. 6). In this study, participants embraced community life at college and reported a sense of belonging that included feeling safe, assuming ownership, building relationships, and sharing a faith experience.

Students linked their sense of safety and ownership. They discussed concrete ways in which they felt safe within their dorm or apartment, exercised boundaries related to ownership, and invited others into their space. Beyond their specific residence, participants claimed other spaces on campus as safe and expressed satisfaction that they had learned to navigate the entire campus which suggests they were making the campus their own. This finding is similar to Strnadová and colleagues (2018) belonging-in-relation-to-space findings, which highlight the importance of being in a place where one can be oneself and decide what to do, who to be with, and how to express oneself.

Participants described connections to other students with ID, mentors, and traditional students, and these relationships facilitated a sense of belonging. Similarly, Power (2013) confirmed that meaningful engagement and reciprocal relationships are essential to belonging. Finally, students' sense of belonging was seemingly enhanced by their participation in activities that aligned with their expressions of faith, reflecting Mahar et al.'s "shared beliefs" (2013).

A sense of belonging and community are linked to developing and exercising self- determination (Bjornsdottir, 2017; Mahar et. al., 2013). Individuals with ID have often been marginalized and may not have experienced opportunities to exercise agency over their situations and may feel powerless to belong to a group or community (Mahar et al., 2013). However, participants demonstrated self-determination in that they exercised choice

and had power to develop satisfying relationships and a sense of belonging that defined their student experience.

LIMITATIONS AND FUTURE RESEARCH

Consistent with the inherent limitations of a qualitative research design, the findings of this study are not directly generalizable to other students with intellectual disabilities or university programs, particularly given the comprehensiveness of the BUILD program. Acknowledging the distinctiveness of the participant population, and the unique cognitive and communication patterns of these students with ID, it is difficult to determine if the accommodations that were made in order to conduct this research were effective. Additionally, further research, potentially through a longitudinal quantitative study, is needed to better understand the impact of the BUILD program on the participants' ongoing life skills and independent living.

CONCLUSION

This empirical phenomenological research explored the lived experiences of students with intellectual disabilities who attend a mixed program at a four-year residential university in the United States. BUILD represents one university's attempt to increase postsecondary educational access for students with ID. Simultaneously, BUILD is a pathway toward improved quality of life for individuals with ID. From interviews with six participants, the themes of social experience, independence, and safety and belonging emerged. The findings of this research indicate that the opportunity-rich environment of independent living on campus, the network of support provided by the BUILD program and the university, and the community of belonging that the BUILD students experienced contributed to the participants' growth in self-determination. The findings of this study align with previous research on self-determination and also provide new interpretations and applications. This suggests that innovative college programs can be used as an intervention to improve or enhance the self-determination (Walker et al., 2011) of students with intellectual disabilities. Further, these findings offer intervention components to consider in designing and implementing future initiatives for individuals with disabilities across international contexts, including public policy, government and private support systems, and residential and school programs.

REFERENCES

Americans with Disabilities Act Amendments Act, Pub. L. 110-325 (2008). https://www.ada.gov/pubs/adastatute08.pdf

Aspers, P. (2009). Empirical phenomenology: A qualitative research approach (The Cologne Seminars). *Indo-Pacific Journal of Phenomenology, 9*(2), 1–12.

Bjornsdottir, K. (2017). Belonging to higher education: Inclusive education for students with intellectual disabilities. *European Journal of Special Needs Education, 32*(1), 125–126.

Burke, K. M., Raley, S. K., Shogren, K. A., Hagiwara, M., Mumbardó-Adam, C., Uyanik, H., & Behrens, S. (2020). A meta-analysis of interventions to promote self-determination for students with disabilities. *Remedial and Special Education, 41*(3), 176–188.

Chaffee, E. E., & Tierney, W. G. (1988). *Collegiate culture and leadership strategies*. Macmillan.

Chambers, C. R., Wehmeyer. M. L., Saito, Y., Kerry, M., Lida, K. M., Lee, Y., & Singh, V. (2007) Self-determination: What do we know? Where do we go? *Exceptionality, 15*(1), 3–15. https://doi.org/10.1080/09362830709336922

Corby, D., Taggart, L., & Cousins, W. (2015). People with intellectual disability and human science research: A systematic review of phenomenological studies using interviews for data collection. *Research in Developmental Disabilities, 47*, 451–465.

Corby, D., Taggart, L., & Cousins, W. (2018). The lived experience of people with intellectual disabilities in post-secondary or higher education. *Journal of Intellectual Disabilities*. https://doi.org/10.1177/1744629518805603

Dempsey, I., & Ford, J. (2009). Employment for people with an intellectual disability in Australia and the United Kingdom. *Journal of Disability Policy Studies, 19*(4), 233–243.

Eide, A. H., & Braathen, S. H. (2017). Disability and equity in public health. *Tidsskriftet den Norske Legeforening, 137*(21). https://tidsskriftet.no/en/2017/11/global-helse/disability-and-equity-global-health#ref1

Education for All Handicapped Children Act, Pub. L. 94-142 (1975). https://www.govinfo.gov/content/pkg/STATUTE-89/pdf/STATUTE-89-Pg773.pdf

Grigal, M., Hart, D., & Weir, C. (2011). Framing the future: A standards-based conceptual framework for research and practice in inclusive higher education. *Think College Insight Brief, 10,* 1–3.

Harrison, A, J., Bisson, J. B., & Law, C. B. (2019). Impact of an inclusive postsecondary education program on implicit and explicit attitudes toward intellectual disability. *Intellectual and Developmental Disabilities, 57*(4), 323–336.

Higher Education Opportunity Act, Pub. L. No. 110-315 § 122 STAT. 3078 (2008). https://www.congress.gov/bill/110th-congress/house-bill/4137

Iacono, T. (2006). Ethical challenges and complexities of including people with intellectual disability as participants in research. *Journal of Intellectual and Developmental Disability, 31*(3), 173–179.

Individuals with Disability Education Improvement Act, 20 U.S.C. § 1400 (2004). https://www.congress.gov/bill/108th-congress/house-bill/1350

Jernudd, I., Nagaraj, S., Mueller, S., & Rozell, D. (2019). State policy actions supporting higher education for students with intellectual and developmental disabilities. *Think College Insight Brief, 42*. University of Massachusetts Boston, Institute for Community Inclusion.

Lachapelle, Y., Wehmeyer, M. L., Haelewyck, M.-C., Courbois, Y., Keith, K. D., Schalock, R., Verdugo, M. A., & Walsh, P. N. (2005). The relationship between quality of life and self-determination: An international study. *Journal of Intellectual Disability Research, 49*(10), 740–744.

Mahar, A. L., Cobigo, V., & Stuart, H. (2013). Conceptualizing belonging. *Disability and Rehabilitation, 35*(12), 1026–1032.

Martin, J. E., Mithaug, D. E., Cox, P., Peterson, L. Y., Van Dycke, J. L., & Cash, M. E. (2003). Increasing self-determination: Teaching students to plan, work, evaluate, and adjust. *Exceptional Children, 69*(4), 431–446.

Merriam, S. B., & Tisdell, E. J. (2016). *Qualitative research: A guide to design and implementation*. Jossey-Bass.

Moore, E. J., & Schelling, A. (2015). Postsecondary inclusion for individuals with an intellectual disability and its effects on employment. *Journal of Intellectual Disabilities, 19*(2), 130–148.

Morse, J. M., Barrett, M., Mayan, M., Olson, K., & Spiers, J. (2002). Verification strategies for establishing reliability and validity in qualitative research. *International Journal of Qualitative Methods, 1*, 1–19.

Moustakas, C. (1994). *Phenomenological research methods*. Sage.

National Disability Authority. (2009). *Ethical guidance for research with people with disabilities*. (Disability Research Series No. 13).

O'Brien, P., Shevlin, M., O'Keefe, M., Fitzgerald, S., Curtis, S., & Kenny, M. (2009). Opening up a whole new world for students with intellectual disabilities within a third level setting. *British Journal of Learning Disabilities, 37*(4), 285–292.

Parmenter, T. (2011). *Promoting training and employment opportunities for people with intellectual disabilities: International experience* (Employment Working Paper No. 103). International Labour Organization.

Plotner, A. J., & May, C. (2019). A comparison of the college experience for students with and without disabilities. *Journal of Intellectual Disabilities, 23*(1), 57–77.

Power, A., Lord, J. E., & DeFranco, A. S. (2013). *Active citizenship and disability implementing the personalisation of support*. Cambridge University Press.

Rillotta, F., Hutchinson, C., Arthur, J., & Raghavendra, P. (2020). Inclusive university experience in Australia: Perspectives of students with intellectual disabilities and their mentors. *Journal of Intellectual Disabilities, 24*(1), 102–117.

Schalock, R. L., Bonham, G. S., & Verdugo, M. A. (2008). The conceptualization and measurement of quality of life: Implications for program planning and evaluation in the field of intellectual disabilities. *Evaluation and Program Planning, 31*(2), 181–190.

Schalock, R. L., & Verdugo, M. A. (2002). *Handbook on quality of life for human service practitioners*. American Association on Mental Retardation.

Section 504 of the Rehabilitation Act, as amended, 29 U. S. C. § 794. (1973). https://www2.ed.gov/policy/rights/reg/ocr/edlite-34cfr104.html

Shogren, K. A., Wehmeyer, M. L., Palmer, S. B., Forber-Pratt, A., Little, T., & Lopez, S. (2015). Causal agency theory: Reconceptualizing a functional model of self-determination. *Education and Training in Autism and Developmental Disabilities, 50*(3), 251–263.

Shogren, K. A., Wehmeyer, M. L., Palmer, S. B., Soukup, J. H., Little, T. D., Garner, N., & Lawrence, M. (2008). Understanding the construct of self-determination: Examining the relationship between the Arc's Self-Determination Scale and the American Institutes for Research Self-Determination Scale. *Assessment for Effective Intervention, 33*(2), 94–107.

Stancliffe, R. J., Lakin, K. C., Larson, S., Engler, J., Taub, S., & Fortune, J. (2011). Choice of living arrangements. *Journal of Intellectual Disability Research, 55*(8), 746–762.

Strnadová, I., Johnson, K., & Walmsley, J. (2018). "…but if you're afraid of things, how are you meant to belong?" What belonging means to people with intellectual disabilities. *Journal of Applied Research in Intellectual Disabilities, 31*(6), 1091–1102.

Strayhorn, T. L. (2012). *College students' sense of belonging: A key to educational success for all students*. Routledge.

Think College Webpage. (n.d.). *College Search*. https://thinkcollege.net/college-search

Thoma, C. A., Lakin, K. C., Carlson, D., Domzal, C., Austin, K., & Boyd, K. (2011). Participation in postsecondary education for students with intellectual disabilities: A review of the literature 2001–2010. *Journal of Postsecondary Education and Disability, 24*(3), 175–191.

Thurmond, V. (2001). The point of triangulation. *Journal of Nursing Scholarship, 33*, 253–258.

Uditsky, B., & Hughson, E. (2012). Inclusive postsecondary education—An evidence-based moral imperative. *Journal of Policy and Practice in Intellectual Disabilities, 9*(4), 298–302.

UNESCO. (1994). *The Salamanca world conference on special education: Access and quality*. UNESCO and the French Ministry of Education.

UNESCO. (2000). *Education for all: Meeting our collective commitments, World Education Forum; The Dakar Framework for Action*. UNESCO

UNESCO. (2010). *Reaching the marginalized* (EFA Global Monitoring Report, 2010). Oxford University Press. http://unesdoc.unesco.org/images/0018/001866/186606e.pdf

United Nations General Assembly. (2006). *Convention on the rights of persons with disabilities*. United Nations.

U.S. Department of Education. Institute of Education Sciences, National Center for Education Statistics. (n.d.). *National Longitudinal Transition Study-2*. https://ies.ed.gov/ncser/projects/nlts2/

Vicente, E., Verdugo, M. A., Gómez-Vela, M., Fernández-Pulido, R., Wehmeyer, M. L., & Guillén, V. M. (2019). Personal characteristics and school contextual variables associated with student self-determination in Spanish context. *Journal of Intellectual & Developmental Disability, 44*(1), 23–34.

Walker, H. M., Calkins, C., Wehmeyer, M. L., Walker, L., Bacon, A., Palmer, S. B., Jesien, G. S., Nygren, M. A., Heller, T., Gotto, G. S., Abery, B. H., & Johnson, D. R. (2011). A social-ecological approach to promote self-determination. *Exceptionality, 19*(1), 6–18.

Wang, M., Schalock, R. L., Verdugo, M. A., & Jenaro, C. (2010). Examining the factor structure and hierarchical nature of the quality of life construct. *American Journal on Intellectual and Developmental Disabilities, 115*(3), 218–233.

Wehmeyer, M. (2014). Disability in the 21st century: Seeking a future of equity and full participation. In M. Agran, F. Brown, C. Hughes, C. Quirk, & D. Ryndak (Eds.), *Equity and full participation for individuals with severe disabilities* (pp. 3–24). Paul H. Brooks.

Wehmeyer, M. L., Abery, B. H., Mithaug, D. E., & Stancliffe, R. J. (2003). *Theory in self-determination: Foundations for educational practice*. Charles C. Thomas.

Wehmeyer, M. L., & Metzler, C. A. (1995). *How self-determined are people with mental retardation?* The National Consumer Survey.

Wehmeyer, M. L., Palmer, S. B., Agran, M., Mithaug, D. E., & Martin, J. E. (2000). Promoting causal agency: The self-determined learning model of instruction. *Exceptional Children*, *66*(4), 439–453.

Wehmeyer, M. L., & Schalock, R. L. (2001). Self-determination and quality of life: Implications for special education services and supports. *Focus on Exceptional Children*, *33*(8), 1–16.

Wilson, N. J., Jaques, H., Johnson, A., & Brotherton, M. L. (2016). From social exclusion to supported inclusion: Adults with intellectual disability discuss their lived experiences of a structured social group. *Journal of Applied Research in Intellectual Disabilities*, *30*(5), 847–858. doi:10.1111/jar.12275

World Health Organization. (2011). *World report on disability*. Author. https://www.refworld.org/pdfid/50854a322.pdf

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Appendix A

1. Why did you come to Bethel? What did you think it would be like?

2. What is your day like at Bethel?
      a. How do you spend your free time?
      b. Where do you live? What's it like in the dorms/apartments?

3. Who do you spend time with?
      a. Who do you spend your time with at Bethel?
      b. Student mentors?
      c. Other BUILD students?
      d. Other students?

4. What makes you happy at Bethel?

5. What has been hard about being at Bethel? Challenges.
      a. Classes?
      b. Internships/Jobs?
      c. Other students?
      d. Managing time?

6. What have you learned and how have you changed since being at Bethel?
      a. Classes?
      b. Teachers?
      c. Student Mentors?
      d. Internships/Jobs?

7. How do you see your future after you leave here? Is that different than before you came?

Inclusive Education for Students with Disabilities in Japan and the U.S.

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Abstract

Inclusion, specifically inclusion of students with disabilities in the educational system, is not just compliance to standards, but also an attitude. Therefore, inclusive education can be implemented in various ways. This article will examine the educational systems of the United States and Japan, using a case study and literature review. The case study utilizes an interview with an educator with experience in classrooms in both Japan and the U.S. and was conducted based on a theoretical framework. The results from the case study and the literature review both reveal that culture and legal structure are key components when considering how differently inclusion is viewed in Japan and the U.S.

Keywords: *inclusion, inclusive education, culture, laws, disabilities*

INTRODUCTION

There is almost universal agreement that students with disabilities gain social and communication benefits in inclusive settings (Jackson et al., 2010; Wehmeyer et al., 2016). Supporting inclusion, Floyd (2014) showed that there are no differences in academic achievement for students with disabilities between inclusive and traditional separate classroom settings, and Bowers (2009) revealed that inclusion actually improved student academic achievement. Approximately 13% of students in the U.S. qualify for services under the Individuals with Disabilities Education Act (IDEA). In the U.S., inclusion is defined as the participation of students with disabilities alongside their peers without disabilities in academic settings and in extracurricular and other school activities (Turnbull et al., 2020). Although IDEA allows placements other than the general education classroom, it presumes that the setting of choice for students is the general education classroom to the maximum extent possible and that students will not be removed from that setting unless inclusion in the general education classroom cannot be achieved satisfactorily with the use of supplementary aids and services, and specially designed instruction.

Inclusion is an attitude and a commitment to provide needed services and resources to the child with disabilities in a regular education setting, rather than placing the child in a more segregated setting where services are located. Inclusion refers to a condition or state of being and has more to do with how educators respond to individual differences than with specific instructional configurations (Voltz et al., 2001). Inclusion supports students' outcomes, along with decisions about their placements. Inclusion is qualitative, not merely the amount of time the student spends in the general education setting.

The rationale of inclusion in the U.S. has been shaped by legislative requirements and many court cases. While ruling against the racial segregation of students in *Brown v. Board of Education* (1954), the U.S. Supreme Court suggested that segregating students with disabilities from those without was also unequal. Roncker v. Walter (1983) was one of the early landmarks of the court cases related to special education in the U.S., which contributed to reinforcing inclusion by ensuring school to bring services to the classroom rather than removing the student. Most of these court cases were initiated by parents and families to advocate for appropriate services for students with disabilities. One of the major principles of the IDEA—the least restrictive environment (LRE)—stipulates that students with disabilities must be educated with children without disabilities to the maximum extent appropriate, which warrants including all students in general educational settings unless their educational needs cannot be met there.

The concept of inclusion of people with and without disabilities in Japan stems from the concept of normalization, which originated in Europe. However, the principles of normalization have been modified over the years as they journeyed from country to country (Culham & Nind, 2003). In 2014, the Japanese government ratified the Convention on the Rights of People with

Disabilities (CRPD) adopted by the United Nations in 2006. Ratifying the convention made it seem that Japan was accepting inclusion, but some experts argue that Japanese society was including people with disabilities without emphasizing their rights (Japan Disability Forum, 2010; Ueda & Kim, 2014). This lukewarm support of rights for individuals with disabilities suggests that Japan might have understood the concept of inclusion differently than other countries do.

Although the concept of normalization started in Europe, Japanese educators and researchers have mostly adopted the notion of inclusion from the U.S.; some advocate the idea of "Kyosei education" (translated as Education for All) (Nishinaga, 2018). Kyosei education is understood as a ramification of inclusive education where students with and without disabilities coexist in various educational settings. The idea of inclusive education has been supported by the Ministry of Education, Culture, Sports, Science and Technology (abbreviated as MEXT) in Japan since 2012. Kyosei education views inclusive education as: (1) educating students with disabilities in the general classroom alongside students without disabilities, (2) aiming at independence and social participation, and (3) having a diverse and flexible system that serves the educational needs of various students. Thus, the concept of inclusive education in Japan allows for diverse educational settings (e.g., general education classrooms, special education classrooms, special schools) (Nishinaga, 2018). Under Education for All, all students in Japan are considered to be included in a range of educational settings. This is similar to the continuum of placements and services in the U.S. that range from the most inclusive (i.e., general education classroom) settings to the most segregated settings (i.e., special schools) (Turnbull et al., 2020). However, the U.S. is debating whether to eliminate these placements (Turnbull et al., 2020), suggesting that all students—both with and without disabilities—be educated in the same classrooms.

Special support education or special needs education (translated into English and acknowledged in both terms) started in Japan in 2006, differing from traditional special education (Basic Act on Education, 2006). The Basic Act on Education (2006) stated the importance of building Kyosei society (i.e., inclusive society) where people with all abilities can thrive (Tsuda, 2013). However, Tsuda (2013) noted problems with this view due to the increasing number of students placed at special schools, relying heavily on medical diagnoses of disabilities, and possibly misidentifying students with maladjustment to schools as having emotional disturbances, which has been debated in the educational field in Japan for the last decade. It seems the concept of inclusion needs to be interpreted in the way it fits into Japanese society, considering individuals both with and without disabilities.

Since the law to encourage students with hearing and vision impairments and intellectual disabilities to attend special schools was enacted in 1954, several laws have supported various rights of individuals with disabilities (e.g., employment, education, welfare) and have been legislated and reauthorized in Japan (e.g., Basic Act for Persons with Disabilities, reauthorized in 2011, Services and Supports for Persons with Disabilities Act, reauthorized in 2018), in order to protect the basic rights for individuals with disabilities and to support their independence. There were some court cases over admissions of students with disabilities by schools in Japan (Yoshida & Moribe, 2007). Filed by parents and families, most of these court cases are related to special education in Japan, and are about accidents and incidents involving students with disabilities. Few are concerned about rights of, and services for, students with disabilities.

Japan strives to educate all students, including those with and without disabilities, as guided by the Basic Act on Education (most recent reauthorization in 2006). In Japan, special education placements are determined mostly by disability categories and their severity, based on their eligibility for the School Education Law (1947), which heavily relies on medical diagnoses. Students with moderate and severe/profound intellectual disabilities, for example, are likely to be placed at special schools instead of special education classrooms at regular schools. The MEXT (2014) reports an overall increase in the number of students with disabilities in Japan, indicating that 3.33 % of the school-age children at elementary and middle schools have disabilities. However, the percentage of the students placed at special schools with vision/hearing impairments, severe intellectual disabilities, orthopedic disabilities, and other health impairments (except ADHD) has been decreasing for the last decade. With the increased awareness and advanced diagnostic assessments, as seen in the U.S., more students with developmental disabilities (including autism and ADHD), intellectual disabilities, learning disabilities, emotional disturbance, speech/language disorders, and so on have been more frequently identified and placed in both general and special education classrooms. Identification of students with disabilities relies on the medical model, and tiered-instructional models, such as Response to Intervention (RtI) (Kaizu,

2015), that have been found to be effective in some studies (e.g., Kobayashi et al., 2014). Tiered-instructional models have been a subject of discussion in Japan (Murayama, 2017), which implies that RtI has been considered as the potential framework for implementing instruction and assessments in Japan, although it has been recognized only for students with disabilities.

METHODS

Research Design and Presenting Problem

The purpose of the study was to investigate the differences and similarities in inclusion of students with disabilities in the educational system in Japan and the United States. In addition to the literature review, a case study research design was implemented using an interview with an educator who has taught in general and special education classrooms both in Japan and the U.S. Due to the nature of the study and the challenge in finding educators with such experience in two countries, the researchers conducted one interview, which was structured using Bronfenbrenner's ecological model (Bronfenbrenner, 1979, 1986) in order to compare inclusion of students with disabilities in the educational systems in both countries and to identify differences and similarities.

Participant

The interviewed participant graduated with a dual degree in Child Psychology and Special Education in the U.S. They have an Academic Behavioral Strategist initial license in special education. In their two years of experience, they have taught in special education classrooms in the U.S. as well as in both general and special education classrooms in Japan, where they are currently teaching. Because of their background, they have been able to see the different levels of systems firsthand in both countries.

Procedure

The interview occurred over a video call. The researcher presented a set list of questions for the participant, but also encouraged an open discussion about their experiences and expertise. The researcher took notes of the participant's responses.

Theoretical Framework

The interview questions were developed intentionally using Bronfenbrenner's ecological model. This model conceptualizes the influence of the environment on a child's development at several different levels (Bronfenbrenner, 1979, 1986). In the early version of this model, Bronfenbrenner incorporated four systems:

Macrosystem, Exosystem, Mesosystem, and Microsystem (Bronfenbrenner, 1979). Later, he added the chronosystem (Bronfenbrenner, 1986). The researchers considered all five systems: Chronosystem, Macrosystem, Exosystem, Mesosystem, and Microsystem. The closest level to the individual in this model is the Microsystem. The Microsystem considers the immediate setting and factors of which the person is a part. Moving further away is the Mesosystem. This level refers to the relationships between the Microsystems. The Exosystem includes factors that impact the more immediate contexts such as mass media and local politics. At a broader level of this model is the Macrosystem. This level considers values and beliefs of a culture, including societal values. Chronosystem takes into consideration the changes in the ecological system over time. Because these systems are interconnected, changing one factor could have a large impact on every other system. This model was used to form the interview questions to identify salient themes that represent differences and similarities in the inclusion of students with disabilities in the educational system in Japan and the U.S. For example, the participant was asked about the similarities and differences in the perception of inclusion and disabilities, the role of teachers and parents, instructional methods, different laws relating to inclusion, and more. The literature review in the article was guided by the themes that emerged from the interviewee's responses.

RESULTS

Case Study Findings

In the following sections, the researchers report the responses of the interviewed participant. The answers and discussions with the participant are organized in a way that can be understood from the perspective of the ecological model, starting from the outermost system (Chronosystem) and working down to the smallest (Microsystem).

Chronosystem

Like much of the world, Japan's views on disabilities have changed over time. When asking the participant about this change, they discussed a historical movement. In Japan in the 1970s, society sympathized with a mother who killed her child with cerebral palsy. As the mother faced trial, many petitioned that she receive lenient sentencing. The participant also explained how this was not out of the ordinary, and similar cases had occurred with similar reactions in Japanese society. Yet this case was important because, for the first time, people with disabilities spoke up and protested

with the representation of Aoi Shiba no kai (meaning Green Grass Association). This protest sparked interest in studies on disabilities in Japan. As societal views changed, laws changed as well in regard to those with disabilities. This shows consistency with the ecological model as one system impacts another.

This story can be compared to that of the United States' history where those with disabilities were institutionalized. The U.S. has a history of devaluing those with disabilities and segregating them from the rest of society. Not only this, but there is also a history of mistreatment and abuse of these individuals. Additionally, those with disabilities were stigmatized and given derogatory labels. These viewpoints, however, have changed over time, and those with disabilities have been deinstitutionalized.

Macrosystem

The participant noticed the high value of unity and group success in Japan. Those perceived as different or out of the norm are typically viewed in a negative light by Japanese society. There is also immense pressure on students to achieve academic success, which is shown by performing highly on tests. Students will often attend "cram schools" to study intensively in preparation for high school and university entrance examinations. With such a high emphasis on test-taking abilities, students who do not perform what is considered adequately are not viewed in a high regard. Some students with special needs may not perform to standard on these tests. Furthermore, because Japanese schools value equality and uniformity, providing modifications or accommodations is not considered "equal" to other students, and it is therefore viewed in a negative light. Equality is favored over equity, even though giving each child the same thing does not always meet the unique needs of every student. This viewpoint seems to reflect how an individual can conform, rather than how society can accommodate the individual. The participant shared a story about a coworker in Japan who works as an office secretary and is Deaf. He, an equal of his coworkers, struggles to truly be included in the working environment. He is not invited to attend the entrance ceremony at the school, various staff meetings, or work parties like all of the other staff in the school. The participant said when they asked fellow colleagues about this, they answered that it would not make sense to have him attend when he would just sit there and not understand what is going on. The participant found this ironic as they do not fluently speak Japanese yet are always invited to these events. The coworkers see

the limitations from his disability instead of thinking of ways to include him, such as through a translator or a written transcript.

Among those who view inclusion favorably, there is still much debate about what "inclusion" means. In Japan, completely separate schools for children with disabilities are still considered as "inclusive education," regardless of being completely segregated from students without disabilities. The participant finds this hypocritical as segregation of children with disabilities is seen as inclusive but separating students in general education based on differing academic skills is rare. Because of Japan's value on uniformity and equality, students all take the same classes with only a few electives, as opposed to the U.S. where there are different levels of classes to choose from, based on academic performance.

Similar to Japan, the U.S. offers separate special education schools for students with disabilities. Furthermore, even when students with disabilities are included in the general education system, they do not necessarily spend a full day in this setting. While this is not seen as inclusive, there is a mindset in the U.S. that segregation in the education system is necessary and beneficial. The participant believes that both societies have "...an attitude that people with disabilities are the only party that would benefit from inclusion, as opposed to society as a whole benefiting from inclusion." They feel "inclusion is something that both cultures are striving for, yet honestly, failing to truly achieve."

Exosystem

Legislation is extremely important in protecting the rights of those with disabilities, yet it is looks different between these two countries. Even with the United Nations' Convention on the Rights of Persons with Disabilities (CRPD) ratified in Japan, the participant states that a societal view impacts the interpretation of this convention. Japanese society views special education as part of the general education system, and therefore separate schools for children with disabilities is still seen as inclusive.

The participant expressed frustration with some of Japan's legal framework, such as wording in the School Education Law (1947) that, "seems to put blame on those with disabilities as if the disability is the ultimate cause for difficulties they may face instead of placing blame on a non-inclusive society." The participant also discussed the Basic Act on Education, which they feel leaves special education and services to be provided to students open to interpretation. The participant also

believes some legislation in the United States has ambiguous wording, again leaving room for interpretation. Because of this, inclusion does not always exist. In this way, both Japan and the United States use legal loopholes to allow the segregation of children with disabilities.

Mesosystem

While the participant did not feel comfortable discussing parent-school relationships in Japan in depth as they have less knowledge of this communication and relationship due to the language barrier, they were able to discuss their experience in communication between general and special education teachers. The participant states that in Japan, special education teachers at special needs schools often advise general education teachers. However, it can be difficult for the special education teachers to give specific information when they do not interact with the children on a day-to-day basis as they do not teach at that school. Furthermore, the participant explains how teachers in Japan are moved around between schools every three to ten years with little to no say from the teachers. Therefore, the participant feels it is harder to build that rapport between teachers and also sometimes to gain experience in certain areas of teaching. In addition, while communication is open as teachers meet regularly, the communication is more indirect as Japan has a high-context culture. Teachers do not talk about specific students often unless it is deemed to be extremely important. Because of this, the participant feels there is a lack of tracked progress, especially between middle school and high school, as high school is not part of compulsory education. Therefore, there is little to no contact between the two levels of schools. The participant recalled a time when they and their fellow teachers were concerned about one of their high school students. When the participant asked their fellow teachers if his middle school teachers had noticed similar behavior, they seemed surprised that this would even be asked. The teachers had no idea, as they did not have any discussions with the middle school teachers and had not thought to ask them.

In contrast with Japan, the participant has had experience in the United States where teachers hold "transition meetings" when a special education student moves from elementary school to middle school. Teachers from both elementary and middle school, as well as the student and parents, would attend these meetings to discuss how the student can succeed in middle school.

However, the participant has also had negative experiences in the United States regarding teacher communication. They stated that that "whenever something happens involving a student in special education, the general education teacher will typically throw the responsibility onto the special education teachers by asking the student to leave their classroom instead of dealing with the situation within their classroom. Some general education teachers will even call special education students who are in their class 'your students' to special education teachers." They recall a general education teacher removing a student's name from his classroom locker because she felt he was not part of her class since he spent part of his day in the special education classroom. The participant believes that, "although they may make accommodations and implement measures of inclusion, to have this attitude about inclusion towards these students, cannot and will never foster a genuine environment of inclusion for these students."

Microsystem

The participant has seen similarities between the United States and Japan in the levels of classifying different settings of special education. In the U.S., the least restrictive environment is implemented, which ensures that children with disabilities receive the most adequate education feasible before moving into different settings of special education services (Hallahan et al., 2019b). They have seen resource rooms added to general education schools in both countries. Furthermore, both countries also provide services at separate special education schools as well as hospital and home instruction.

When it comes to identifying and providing accommodations for students with disabilities, there are some significant differences between the two countries. The participant has seen the "wait to fail" model implemented in the Japanese school where they teach. They explain this model as waiting until absolutely necessary to intervene or provide accommodations to the child. While the "wait to fail" model is currently being implemented in Japan, the participant says that in recent years there has been an increased awareness in Japan of what is classified as mild and moderate disabilities, whereas before there was more of an emphasis on what is classified as more severe disabilities. This has led to a wider range of students being accommodated in the general education classroom. Furthermore, they say Japan has also changed the special needs school classifying system to help accommodate individuals with multiple disabilities.

The participant discussed how the U.S. is moving away from the "wait to fail" model towards multi-tiered systems of support or the response to intervention framework. These multi-tiered frameworks provide services and early intervention to at-risk students who are struggling in certain areas of schooling (Hallahan et al., 2019b). Some people believe that in the "wait to fail" model, by the time students start receiving services too much time has been lost. In this way, the response to intervention framework is a preventative measure that avoids overidentification of children while helping struggling students who might not receive extra help otherwise (Hallahan et al., 2019b). In the response to intervention framework, students with or without disabilities can receive services and intervention so they can all succeed.

The participant has seen a big difference between the two countries in instructional methods and accommodations. Japan is a technologically advanced country, but the participant has not seen this implemented in the educational field. They feel the use of technology in schools is lacking and notes that "the school I teach at has two projectors that are shared with the entire school." Because of a lack of technology, there is a great impact on the amount of assistive technology that is available to students with disabilities. There also is a lack of knowledge in how to use technology. Anytime the participant makes a simple PowerPoint presentation, their coworkers are amazed at their abilities. Furthermore, the school where the participant teaches in Japan has recently closed due to the coronavirus, but they were unable to move to teaching online because they do not have the resources to do so.

On the other hand, they have seen assistive technology emphasized in the United States. This technology accommodates students with disabilities in the classroom and is a great instruction tool for teachers. Specifically, the participant has seen speech-to-text technology help students with physical disabilities who struggle with typing or written information. Furthermore, they have seen assistive technology allow children to work independently as opposed to getting assistance from a teacher, which in turn gives them a sense of pride and accomplishment.

How children without disabilities view their peers with disabilities is important and can impact the child directly. The participant has seen in both countries that peers will typically mimic the mindset, attitudes, and behaviors of their teachers in regard to disability. They have observed teachers they work with strive towards inclusion and understanding, and the peers in these individuals' classrooms have mimicked those beliefs. On the other hand, they have also worked with teachers who have an attitude of working with a student of higher needs as a burden, and these peers struggle to include the student. In the earlier example where the teacher removed the student's name from the locker and did not view him as her student, the participant said that child was bullied persistently in that classroom and ended up wanting to spend more time in the special education classroom as he did not feel welcome amongst his peers. They state this is not always the case, but in their experience and observations, "the way peers treat a student with a disability is correlated with how the teacher treats the student." This connection between attitudes and behaviors of teachers to that of peers demonstrates the complexity of the ecological model.

Literature Review Findings

Reviewing the interview responses showed an emphasis on the perception of disabilities and inclusion as well as the role of legislation. While the participant's viewpoints are based on their experiences, it is important to note that there may be some bias in their responses. This is why it is important to look at existing literature as well, which also confirms the participant's experience. The literature review, such as findings from Futaba (2016) and Nagano and Weinberg (2012), put similar emphasis on the topics that the interviewee focused on, and therefore the following two themes surfaced: 1) culture, and 2) legal structures.

Culture

Inclusion is not just a physical application, but also a mindset. How a culture functions and what is valued plays a role in how inclusion is viewed and applied. Japan has a collectivistic culture, putting group success and unity above individuality. This has created systems to work in homogenous groups to prove uniformity (Futaba, 2016). People with disabilities are not seen as individuals, but rather members of the community and of their family (Kayama, 2010). Because of a high value on uniformity, family members of people with disabilities often feel ashamed and may try to hide the family member with a disability. While public services may be provided for those with disabilities, it is mainly seen as the family's responsibility to take care of them. These cultural beliefs impact the different levels of the education system and how inclusion in this system is viewed. While special and general education are segregated in Japan, this separation is seen as inclusive as all students are given a chance to receive education and be a part of society (Song, 2016). This separation ensures

children attend schools in homogeneous environments. When resource rooms and some accommodations were first provided in general education, they were criticized widely (Song, 2016). Because Japan does not see inclusion as a physical idea, students with disabilities are not physically included. Rather, these students are seen as included so long as they receive education. Because of this, students with disabilities in Japan are often first placed into special education classrooms and are only moved to a general education classroom if this change is viewed as most appropriate for the child (Nagano & Weinberg, 2012). The collectivistic culture shapes the mindset of inclusion in Japan, which impacts how inclusion is applied in the education system.

The United States, on the other hand, has an individualistic culture, which favors self-success over group success. This mindset plays an important role in how the education system is structured and how inclusion is viewed. Like Japan, the United States separates the general and special education systems. Unlike Japan, however, it is not based on the idea of uniformity, but rather to tend to individual needs. For example, while teachers and parents work together to create a plan (i.e., Individualized Education Programs [IEP]) for a student with a disability, individuality is valued as this plan is curated specifically for that student (Kayama, 2010). Furthermore, the U.S. favors inclusion first by placing students with disabilities in the general education setting and taking preventative measures before being moved to special education (Nagano & Weinberg, 2012). The LRE is implemented, meaning children with disabilities are placed in regular classrooms as much as possible. Even though full inclusion does not exist, and some separation of general and special education does exist, this is still seen as inclusive in the United States so long as support and accommodations are provided. This is because in an individualistic culture there is high value on attending to individual needs.

Legal Structures

While inclusion is shaped by cultural perspective, it is also shaped through legislation. Cultural values, in turn, also impact the creation and interpretation of law. For example, Japan has ratified the United Nations' Convention on the Rights of Persons with Disabilities (CRPD), which is intended to protect the rights of people with disabilities, including the right to education in the general education system (Convention on the Rights of Persons with Disabilities, 2006). Cultural values, however, affect how this is interpreted. A collectivistic culture in Japan, for example, views a separate special education system as a part of the general education system and therefore inclusive. Even with the ratification of the CRPD, physical inclusion of those with disabilities in the general education system is not guaranteed unless the mindset of inclusion is the same.

Japan also has its own legislation specifically on education. The School Education Law (1947) was enacted in Japan to require schools to provide education for children with disabilities. At this time, many of these children were not receiving education (Nagano & Weinberg, 2012). While this law obligates the school system to provide public education to students with disabilities, it does not require this education to be a part of the general education system. Another Japanese law is the Basic Act on Education (2006), which aims to accommodate and support students with disabilities to help them learn. Ambiguous wording, however, leaves room for interpretation. While the Act states it hopes "to ensure that persons with disabilities receive an adequate education in accordance with their level of disability," the last few words of this statement create a loophole, allowing children with disabilities to be excluded from general education classrooms (Nagano & Weinberg, 2012). Despite a separation based on differences in the education system because of Japan's belief in uniformity, there is a fear of stigmatization. This stigma explains why Japan has hesitated to label individuals like students with disabilities (Kayama, 2010). For example, it was not until the education system was reformed in 2007–08 that children with certain disabilities such as high-functioning autism, learning disabilities (LD), and attention-deficit / hyperactivity disorder (ADHD) became part of the special education system (Kayama, 2010). Until then, they were taught in general education classrooms, but without additional support or teachers specialized in this field. Furthermore, unlike in the United States, Japanese schools are not legally obligated to implement the least restrictive environment (LRE). Because of this, children do not necessarily receive support before being moved into special education. Rather, students with disabilities in Japan are often first placed into special education classrooms and are only moved to a general education classroom if this change is viewed as most appropriate for the child (Nagano & Weinberg, 2012). This transition, however, is difficult to achieve and children with disabilities, as well as their parents, have little say in the decision. Instead, local authorities and principals make this decision. This is unlike the United States which first puts students in the general education setting and takes preventative measures before moving a student to

special education (Nagano & Weinberg, 2012). Societal beliefs shape the implementation of this legislation while legislation shapes these beliefs.

While the United States has not ratified the CRPD, it has passed its own laws regarding people with disabilities. The Americans with Disabilities Act of 1990 (ADA) has some similar ideas to that of the CRPD. The ADA aimed to prevent discrimination against people with disabilities in many aspects of life, including the education system (Hallahan et al., 2019a). Furthermore, the No Child Left Behind Act (NCLB), and a revision, Every Student Succeeds Act (ESSA) (2015), were passed in hope of increasing the academic achievement of all students, including students with disabilities (Hallahan et al., 2019a). However, as Hallahan et al. (2019a) explain, many criticized the NCLB and ESSA (2015), as the language gave room for interpretation, and the special education goals were unreasonable and hard to achieve. Another piece of U.S. legislation that works more directly with education of those with disabilities is the Individuals with Disabilities Education Act (IDEA). One of the six principles of IDEA is that children with disabilities receive an individualized education program (IEP) (Hallahan et al., 2019a). Creating an IEP requires collaboration, but the goal is to identify and accommodate an individual's needs. This highlights the individualistic culture of the United States, which is implemented in legislation.

Another IDEA principle is free and appropriate public education (Hallahan et al., 2019a). Children are not only to be identified as having a disability or not, but they are also to be given the needed accommodations. The language of "appropriate education" is similar to the ambiguous wording of legislation in Japan in that there is room for interpretation. What one may deem appropriate education for a child may not be inclusive education. Although there is a separation of special and general education, IDEA also mandates that the education system provide the least restrictive environment (LRE) for students with disabilities. This ensures that children with disabilities will be included in classrooms with students without disabilities as much as is appropriate for that student.

DISCUSSION

Culture

The literature review supports the findings that culture is one of the crucial components in considering how differently inclusion is viewed in Japan and the United States. For example, the participant discussed the absence of physical inclusion in school settings in Japan as opposed to the idea of the foundation of inclusion in the United States. This is consistent with Song (2016) who found that being part of society through the chance to receive education is seen as inclusive in Japan, despite having separate school systems for general and special education. The participant's observation of high value on group success is consistent with Futaba (2016) who describes Japan as having a collectivist culture. This explains the preference of working in homogenous groups to accomplish uniformity and avoid individual differences. The participant noted correctly that equality is favored over equity in Japan, as well as that differences are viewed negatively. This is clearly seen as Kayama (2010) points out that families of those with disabilities may feel ashamed.

The participant commented on the separation of general and special education schools in the United States. They pointed out that while there is still some separation and not full physical inclusion, the U.S. still strives for physical inclusion. As Nagano and Weinberg (2012) observe, the U.S. uses general education as the first placement for students and will take preventative measures before moving a student to the special education system. Because of the United States' individualistic culture, these preventative measures are based on individual needs. Kayama (2010) points out that while teachers and parents collaboratively create an IEP for a student with disabilities, at the forefront of this plan is the individualism of this student. The U.S. also uses the LRE to include students with disabilities as much as possible in the general education system.

Legal Structures

Findings from the literature review of the legal structure related to inclusion are consistent with the interviewed participant's responses, mainly focusing on the exosystem of the ecological model. The literature and the interviewee's perspective both show that understanding of inclusion varies. As the researchers examined the concept of inclusion through the interview and literature review, they found that the effort to build "Kyosei society" (i.e., coexisting society) by the Japanese government left ambiguity in the interpretation of inclusion of students with disabilities in the educational system, instead of enforcing the least restrictive environment. However, the Basic Act on Education (2006) aims to provide accommodations and support to students with disabilities to help them learn by providing individualized education programs. But the act does not require students with disabilities to be included in the general education system, allowing them to have

separate educational placements, as observed by the interviewee, especially for those with intellectual disabilities, sensory impairments, and severe/multiple disabilities, and to work toward different academic standards than their peers without disabilities.

The legal structure in the U.S., such as the IDEA, distinguishes inclusion from that of Japan as it enforces the least restrictive environment. In the U.S. educational system, students with disabilities have been ensured to progress through the general education system, even though there were some debates over different foci (e.g., IDEA on individualized education, and NCLB and ESSA (2015) on a standards-based approach). Students with disabilities are expected to be in the least restrictive environment, and inclusion is promoted by laws. However, the IDEA presumes varied educational settings for students receiving special education services, which allows separate settings, similar to the placements in Japan. The U.S. has debated whether to eliminate this continuum of placements because it may be opposed to the idea of inclusion. The laws to promote all students making progress toward the standard have been argued because of the possibly unrealistic standards, which have been assisted by testing accommodations and alternate assessments. Due to the differences in the legal structures between Japan and the U.S., types of court cases around special education also vary. As stated above, most of the court cases related to special education in Japan are about accidents and incidents involving students with disabilities, as opposed to the rights of, and services for, them in the U.S.

CONCLUSION

Inclusion is perceived and implemented differently in Japan and the United States largely due to differences in culture and legal structures. In the collectivist culture of Japan, unity is valued, putting differences in a negative light. While some physical inclusion of students with disabilities exists in Japan, the value of homogenous groups allows for a separation of the general and special education systems. In the United States, some physical separation of the two educational systems does exist. Unlike Japan, however, the U.S. puts a higher value on individuality, so students are first placed in the general education system and receive individualized preventative measures before being moved to the special education system. These attitudes towards inclusion impact the creation and interpretation of the legal frameworks. While both countries try to ensure the rights of individuals with disabilities in the

education system, these efforts look different. Japan has attempted to build a "Kyosei society" (i.e., coexisting society); however, this idea is ambiguous and leaves room for interpretation. Furthermore, while Japan's Basic Act on Education (2006) provides accommodations and supports to students with disabilities, it does not prevent physical exclusion. The U.S. has implemented the IDEA which mandates students with disabilities be placed in the least restrictive environment and promotes inclusion. However, a separation of general and special education still exists in the U.S. Therefore, similar to Japan, physical exclusion of students with disabilities also occurs in the United States.

This study does have some limitations, as the case study is based on one participant's responses. There may be bias in their interpretations as they come from a westernized society. Moreover, their interpretations cannot and should not be overgeneralized to such large regions. This is why looking at the literature review is critical. While there is potential for bias, the literature review correlates with the participant's responses. This adds meaning and value to the current understanding of inclusion. It is therefore important for researchers and educators to be aware of the difference in perception of inclusion across cultures. Furthermore, it is important to understand the interconnection of culture and legal structures and take both into account when considering education systems. However, considering the ongoing changes in education, culture, and legal structures, this discussion warrants more investigation.

REFERENCES

Americans with Disabilities Act, Publ. L. No. 101-366, 104 Stat. 328 (1990). https://www.ada.gov.

Basic Act on Education, Act No. 120 (2006). https://www.mext.go.jp

Bowers, C. T. (2009). *Effectiveness of inclusion in an Indiana middle school*. (ED512714). Doctoral dissertation, Walden University.

Bronfenbrenner, U. (1979). The ecology of human development: Experiments by nature and design. Harvard University Press.

Bronfenbrenner, U. (1986). Ecology of the family as a context for human development: Research perspectives. *Developmental Psychology, 22*(6), 723–742.

Convention on the Rights of Persons with Disabilities (2006). https://www.un.org/development/desa/disabilities/convention-on-the-rights-of-persons-with-disabilities/convention-on-the-rights-of-persons-with-disabilities-2.html

Culham, A., & Nind, M. (2003). Deconstructing normalization: Clearing the way for inclusion. *Journal of Intellectual and Developmental Disabilities, 28*, 65–78.

Every Student Succeeds Act, 20 U.S.C. § 6301 (2015). https://www.congress.gov/bill/114th-congress/senate-bill/1177

Floyd, D. (2014). *Test scores soar: A comparison study of 7th grade students math achievement in full inclusion and self-contained special education classrooms*. (ED568289). Doctoral dissertation, Capella University. ProQuest Dissertations Publishing.

Futaba, Y. (2016). Inclusive education under collectivistic culture. *Journal of Research in Special Educational Needs, 16*, 649–652.

Hallahan, D. P., Kauffman, J. M., & Pullen, P. C. (2019a). Current practices for meeting the needs of exceptional learners. In *Exceptional Learners* (pp. 242–272). Pearson.

Hallahan, D. P., Kauffman, J. M., & Pullen, P. C. (2019b). Exceptionality and special education. In *Exceptional Learners* (pp. 242–272). Pearson.

Jackson, L., Ryndak, D., & Wehmeyer, M. (2010). The dynamic relationship between context, curriculum, and students learning: A case for inclusive education as a research-based practice. *Research and Practice in Severe Disabilities, 34*, 175–195.

Japan Disability Forum. (2010). *Convention on the Rights of People with Disabilities, Japanese Government Provisional Translation/Official Translation* (March 3, 2009) (comparison table with Satoshi Kawashima = Osamu Nagase, dated May 30, 2008).

Kaizu, A. (2015). Response to intervention/instruction (RtI) and multilayer instructional model (MIM). *Japanese Journal of Learning Disabilities, 24*, 41–51.

Kayama, M. (2010). Parental experiences of children's disabilities and special education in the United States and Japan: Implications for school social work. *Social Work, 55*(2), 117–125.

Kobayashi, T., Seki, A., Tanaka, D., & Uchiyama, H. (2014). Early detection of specific reading disorder through response to intervention (RtI): A cohort study. *Brain and Development, 46*, 270–274

Ministry of Education, Culture, Sports, Science, and Technology. (2014, May 1). *Building an independence foundation for social participation for people with disabilities*. Cabinet Office. https://www8.cao.go.jp/shougai/whitepaper/h28hakusho/zenbun/h1_04_01_01.html

Ministry of Education, Culture, Sports, Science, and Technology. (n.d.). *Special support education*. https://www.mext.go.jp/

Murayama, T. (2017). Issues and agenda on the response to intervention (RtI) model: Focusing on the discussion for support for the learning disabled students in the regular education classrooms. *Rikkyo University Kyoshoku Kenkyu, 29*, 81–91.

Nagano, M., & Weinberg, L. A. (2012). The legal framework for inclusion of students with disabilities: A comparative analysis of Japan and the United States. *International Journal of Special Education, 27*(1), 128–143.

Nishinaga, K. (2018). Inclusive education for kyosei education. *Journal of Kyosei Studies, 9*, 82–87.

Services and Supports for Persons with Disabilities Act Reauthorization of 2018, Act No. 123 (2018). https://www.mhlw.go.jp/stf/seisakunitsuite/bunya/hukushi_kaigo/shougaishahukushi/

Song, J. (2016). Inclusive education in Japan and Korea: Japanese and Korean teachers' self-efficacy and attitudes towards inclusive education. *Journal of Research in Special Educational Needs, 16*, 643–648.

Tsuda, E. (2013). Implication of inclusion concept on socio-education and service-learning. *Japan Academic Association of Socio-education and Service Learning, 52*, 27–35.

Turnbull, A, Turnbull, R., Wehmeyer, M., & Shogren, K. A. (2020). *Exceptional lives: Practice, progress, & dignity in today's schools* (9th ed.). Pearson.

Ueda, Y., & Kim, J. (2014). Convention on the Rights of Persons with Disabilities and the problems of special needs education. *Tokyo Mirai University Kiyou, 7*, 19–29.

Voltz, D. L., Brazil, N., & Ford, A. (2001). What matters most in inclusive education: A practical guide for moving forward. *Intervention in School and Clinic, 37*(1), 23–30. https://doi.org/10.1177/105345120103700105

Wehmeyer, M. L., Shogren, K. A., Kurth, J. A., Morningstar, M. E., Kozleski, E. B., Argan, M., Jackson, L., Jameson, J. M., McDonnell, J., & Ryndak, D. L. (2016). Including students with extensive and pervasive support needs. In J. P Bakken & F. Obiakor (Eds.), *Advances in special education (Vol. 31): General and special education inclusion in an age of change: Impact on students with disabilities* (pp. 129–155). Emerald Group Publishing.

Yoshida, K., & Moribe, H. (2007). The judgment cases on education for individuals with special needs. *Gunma University Education Department Kiyou, 56*, 249–277.

Developing a Short, Faculty-Led, International Field Study Course in Special Education

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Abstract

Across the globe, a critical skill for 21st century special educators is the ability to work effectively with students with special needs from diverse cultural and linguistic backgrounds. International exposure to other cultures through academic immersion experiences fosters those skills by helping teachers cultivate a global perspective. This paper presents a model for developing and planning a faculty-led international field study course in special education for undergraduate and graduate students, based on an established sixteen-day, international short course abroad in Guatemala, in which curriculum, exploration and high-impact academic experiences come together to promote optimal learning. Site selection, curriculum development, logistical planning, recruitment, preparation of students, fiscal responsibility, risk management, challenges and rewards are discussed.

Keywords: *special education, study abroad, diversity, cultural competency, global perspective*

No culture can live if it attempts to be exclusive.
— *Mahatma Gandhi*

INTRODUCTION

Traveling outside of my comfort zone has given me the realization that there is an entire world out there that is so different from my own. In the large scheme of things, I am very small in the universe… However, I now know one person is not insignificant.
— Student reflection on study-abroad experience

Participation in U.S. study abroad programs has increased by almost fifty percent over the past decade (Institute of International Education [IIE], 2018). Although many study abroad programs were cancelled in 2020 and 2021 due to the COVID-19 pandemic, it is anticipated that study abroad programs will resume when conditions are considered safe for student travel (Martel & Baer, 2021). A large proportion of U.S. students who spend time in another country as part of an academic experience enroll in faculty-led short-courses (Gaia, 2015; IIE, 2018). Currently, about ten percent of U.S. undergraduate students study abroad and more than half of those students (63%) participate in short-term programs (IIE, 2018). Although more teacher preparation programs are providing international study experiences for U.S. students (He et al., 2017), only about three percent of college students who study abroad are education majors (IIE, 2018). Much of the research literature on study-abroad programs for teachers focuses on pre-service teachers (Cushner, 2007) and international student

teaching experiences or internships (Batey & Lupi, 2012). According to the Open Doors report, the top U.S. study abroad destinations are in Europe, China, Australia, Costa Rica, and Japan (IIE, 2018). For undergraduate pre-service teachers and graduate students who are practicing teachers, a road less traveled is the faculty-led, short-course abroad in a developing country that, through a focus on culture, creates specialized skills for effective practice.

Through an immersion experience, the short-course abroad fosters understanding of human diversity, including culture, language, traditions, beliefs and values, necessary to create personalized instruction that meets the diverse needs of individuals with disabilities. The majority of students who have participated in study abroad programs believe the experience "challenged their perceptions" and increased their awareness of and openness to cultural and linguistic diversity (Cushner, 2007). He et al. (2017) reported that cultural immersion experiences such as study abroad courses are "one of the most effective means to prepare multicultural and global teachers." Appreciation for the effects of cultural, social and economic diversity minimizes bias in assessment and planning through culturally responsive practices. Increasingly, teacher education programs are expected to provide learning experiences that prepare teachers to serve students with diverse linguistic and cultural backgrounds. Presented here is a model that has applicability for planning faculty-led short courses abroad in special education throughout the world.

The planning model presented in this article reflects a decade of experience conducting field studies in Guatemala with graduate and undergraduate students,

so helpful examples are given from that course. The curriculum for the short course in Guatemala explores policies, programs and services for individuals with disabilities, with attention to etiology and prevalence, community accessibility, family involvement, professional education and resources—with emphasis on promoting cultural understanding to enhance teacher performance in diverse classrooms. Learning "in the field" includes observational and hands-on experiences that place students "in the action" through high-impact activities in schools, special programs and in communities. As a true field study, it provides an ideal platform for experiential learning, affording students a pathway to grow intellectually and emotionally. Cultural immersion in Guatemala presents an alternative context—different from students' familiar framework for perceiving social constructs—which supports learning to understand the world in a new way. By exploring barriers to educational access, standards for practice, cross-sector and cross-national collaborations and unique pathways to leadership, the field study in special education in Guatemala embodies the core values of the International Association of Special Education: "equal opportunity, professionalism, partnership and collective action" (International Association of Special Education [IASE], 2020).

PRE-PLANNING

The Big Picture

Students who must balance the desire to participate in study abroad with work, family, course or financial obligations are well served by shorter experiences, particularly those that are well-planned and conducted (Donnelly-Smith, 2009; Spencer & Tuma, 2002). The short-term field study provides students with opportunities for focused learning outside the traditional classroom through direct observation, data collection and interaction with persons, programs and environments.

The conception, formation, establishment and ongoing development of an international learning program is a creative work of enormous proportion. Taking students abroad is not a vacation (McCallon & Holmes, 2010). It is not just that any number of things can "go wrong" at any time or all at once, including student illness, transportation glitches, worker strikes, utility and communication outages and natural disasters; to make things "go right" requires careful planning and uninterrupted engagement for the duration of travel. Through it all, the faculty leader must engender students' trust, empathy and cooperation, while teaching, solving

problems, maintaining safety and managing potential or real crises. Faculty-led study abroad courses demand around-the-clock faculty management and attention to detail to run smoothly and achieve meaningful results. At the same time, faculty-led courses abroad are highly rewarding for students, as well as for trip leaders. For many students, the study tour is their first time traveling outside the country. Direct interactions with the people and organizations of a country during formal and informal course activities will immerse students in a new cultural context, challenge preconceived notions of "others," promote collaborative application of skills, underscore the critical role of leaders in improving outcomes for students with disabilities, and make learning through inquiry, engagement and reflection a reality. For students who have not traveled before, participating in study-abroad has the potential to open a doorway to a lifetime of international experiences and connections that can lead to cross-national and cross-cultural cooperation, consistent with the mission of the International Association of Special Education, which promotes "awareness and understanding of issues and developments related to the education and welfare of individuals with special needs throughout the world" and collaborations that foster "worldwide promotion of the interests of individuals with special needs" (IASE, 2020).

Deciding on a Destination

The most profound decision in the planning of an international academic program is the selection of a destination, which will define all other aspects of the experience. The answer to the question, "why this place?" is the extent to which the program learning outcomes can be accomplished. While any international travel can be eye-opening and have an enduring effect on students' lives, short courses abroad are academic experiences that through purposeful activities are designed to expose students to ideas and perspectives that will promote professional competencies, including appropriate attitudes towards culture, along with more general life skills. McCallon and Holmes (2010) found that "what makes or breaks a true faculty-led program is the connection between the course and the location" (p. 32). Cost of travel, daily expenses, safety and access to learning experiences also must be considered, along with advantages and disadvantages of staying in one place or having multiple destinations.

The faculty leader's familiarity with the area to be visited and relationships with key persons and institutions are essential both for determining the site and

planning course experiences. For example, the Mayan villages visited on the Guatemala short course abroad provide a context for better understanding the lives of immigrant students who have come to the United States from areas characterized by poverty, rich culture, a strong sense of community, spirituality and the importance of family. Specific outcomes are important to students' career development: student surveys reveal that study abroad can enhance employability, "provided students are able to articulate the relevance of the experience to the employer" (Gates, 2014, p. 34).

In considering what a location has to offer, guiding questions might include: What can students learn there that they can't learn elsewhere? How would immersion in this culture lead to stated learning objectives? How and to what extent will I gain access to cultural informants and programs of interest?

Getting to Know the Host Country

A faculty member taking students abroad has a dual responsibility for the well-being of participants and for delivering a high-quality academic experience, founded on careful planning. Factors in the selection of a location include safety, ease of access and the degree to which foreign students would be welcomed. Travel guides and official country profiles are useful, but nothing replaces firsthand knowledge of the destination, including schools and other special programs and available cultural events and activities. Assessing lodging options for comfort, security, affordability and authenticity, learning about modes of transportation and safe times to travel, and identifying relevant environmental and cultural details will afford the fullest experience and greatest likelihood of safe passage. Poor planning risks unanticipated disruptions and distractions that will derail the flow of activities and undermine the academic experience or subject members of the travel group to harm.

Guiding questions for planning might include: Why do I want to do this? What are the possible outcomes for participants and the students with disabilities they will teach?

DESIGNING THE COURSE

Organizing a faculty-led short course abroad requires academic and logistical planning, recruitment, preparing students, fiscal management and risk management. Every step in this process is vital to a successful trip.

Developing the Curriculum

Beginning with the development of course goals and learning objectives, the design of instructional activities creates a bridge that connects desired outcomes and available in-country experiences. One of the obvious and great advantages of study abroad is the exposure of students to new environments and different worldviews. A purposeful curriculum is woven around unique experiences students can have in the host country. For example, in a developing country such as Guatemala, there are opportunities to examine health and environmental risk factors for the development of disabilities (e.g., prenatal care, infectious diseases, malnutrition, violence, accidents) and the ways in which various organizations work together to improve conditions and lessen risk (e.g., public health, medicine, education, nongovernmental organizations).

Course lectures, cultural experiences and guided discussions support the pursuit of course objectives for practicing and pre-service teachers. For example, the development of cultural competency can be supported by course activities that require students to reflect on their experiences, to compare cultural norms, values and viewpoints in the host country with those in their home country, to examine ways different cultures solve common problems, and to identify culturally responsive classroom practices that promote inclusion and engagement of students and families with diverse perspectives (Hamad, 2013; Kanarowski & Johnston, 2014). Consideration should also be given to the provision of high impact learning activities such as field visits, opportunities to interact on a more intimate level with locals, experiential learning and service learning that cannot be experienced elsewhere (Wang et al., 2011). Course activities that provide opportunities for direct interaction and relationship building (e.g., visiting programs and interacting with local children, teachers and families) create authentic experiences that bridge cultural divides and are personally meaningful for students. While careful planning can integrate just about every event and encounter into a coherent program of learning, the high impact experiences are those that will be remembered most clearly by students as transformational. Because travel groups typically have a favorable faculty-to-student ratio, faculty members can participate with students in a way that may encourage students to try things that look difficult. For example, in Guatemala the instructor may take the first turn at playing with a child with a disability, whose primary language is Tz'utujil.

Guiding questions for curriculum development: What learning outcomes justify traveling and expense to students? How can curriculum integrity be maintained in a field setting? What activities support learning outcomes?

Logistical Planning

Logistical planning involves gathering information and organizing what will seem like a million fine details about the trip that will determine how the entire experience will flow in support of concentrated learning. It includes the development of a travel itinerary with dates, times and planned activities that bring learning objectives to life. Because short-courses abroad can be very intense academic experiences, it is important to ensure course participants will have time to process what they are learning, get reinforcement of their insights from their traveling companions and recharge their batteries. In order to create a schedule that works, one needs to have first-hand knowledge of where things are located (e.g., restaurants, shops, museums), how long it will take to get there and back, if one can walk to these sites or will require transportation, and approximately how long activities take (e.g., cultural norms for eating at a restaurant). A trip leader will need to make connections with in-country sources for all needed services, such as lodging, transportation, medical care, technology, phone, schools and other programs. Having an organized list of contacts for the trip is a must in case something does not go according to plan, such as when a driver doesn't show up or arrives with a van that is smaller than needed. There is logistical planning for every aspect of the trip including meals, money exchange, classroom and places to study, interpreters, guest lecturers, programs to visit, cultural activities, guides and more.

Guiding questions for logistical planning: How will we get there and back? What will we do when we get there? What is an appropriate pace for the trip?

Recruitment

On the surface, recruitment involves generating promotional materials such as printed brochures and electronic media announcements, seeking opportunities to speak about the trip in other instructors' classes and generating enough support among colleagues to suggest the value of the trip to their students. The more important aspect of recruitment, however, is communicating with and interviewing all interested students. This is the best way to help students understand the academic, physical and emotional demands of the trip. These meetings allow the trip leader to ascertain what

is important to students and to evaluate special needs. The goal is not simply to enroll students, but to form a group of compatible travelers, who will work together and support each other, and who will be "the best guests" the host country ever had. The overall experience of every participant will depend on how well group members were informed about what the trip will be like during the recruitment process.

Field studies are focused on specific disciplinary areas as defined by learning outcomes. Recruitment of participants should be directed primarily to students whose interests match the course curriculum. Students interested in a special education study abroad course will want to know about the schools and programs they will visit, people they will hear from and interactions they will have with individuals with disabilities.

It should be noted that recruitment efforts must be sensitive to the magnitude of the decision that students will make when committing to an international trip. They are agreeing to travel with a professor they may not know well and other students they will not meet until closer to the time of departure. They likely will have concerns about what it will feel like to be in the host country, and have to trust that the trip leader will be nurturing and attentive to their needs and will give them a learning experience that will live up to their expectations and be worth the investment of time and money. The tuition and travel expenses require a not insignificant financial commitment. For these reasons, it is important to provide as much information as possible about course and travel details (without giving away the "surprises"—those "aha!" moments that all trips should include), and maintain a welcoming, open dialogue with students as they prepare to decide.

Guiding questions for developing a recruitment plan: Who is this course for? How will this course help participants? What information do students need to make a decision about whether to enroll in the short course abroad?

Preparing Students

Given that international field studies have a short duration, the travel group must be ready to hit the ground running upon arrival in the host country. Participants' ability to do so will depend on how well the trip leader prepares them before departure for the promised adventure. The formal orientation process begins as soon as a student signs on for the program by enrolling in the associated course(s) or placing a deposit on the travel fee. A detailed letter—a "first response"—sent to committed students has two primary purposes. If well

crafted, it can initiate a sense of belonging to the group and provide specific information needed by participants to begin preparing to travel. The letter should guide students to obtain necessary travel documents (passport and, where necessary, visa), register for the course, complete risk management forms and training required by the institution's office that oversees international education, and obtain necessary or preferred inoculations. It also should inform students about forthcoming course orientation activities so they can schedule dates and times on their calendars and plan to attend.

One of the most important things a trip leader can do to prepare students for travel is to convene a pre-trip orientation meeting. The physical and social elements of this first group meeting can have a significant impact on how the participants begin to see themselves as members of the group, whether they feel emotionally safe to be themselves, and how they will work together and support each other (Pence & Mackgillivria, 2008). In addition to providing the very detailed agenda and informational materials, the pre-trip meeting for Guatemala, held at the trip leader's home, also involves informal social interactions and participation in helping to prepare a shared meal. The home setting helps participants to feel more comfortable and conveys, in very subtle ways, expectations for courtesy, collaboration, and a spirit of kindness in helping each other throughout the trip. Roommates are identified, personalities are revealed and students get a sense of what it will be like to travel and study with their professor and companions.

It is important to share very specific information about curriculum, course requirements and readings; to provide an introduction to the host country, places to be visited and appropriate behavior in a different culture; and to inform students fully about details of travel, accommodations and food. Students also will want to know how much money to bring, how they can pay for things, and what access they will have to ATMs. Orientation for the Guatemala trip includes a notebook of comprehensive information. Among the items included in it are a thorough packing list, flight and hotel details (with an extra copy to be left home for families following students' progress), a course syllabus, assigned articles, and a schedule of daily activities. By receiving clear information and getting answers to their questions, students generally feel more comfortable being part of the group and their ability to succeed in the upcoming experience. This is a time to challenge students to approach the trip with enthusiasm, abandon a tourism

mindset, be ready to participate in experiences and maintain intellectual curiosity and an open mind about cultural differences.

Guiding questions for preparing students: What are the requirements for travel? What will students need to know to be ready to work? What will students need to know to feel comfortable and safe? What will students need to know to be good guests?

Fiscal Management

Offering an international field study requires an enormous commitment of time and attention to many details. Not least among these is creating a realistic budget, managing funds, arranging mechanisms to pay bills in foreign lands, maintaining accurate financial records and submitting a comprehensive financial report.

The process begins with identifying all expenses, large and small, beginning with round trip airfare. Many expenditures can be determined through direct communication with vendors in the host country: costs of hotels or stipends for families when lodging takes place in private homes, ground transportation, provided meals, entrance fees and tour and speaker charges can be obtained in this way. Consideration should be given to the value of money after it has been exchanged into local currency. The budget should include the trip leader's travel expenses, as well as tips for lodging, transportation, meals and porters. Other miscellaneous costs might include course materials and supplies, traveler's health insurance, baggage carts at airports, porters, gifts for hosts who perform special services for students, the trip leader's telephone charges, AV support, group meals, occasional refreshments for students, food for the pre-trip orientation meeting and a post-trip de-briefing session, and first-aid supplies. The budget must comprise everything that will require an outlay. It is only with a comprehensive budget in hand that a travel fee can be determined.

In building an inclusive budget, it is vital to keep costs as low as possible to ensure that the travel fee will be within a range of affordability for students, many of whom will have to make significant sacrifices to accumulate the funds needed to pay for the travel fee. In fact, the combined costs of tuition and travel will be the single greatest impediment to student participation, and it will be troubling not to be able to include eager students in the travel group. To keep expenses as lean as possible may require a special effort on the part of the trip leader to work directly with airlines, hotels,

transportation companies and vendors of other services needed in the host country. Some institutions have travel offices that will help make travel arrangements.

After the costs are determined, and a trip fee is set, deadlines for deposits and payments must be established in consideration of due dates for airfares and other expenditures. Deadlines must be communicated clearly to students, and then monitored with gentle reminders, where necessary.

The trip leader will need to determine accepted methods of payment for various expenses in the host country, ascertain university payment mechanisms, create a system for recording all expenditures and set up a template for a final budget report. The importance of organization will become evident during travel. The creation of a daily budget enables the trip leader to monitor cash flow, while also anticipating the need to withdraw local currency for upcoming expenses. Having a system for filing receipts and recording expenditures while the trip is in progress will ensure a complete budget report. Finally, carrying a blank receipt book will allow the trip leader to obtain records of outlays for spontaneous purchases in support of trip activities.

Guiding questions for fiscal management: What are all of the costs? How will unexpected expenses be covered? What will the university expect from me? How will I keep track of expenditures and receipts?

Risk Management

There are safety concerns anyplace one travels. This is true for field trips taken in the home country. It is true in Guatemala, and it is true wherever a short-course abroad is conducted. A university cannot promise or guarantee students' safety, and should never claim to be able to do so. However, a university and a trip leader must take reasonable precautions to reduce risk. This includes an overall knowledge of the country and familiarity with destinations to be visited, along with a review of the country profile available from the U.S. Department of State, which are universally available. The World Health Organization and U.S. Centers for Disease Control and Prevention also are good resources for assessing health risks and identifying health requirements and recommendations. Students traveling to Guatemala are expected to access and study particular documents provided by these sources, and then to make informed decisions about optional health precautions in consultation with their personal physicians (e.g., vaccinations).

Most universities that sponsor study abroad experiences collect health information from each participant using a form that also assesses special needs, so arrangements can be made for accommodations. For example, one student who traveled to Guatemala carried insulin that needed to be refrigerated. The trip includes two days and two nights in a hot, rainforest environment, where electricity, provided by generators, is available only at certain times. With advance notice, and the help of the lodge owner, it was possible to find a way to keep the insulin cold. Not knowing the student's need in advance could have resulted in a crisis situation. Prior to travel, trip leaders must know about students' health conditions that may require their intervention. A helpful way to build a protective environment is to identify someone in each of the areas to be visited, who can give reliable information about conditions that might affect safety (e.g., weather, holidays where businesses might be closed).

The success of an international field study requires interdependency, awareness of group needs and adherence to policies intended to maintain safety. A student code of conduct can communicate expectations for appropriate behavior. Those guidelines must be discussed frankly at the pre-trip orientation session and in written correspondences with participants.

Trip leaders would be well advised to discuss risk management with appropriate officials of their universities to coordinate travel health insurance, emergency contact protocols and other risk management expectations and strategies.

Guiding questions for developing a risk management strategy: What are the potential risks for participants? How can I minimize risks? What do students need to know about potential risks?

CHALLENGES AND REWARDS

Challenges

As a labor-intensive undertaking, planning and conducting an international field study is challenging on many levels. It takes a great deal of time to organize. Faculty engagement with students before, during and, to a lesser extent, after a short course abroad requires time, effort, patience and kindness. Physical and emotional safety are constant concerns and will demand continual vigilance. Validating students' personalities and personal styles of inquiry will enhance the learning experience for everyone and help maintain harmony within the travel group, and this, too, requires attentiveness.

International travel is subject to the whims of weather, political stability, and arrangements made in good faith that get lost in translation. "The best-laid plans… [going] asunder" aptly characterizes the possibility that plans may be upended by unanticipated events. An adroit trip leader will have alternative plans "in pocket," and will help instill in students a spirit of adventure and flexibility that will absorb changes in itinerary and activities without detracting from the overall trip success. A trip leader's displayed appreciation for culture and gratitude for courtesies and opportunities afforded by people they meet in the host country will be infectious and can inform students about appropriate attitudes for working with individuals and families with diverse needs and perspectives.

Rewards

A main advantage of the short faculty-led international field study course is that it provides opportunities for more students to have an international academic experience. For certified and pre-service teachers, the model provides uniquely indelible lessons that will enhance their ability to overcome bias and better support students with special needs. After returning home, participants will have the potential to infuse their academic and professional communities with what they learned about disability and special education in another country, the exceptional contributions to the field that can be made by motivated persons (sometimes without the advantages of formal education) and the personal experience of being a second-language learner. For students who have not traveled previously, participating in study abroad can instill self-confidence and open a door to further travel. It also introduces them to the possibility of working internationally or in cooperative relationships with colleagues across the globe, consistent with the work of the International Association of Special Education "[to give] individuals an opportunity for collaboration across borders by learning from each other" (IASE, 2020).

Faculty members who conduct international field studies enjoy immediate and long-term rewards. Traveling to the host country never loses its ability to inspire. While there, developing a close instructor-student working relationship around shared experiences provides instant satisfaction, as does knowing that their students will be better equipped as learners and professionals to be receptive to culture and understand its importance, to be interested in different perspectives and world views, to be open to other ways of doing things and to embrace the concept of "the power of one."

Trip leaders build relationships in the host country that provide opportunities to see firsthand what people in other parts of the world are doing to improve special education. They also can forge enduring international partnerships for scholarship and service. The friends they make in the host country will care for their students and afford them memorable learning experiences.

After the Field Study

Participating in a short course abroad, particularly one conducted as a field study that allows students to have meaningful interactions with cultural informants in the host country, has the potential to be life changing. Because so much happens in a short frame, participants will be processing the experience after they return home, and they will want to review their insights with others who shared the journey with them. The promise of a post-trip meeting that will bring the group together one more time is a gentle way of helping students deal with separation at the end of the trip. The purpose of the meeting can take many forms, but it should include an opportunity for students to explain the lessons they learned, identify their most poignant memories of the trip, discuss how they are seeing the world differently, and talk about ways they plan to apply what they learned in their work and lives (Vatalaro et al., 2015). What students express about how they will put what they learned into action provides a measure of the enduring effect of the field study on professional and personal growth. Bringing the travel group together for one last time also is a kindness to the trip director, who is also likely to have grown very fond of the students. A final, meaningful commemoration of the Guatemala trip is the presentation of graduation stoles, displaying the colors of the Guatemalan flag, awarded to participants to wear with their caps and gowns, thus distinguishing them as international scholars at their commencement ceremonies.

REFERENCES

Batey, J. J., & Lupi, M. H. (2012). Reflections on student interns' cultural awareness developed through a short-term international internship. *Teacher Education Quarterly, 39*(3), 25–44.

Cushner, K. (2007). The role of experience in the making of internationally-minded teachers. *Teacher Education Quarterly, 34*(1), 27–39.

Donnelly-Smith, L. (2009). Global learning through short-term study abroad. *Association of American Colleges and Universities, 11*(4), 12–15.

Gaia, A. C. (2015). Short-term faculty-led study abroad programs enhance cultural exchange and self-awareness. *The International Education Journal: Comparative Perspectives, 14*(1), 22–31.

Gates, L. (2014). The impact of international internships and short-term immersion programs. *New Directions for Student Services, 146*(2), 33–40.

Hamad, R., & Lee, C. M. (2013). An assessment of how length of study-abroad program influences cross-cultural adaptation. *Journal of Human Behavior in the Social Environment, 23*, 661–674.

He, Y., Lundgren, K., & Pynes, P. (2017). Impact of short-term study abroad program: Inservice teachers' development of intercultural competence and pedagogical beliefs. *Teaching and Teacher Education, 66,* 147–157.

International Association of Special Education. (2020). *Mission and vision of the International Association of Special Education*. Author. https://www.iase.org/iase-vision-mission

Institute of International Education. (2018). *Open doors 2017 data: U.S. study abroad*. Author. https://www.iie.org/Research-and-Insights/Open-Doors/Open-Doors-2017-Media-Information

Kanarowski, B., & Johnston, S. S. (2014). Influences of a short term international field experience on preservice teachers' perceptions and cultural competency. *New Educational Review, 38*(4), 200–210.

Martel, M., & Baer, J. (2021). *COVID-19 effects on U.S. higher education campuses—Preparing for the Future: The path forward for international educational exchange*. Institute of International Education. https://www.iie.org/Research-and-Insights/Publications/COVID-19-Effects-on-US-Higher-Education-Campuses-Report-4

McCallon, M., & Holmes, B. (2010). *Faculty-led 360: Guide to successful study abroad*. Agapy LLC.

Pence, H. M., & Mackgillivria, I. K. (2008). The impact of an international field experience on preservice teachers. *Teaching and Teacher Education, 24*(1), 14–25.

Spencer, S. E., and K. Tuma (Eds.). (2002). *The guide to successful short-term programs abroad*. NAFSA: Association of International Educators.

Vatalaro, A., Szente, J., & Levin, J. (2015). Transformative learning of pre-service teachers during study abroad in Reggio Emilia, Italy: A case study. *Journal of the Scholarship of Teaching and Learning, 15*(2), 42–55.

Wang, J., Peyvandi, A., & Moghaddam, J. M. (2011). An empirical investigation of the factors influencing the effectiveness of short study abroad programs. *International Journal of Education Research, 6*(2), 10–22.

Overcoming Barriers in Higher Education: The Voice of a University Student with a Disability

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Abstract

Universities now have more students with disabilities enrolled in their programs. The pursuit of a higher degree could be because universities have responded to increasing online programs that make it accessible to students with diverse needs. However, with change come the challenges of catering to diverse needs and how universities make strategic plans to deliver programs that are inclusive. This study investigated the challenges and problems from the perspective of a student with a disability. A qualitative method with a modified survey questionnaire was used in this study. The findings of this study demonstrate that the early identification of the needs of students and accommodations that universities make for students with disabilities and/or additional needs will support them better in higher education.

Keywords: *disability, higher education, special needs, inclusion*

INTRODUCTION

Universities all over the world are enhancing accessibility for all students, especially students with disabilities (Koch et al., 2010; Ryan, 2007). Accessibility in terms of architectural changes; how lecturers deliver information; providing access for all students of diverse needs, including cultural and ability diversity; staff resistance to inclusion; and challenges faced by students with disabilities have been investigated (Broderick, 2018; Hoskin et al., 2015; Hitch et al., 2015; Kendall, 2016; Parker, 1999; Reupert et al., 2010; Strnadova et al., 2015). Understanding the diverse needs of students as they transition from high school to higher education is challenging. Some students may be fortunate enough to already have a network of friends from a previous school. Hitch et al. (2015) wrote that it was important to recognize that students' needs in the first year are critical when they enter tertiary education.

Most studies have focused on investigating and understanding students' needs rather than strengths, leading to a deficit model (Hitch et al., 2015). Hitch et al. (2015) propose that the learning environment is critical for the students to feel included. In addition, Hitch et al. (2015) stress that the teaching approaches adopted at universities should be inclusive. What does this mean for academic staff who have a limited understanding of inclusion in their delivery of content to students as a whole? This is a problem that Strnadova et al. (2015) and other researchers (Kendall, 2016; Theerapong, 2018) reported in their studies, noting that some lecturers were unwilling to provide slides and/or handouts to students at universities. In Kendall's (2016) study, five out of 13 participants with a range of disabilities

(dyslexia, mental health problems, multiple sclerosis, rheumatoid arthritis, hearing impairment, chronic back pain) reported that they could not access notes prior to the lectures. One student in Kendall's study (2016) reported that a lecturer did not provide a student with class notes because this was not done before and because the lecturer worried that students would not attend lectures after reading the materials. Hitch et al. (2015) proposed that inclusive environments are about students feeling that they belong, and consequently university environments should create "social connections" where students can connect with their university peers. Adaptations or adjustments in the learning environment to help the student connect with other students can serve this function. Further, students should be paired with at least one other student so that these "social connections" are established, giving the student a purpose and connection within the new environment.

Lyons (2017) wrote about the elements that were critical for successful inclusion practices for diverse school communities: embracing inclusion through building capacity with leadership, change and innovation and attitudes and values; embracing inclusion with positive values and attitudes and understanding of inclusive practices; and negotiating inclusion through the expertise of professional collaborators. Further, Lyons (2017) added that resourcing for inclusion could range from classroom to school-based, such as new digital technologies to classroom modifications that support learning. Successful inclusive practices would also mean that educational institutions include Programming for Inclusion which includes the concept of differentiated instruction, individualisation and risk assessment and management.

This study aimed to understand the challenges faced by a student with a physical disability in a local university in Western Australia.

Barriers and Strategies to Successful Inclusive Practices

The literature about the experiences of students with disabilities and additional needs in higher education suggests that barriers stem from attitudes linked to the disability or additional need, barriers within the educational institutions, and architectural constrains (Alvarez Perez et al., 2010; Allen & Nichols, 2017; Brandt, 2011; Hale et al., 2013; Hitch et al., 2015; Mwaipopo et al., 2011; Strnadova et al., 2015). The emerging pattern in today's inclusive practice is about empowering students to succeed in higher education and at work. However, studies suggest that while this may be the goal of universities, inertia is preventing these institutions from fully supporting students with disabilities and additional needs. Allen and Nichols (2017) wrote that the interest of universities should be to develop partnerships with students. This student and university partnership would inform curriculum and institutional practices. These partnerships would then help universities identify and resolve difficulties faced by students with disabilities in the transition from secondary school to university (Taylor et al., 2010). Brandt (2011) and Chambers et al., (2009) highlighted that students with and without disabilities share similar challenges with assessments. Students with disabilities, however, spend more time organizing their work when they do not receive support, such as adjustments to assessments (Brandt, 2011; Chambers et al., 2009).

Hitch et al. (2015) reported that while Australian universities addressed policies and had procedures to carry out inclusive teaching practices, their research data revealed that up to 19 percent ($n = 8$) of the participating institutions indicated that there was no professional development in inclusive teaching or that they were unaware of it. Similarly, Strnadova et al.'s (2015) study reported attitudinal barriers. These negative attitudes were demonstrated from both students and lecturers in their study. Specifically, Strnadova et al. (2015) explained that lecturers were unsupportive of students' learning by refusing to provide students supporting PowerPoint slides and handouts. Strnadova et al.'s (2015) study demonstrated how tangible support could impact how students with disabilities and/or additional needs coped at university. This negative attitude was disempowering to a student with dyslexia in the study (Strnadova et al., 2015). The study also found that in some cases, students were not allowed to audio-record the lectures. One of the key elements that Lyon (2017) identified in creating successful inclusive practices in diverse classrooms was to embrace inclusion through positive attitudes.

In earlier research, Brandt (2011) reported that students with disabilities faced obstacles related to academics and disability. Brandt (2011) reported on data from different types of institutions from different geographic locations and sizes in Norway. Norwegian higher education institutes are not allowed to keep information about students with disabilities. Consequently, no links could be made to the students. The study reported that of the total sourced, 19 students who were studying social work and law agreed to participate in the study. Brandt's study (2011) conducted single and group interviews. Students in the study were asked about their path to higher education and their everyday experiences. Further, they were asked about strategies they used and how the Quality Reform in Norway helped them in their lives (Brandt, 2011). The study revealed that students with disabilities did not have the same opportunities as their peers. There were barriers to educational accessibility, which could limit their studies. Dysfunctional information and communications technology platforms posed major challenges for students with disabilities, which staff did not comprehend. In addition, Brandt (2011) revealed that there were many repeats on the requirements needed for the student which caused extra time to resolve and importantly, created anxieties in students who did not receive support at the right time. Mitchell (2014) explained that it is pertinent that positive attitudes should not only be encouraged by students, staff, and parents (of children with and without disabilities), but the community as a whole.

Studies have reported unclear university policies to support students with disabilities (Melero et al., 2018; Mosia & Phasha, 2017; Ryan, 2007; Smith, 2010; Theeraphong, 2018). Mosia and Phasha (2017) reported that there was no clear policy at the National University of Lesotho, Africa to support students with disabilities to access curriculum or develop supporting teaching and learning resources. By contrast in Australia, all educational settings are guided by the Disability Standards of Education (DSE, 2005). This supports students with disabilities and/or additional needs and serves as a guide for all educational institutes, including schools (DSE, Australia, 2005).

Melero et al.'s (2018) study in a Spanish university investigated the aids and barriers using life histories ($n = 3$). All three students with disabilities faced physical

obstacles to access technology, learning space and/or infrastructure. Melero et al. (2018) reported that the faculty and staff had little understanding of supporting students with disabilities. Similarly, Theerapong's study (2018) at a university in Thailand reported a lack of support towards students with visual impairment (VI). Students with VI ($n = 12$) faced many difficulties in the physical environment and the course requirements to complete their degree program. Students reported that the pathways were blocked by potted plants and/or benches, which posed a daily challenge. There were a lack of changes in exam arrangements and access to information, online courses or materials in Braille, and there were no audio devices. Further, classroom relocations caused undue inconvenience to the students with VI (Theeraphong, 2018). These physical challenges have been reported in other studies (Dotras et al., 2012; Mwaipopo et al., 2011). Dotras et al. (2012) reported that students with physical disabilities were affected by the architectural changes at their university in Spain. The authors noted that while students with sensory impairments had difficulty orientating themselves, they would eventually learn with enough time and support (Dotras et al., 2012). This, however, was not the case for students with physical disabilities who had to deal with such physical and architectural barriers daily. The authors suggested that such physical barriers would reduce their sense of independence (Dotras et al., 2012).

While most of the challenges raised in Theerapong's (2018) and Dotras et al.'s (2012) studies have been addressed by Australian universities, the professional development that university lecturers need to support students with disabilities continues to be a challenge (Hitch et al., 2015). Theerapong (2018) highlighted that students with VI shared that lecturers did not know how to include them in the classrooms, leading to negative environments and students feeling marginalized.

Hitch et al.'s study (2015) found that the policies in Australian universities offered a wide range of professional courses on inclusive classroom teaching. The two most common courses included professional development workshops, many of which were related to specific disabilities. However, the responses in Hitch et al.'s study (2015) varied somewhat, ranging from problems with financial support to having no idea about inclusive teaching practices and systematic initiatives that included University-wide participation. The authors discussed Connectivist Pedagogy, according to which teaching is student-centered and flexible and takes into consideration the students' "lives and developing identities," and "encourages students to share their beliefs,

knowledge, and experiences" (Cooke & Bowl, 2010, p. 143, cited in Hitch et al., 2015). The authors suggest the need to embed Universal Design for Learning in all areas of pedagogy, in addition to having an inclusive learning environment (Hitch et al., 2015). In addition, the researchers encouraged universities to share their understanding, experiences, and practices of inclusive pedagogy (Hitch et al., 2015).

Strnadova et al.'s study (2015) of 24 students (mean age = 25 years; males = 8; females = 16) with disabilities, which included physical ($n = 6$), visual impairment ($n = 7$), hearing impairment ($n = 4$), dyslexia ($n = 5$), attention-deficit/hyperactivity disorder ($n = 2$) and Asperger's Syndrome ($n = 1$), shared many similarities in terms of the barriers and challenges faced by students in Theerapong's study (2018). These included students with VI not having access to most of the information. In addition, students with hearing impairment shared that there was a lack of sign language interpreters to assist them (Strnadova et al., 2015). Architectural barriers were also present and students with physical disabilities had challenges during their practicum. Interpretation of participants' responses in Strnadova et al.'s study (2015) suggests that equipping students with assertiveness, self-determination, meta-cognition, appreciating their differences instead of trying to fit in with others, developing optimism, and having a career path planned ahead would help them in higher education.

In Pudaruth et al.'s study (2017), six respondents indicated that they were unaware about any support from the university advisor for disabilities. In addition, the respondents ($n = 3$) shared that their disability limited their subject choice while only two respondents reported difficulties with lectures, tutorials, and learning resources (Pudaruth et al., 2017). The study, however, did not report what these difficulties were. Couzens et al.'s (2015) case study of a student with a learning disability suggested that adjustments to assessments vary depending on individual needs.

The purpose of this study is to gain an insight into the challenges of an undergraduate student with a physical disability in a course of study at a university in Western Australia. In doing so, the author aims to gain insight into supporting students with a physical disability and empower them to tell faculty about their needs. The study addressed the following questions:

1. What are the challenges faced by the student?

2. What are the environmental challenges faced by the student?

3. What were strategies used to overcome any of the barriers faced by the student?

METHODS

The Participant

To ensure anonymity and confidentiality of the participant, a code was used for the student. The student was a 20-year-old female with a mobility disability, studying an undergraduate course at the university. She is aware of the disability advisor service at the university. Ethics approval was obtained prior to commencement of the study. The student's information and consent were obtained before the study began. The student was recruited through a course and invited to participate in the study. The study took place at Curtin University, Western Australia.

A case study qualitative research methodology was used. An adapted open-ended survey questionnaire was used to collect data (Pudaruth et al., 2017). The student was asked to complete the questionnaire involving reflections on their experiences (Creswell, 2013). The purpose of the survey was to understand the student's challenges during the study and how she overcame environmental challenges. The student completed the survey at home.

Procedure for Data Collection and Analysis

Adapted Survey Questionnaire. The questions included demographic information and Adapted Survey Questionnaire (Pudaruth et al., 2017). To reduce stress, the student decided to complete the questionnaire at home on her personal computer. She had enough time to reflect on experiences raised in the questions.

Data were analysed using data exploration, a qualitative method that identifies the responses most relevant to the research questions. From here, text segments were coded in relation to answering the questions. This process involved identifying and organizing sentences and statements in response to the questions. The identification of a setting and context, such as Workshop Environment or Practice, was also used. The themes were derived from the coding process (Creswell, 2013).

RESULTS

Poor Access that Impaired Learning

Accessibility and Environment. The student, who uses a wheelchair, identified physical accessibility as a barrier at the university. Poor equipment maintenance and a lack of physical access to the classroom as she used her wheelchair limited her mobility, resulting in missed classes, workshops, and other education settings. The student explained:

> I have experienced some difficulties during workshops due to my disability. Accessibility is one that I have dealt with the most in terms of the class environments. On multiple occasions over my three years of university I have not been able to physically get to my classroom due to my wheelchair and mobility. This is usually because the workshop room is upstairs and the elevators in the building are under maintenance or are broken. This is not necessarily a common occurrence but has still made me miss multiple workshops. When this happened, I was not notified and no changes to help me get to the class occurred, despite finding people to help me. Another barrier that I have dealt with is the battle of being at an appropriate desk height for a wheelchair. Different classrooms have different desk heights and chairs. Sometimes to overcome an inadequate height I would sit in a normal chair. However, this would increase back pain or fatigue if not managed properly for the extended time of a full class. Sometimes I would also struggle to get my wheelchair to the desk that I wanted to sit at and would either park and sit in a normal chair or classmates would help me move things. These all impact my learning by either missing out or being distracted by discomfort unless I took breaks or other management strategies. These management strategies would also sometimes result in me leaving the workshop for a walk or stretch. Fatigue from my condition also impacts my retention and focus in class. If I am fatigued, I might not even be able to get myself up for class or I will experience lack of attention if I did attend.

Experience with Assessments and Examinations

The student faced barriers with assessments/tests/examinations. The student explained:

> Due to my disability, I have faced barriers with the assessments throughout my studies. The main difficulty with this is completing them in the designated time to the standard that I am happy with. This happens when I get too fatigued and have to prioritize resting over straining myself more by doing most everyday things (including studying). The fatigue is not necessarily just from my studies. It usually occurs when I push myself too far and am reckless with too many commitments. It's slightly difficult

to handle this fully for myself because these commitments are more than likely fun things that then cause me to be fatigued after. It can be as simple as needing a full day in bed doing nothing after going out for dinner the night before. This makes producing a product that I am happy with when I'm fatigued hard because I worry that I could have done better if I had a little bit more rest or potentially managed better. This is recently solved though organizing with my university to get a seven-day extension on all assessments possible.

The student wrote that the Health and Physical Education Unit (HPE) was where many adjustments were made to meet her individual needs, such as rest times. The student felt that the HPE unit was the most challenging but turned out to be the most engaging. "I thought that I would have the most barriers in this sport-related class, but the tutor used it to her advantage to utilise as many inclusive modifications and practices as possible," she wrote.

She remembers her first year at the University when she was unfamiliar with the surroundings. In particular, she identified that the maps and available resources did not identify paths to buildings. The student agreed that she experienced environmental challenges at the university. The student explained:

The main environmental challenge that I have faced due to my disability is finding wheelchair accessible ways to locations. When I first started my studies, I was obviously very unfamiliar with the campus. Maps and resources did not depict accessible paths to buildings. I was lucky enough to have a friend with a mobility disability that was a year above me to show me around. I have to take much longer pathways to avoid stairs to get around. I still experience challenges trying to find the accessible routes and elevators when trying to arrive at new places. I can usually find a disabled toilet around the campus after finding most of them through exploration and the app for "lost on campus." In cafes, I may have to move chairs out of the way or navigate my wheelchair carefully but most of them can be accessed.

Poor Communication. The poor communication relates to the notifications that were not sent to the student when the class venue was changed. "I was not notified and no changes to help me to get to the class occurred, despite finding people to help me," she wrote.

Equipment. The student explained that desk heights were not suitable for wheelchair users. The student had to adjust by sitting in a chair which increased her fatigue in the event there was a full class. However, the response of the student was neutral in that she faced barriers which have affected her use of learning resources (e.g., computers, multimedia, audio/visual equipment, photocopying). The student explained:

I have not really experienced barriers concerning learning resources at university. Most of the material is provided for us to access on our own devices which helps me be able to manage with my disability. In terms of computer usage, I can usually fit my wheelchair at the desks that they are on or am able to use my own. For barriers regarding the use of multimedia and resources, they are also usually provided to me for access in my own time or on my own device. This is useful to deal with the difficulty that I experience with being able to take useful written notes from resources due to fatigue and muscle strength in my hand. I am usually able to reach photocopying or printing equipment seated in my wheelchair and can use other equipment that I have engaged with so far in my degree.

Professional Practice. The student strongly agreed that she faced barriers which impacted her learning experience in the campus laboratory or practical work. The student faced many challenges during the second week of practice, some of which she was prepared for, while others she had to deal with on her own. The student explained:

At the time of completing this survey I have finished one practical experience of my degree. This was a two-week placement to replicate the full-time workload of a teacher/career path for my major. Due to my knowledge and dedication to trying to do as well as I possibly can, I was able to pass all the requirements without being at risk.

Chronic Fatigue. The student used preparation, fitness techniques, stretches, exercises, and other strategies to cope with continuous and regular fatigue. "I was prepared for the consequences of this exertion knowing that I will experience more pain/aches, feelings of extreme tiredness, sensitivity to environment and emotions, flu-like symptoms and needing a lot more sleep," she wrote.

Her practical work was most affected after two days of her practical assessment. The symptoms she anticipated started to surface.

> After two days I began to feel these symptoms, which made completing the necessary assessment requirements and preparing appropriately for each day increasingly difficult. I also struggled during the workdays to keep my enthusiasm and perform everything that I wanted to or was requested to without pushing myself too far physically.

Mobility and Environment. The student explained about her challenges with mobility and environment on- and off-campus as positive experiences in the environment. "I was lucky enough to be in a reasonably accessible environment with different accessible paths available to reach locations," she wrote.

Classroom Challenges. During classroom activity in her professional practice in schools, the student faced classroom environment challenges: "I did struggle to get my wheelchair around the room, despite being a spacious room." She adapted by walking around the room to help students, but this put a physical strain on her.

Her classroom students were often distracted by her wheelchair. She wrote:

> I had to adapt my practical work to stop the distractions and other concerns. I did this by adapting my practical work to every time I taught the lesson with a new class. I include an appropriate explanation as to why I am in a wheelchair, look different, and outlining that I am still a teacher while at this school.

Misconception About Disability

The student explained about misconceptions about disabilities during her practice off-campus. She explained:

> The barrier that I was not expecting to be as severe was challenging the misconceptions about people with disabilities. Colleagues within this practical work were very helpful and motivating to fight this misconception. The classroom was the struggle. Me being in the class was a distraction to the class in a different way to normal practicum students. Students would get off task to ask questions about my disability or distract others gossiping or making fun of it. This got to the point of some students in one class being "scared" of me due to lack of understanding and misconceptions.

Supportive Staff. The student strongly agreed that academic staff (e.g., lecturers/tutors) have been supportive and helpful when she approached them about disability-related barriers. The student explained:

> The main action of this is allowing for extensions on assessments due to my condition. Most of the time when any in-class mobility task or physical activity is organized, the tutor will talk with me about whether I can participate or if any modifications need to be made. They also allow me to participate within my own limits. For example, if I get tired during a class game about creating dance moves, I will be able to sit down and rest. I think that a really good example of this supportiveness was in a health and physical education unit. I thought that I would have the most barriers in this sport-related class, but the tutor used it to her advantage to utilize as many inclusive modifications and practices as possible.

The student wrote that academic staff have been supportive and helpful many times during her study. Interactions with lecturers were "positive and supportive." She shared the university's disability access plan with staff and they responded warmly and were eager to assist.

Staff Care and Concern. The student expressed that tutors were sympathetic to her needs, for example, allowing her to take breaks or when she was noticeably tired during workshops. She shared a personal experience with a staff member going out of her way to secure a suitable placement in the school for her professional practice. "She was very caring, organizing this for me out of her own will to help me have the best experience possible," the student recalled.

Advocate. In response to Question 2, the student seemed to advocate for the right of people with disabilities such as herself to become teachers, even if attitudinal barriers remain. "This assisted with the barrier, as I could save time and shut the distractions down by allowing questions at the start and being firm about what was appropriate/boundaries…but I do not think this barrier will ever fully go away in many different situations," she wrote.

Technology

The student was neutral about using technology. She noted that she could reach photocopying and/or printing equipment from her wheelchair. "I have not really experienced barriers concerning learning resources at university," the student wrote in response to Question

3. "Most of the material is provided to us [all students at the University] to access on our own devices which helps me be able to manage my disability."

Strategies Used by the Student

The student wrote about the strategies she used to overcome barriers she faced. The student explained:

As I was diagnosed with my condition at eight months old, I have had a lot of experience overcoming barriers related to my disability in different contexts… I have overcome physical accessibility by mostly knowing my way around the campus and asking for help if necessary. I also have background assistance measures to help with daily life that allow me to focus on studies. I have a support worker and other support providers that improve my health and manage fatigue or pain. I have a set exercise and stretch plan to manage the discomfort and fatigue that I experience due to my condition. These are made by my physiotherapist and can be done when I am experiencing discomfort in class or my university environment. I also have an electric wheelchair that allows me to independently move around campus and sit comfortably.

Early Diagnosis and Experience. The student explained that having been clinically diagnosed at age eight months, she has had years of experience working through varying challenges in different contexts.

Support and Adjustments. The student explained that she manages with her disability advisors, support worker, and the university access plan that clearly states her condition and how it impacts her university studies, leading to adjustments that support her in her studies. For example, she identified alternative arrangements for her coursework and examinations. This included additional time to submit assessments, copies of additional materials, iLectures, and wheelchair access to venues.

The student overcomes physical accessibility by mostly knowing her way around campus and asking for help if necessary. The student identified other support beyond the university that supports her daily life, allowing her to focus on study.

DISCUSSION

Environment, Equipment, and Communication

Taylor et al. (2010) recommended that students with disabilities identify themselves to their university as soon as possible to ensure they receive suitable support. Australia's Disability Standards for Education (2005) has empowered students with disabilities at universities nationwide. This study was designed to understand the needs and challenges of a student with a physical disability in Western Australia. In terms of the infrastructure and environmental adjustments, it reflects the challenges seen in other studies (Dotras et al., 2012; Melero et al., 2018; Theerapong, 2018; Hitch et al., 2015). For example, the student in the current study noted the limited wheelchair access to campus buildings and the lack of height-adjustable desks in classrooms. Unlike the other studies, however, the challenge faced by the student in this study was to some extent resolvable because the student could be accommodated easily. She identified poor communication as one of the reasons for missing out on classes, which this study recommends solving by communicating with the student through iPhone or other web-based communication platform.

The author suggests that one way to address the seating problem in cafes is to designate zones for wheelchair access, like the inclusive "safe" spaces set aside for young children and older people. Lyon (2017) identified adapting the environment as part of inclusion.

The strength and advantage of the educational program in which the student is enrolled gives students full access to all materials online so they can work through the materials at their own pace. Students have access to e-books, journals, and lecture materials through an online platform that gives all students a first stop to all reference materials related to the units and/or links to the relevant course unit sites. This was a problem that Theerapong (2018) and other studies (Kendall, 2016; Hitch et al., 2015) raised, noting that lecturers were not willing to give their lecture notes to students with disabilities. Such challenges have been clearly circumvented in the current program that the student attended.

In addition, the student expressed that she could reach the photocopying and/or printing equipment while seated in her wheelchair. The building has access to computers at two levels. All students have access to discussion rooms with monitors for sharing information and educational platforms. The library supports students with such spaces as well, making it easier for students during peak usage times. This space fulfills the requirement that inclusion is not only about students with disabilities or additional needs, but rather catering to all students in a learning environment and contributing to inclusive settings for all students (Hyde et al., 2014; Foreman & Arthur-Kelly, 2017; Kendall, 2016; Mitchell, 2014).

Professional Practice Off-Campus

The student faced the challenge of professional practice off-campus, which has also been reported in another study (Strnadova et al., 2015). This has important implications for future professional practice. It is suggested that the outreach program review practices related to any fieldwork or apprenticeship that involves students with disabilities. Research into fieldwork of universities involving students with disabilities is unknown. The author suggests a mentor who advises the school or educational setting about the student's special requirements and needs. The study revealed how the student advocated for her disability throughout her professional practice in a school. Other studies have also discussed self-advocacy (Brandt, 2011; Strnadova et al., 2015; Wilson et al., 2018).

The classroom in a school was a challenge for the student, but these statements do not reveal the age of her students or the classroom where she had her professional practice. It could be anywhere between Pre-Primary to Year 6 students since her degree is in primary education. It is recommended that interviews be included in future studies to obtain further information about the nature of the challenge in such classrooms during practice.

Misconceptions About Disability and Being a Teacher

Wilson et al. (2018) discuss the need to reframe disability from the medical model to that of the constructivist model. The student-teacher's explanation to her students that, "I am in a wheelchair, look different and outlining that I am still a teacher," suggests they doubted her teaching ability. By having competent teachers with disabilities in regular classrooms, children unlearn stereotypes about disabilities (Wilson et al., 2018).

Supportive Staff and Relationships

Unlike other studies (Kendall, 2016; Theerapong, 2018), this study revealed that academic staff supported and understood the needs of the student with a disability. This support was an important part of the motivation and perseverance to continue in her studies. The support was also well understood at the student's professional practice. Melero et al. (2018) concluded that students with disabilities required support beyond mere program adjustments, but rather needed "personalized attention" to help them succeed in higher education. In Kendall's study (2016), a student explained that her needs were not met even after disclosing her disability; instead, her condition was categorized with a generic disability which did not meet her individual needs. Personalized adjustments to the student's specific needs were identified as rest times and adjusting to needs, such as in the Physical Education Unit in this study, as the student remarked, "I thought that I would have the most barriers in this sport related class, but the tutor used it to her advantage to utilise as many inclusive modifications and practices as possible."

The responses in this study highlight the importance of attending to specific needs, which may vary over time. Further, when a university access plan is given to any student, then this should be understood by all staff at the university. Reupert et al. (2010) reported that universities across Australia provided flexible learning and assessments for all students with disabilities. However, in Kendall's study (2016), some of the participants did not feel the support from staff at different venues, despite having a plan.

Family and friendship offer a good source of support system to students (Couzens et al., 2015; Parker, 1999). The student in the current study identified support from a friend with a mobility disability who had been on campus a year prior to her to show her around and how she would be "asking for help." The university in the study has support for students with disabilities and additional needs, yet it appears that the student may be unfamiliar with these supports or tends to approach peers as the first source of support. The author suggests creating opportunities for students to meet informally and creating a buddy system, thus forming the social connections that help in the journey through university life and beyond (Couzens et al., 2015; Hitch et al., 2010). This could vary from year to year, thereby increasing the number of potential friendships between individuals with disabilities and/or additional needs to support students. This would also increase the awareness of the peers about different disabilities. Potentially this could be a spin-off to future work environments where such buddy systems could also be created for future employees with disabilities and/or additional needs.

Parker (1999) discusses the negative aspects of having family and/or mentors as creating a dependence on the part of the person with the disability. However, this study informed that in childhood, the student had good support from the parent with the early understanding of her disability. Couzens et al. (2015) highlight family support as an important factor. Going forward, the student learned to advocate (demonstrating her independence) for her disability during the professional practice in the school. The study also revealed that the student was resourceful and was able to make friends easily and a friend who was familiar with the university environment. This suggests that any buddy system

with a student with a disability should at least be in the second-year program and understand the facilities and environment within the university. The researcher recognises the limitation of having one student in this study and recommends that future study include a larger sample to develop a better understanding of the challenges faced prior to entry into higher education.

The student identified other supports to her daily life needs as part of her strategy which helped to "focus on studies," a finding that has been in other studies (Chambers et al., 2009; Brandt, 2011). Support for daily life needs formed an important support mechanism for success at higher education.

Personal Drive of the Student

While the student explained that she faced barriers with assessments throughout her studies, this was due to her high expectations of herself as, "…completing them in the designated time to the standard that I am happy with," but realised that she could use the full extension of seven days. This shows the importance of supporting students with university policy for extensions in assessments. The author would also go further to suggest that students with disabilities be encouraged to make full use of such supportive systems within universities. The student's drive and willpower to complete her degree program were also part of her success.

Strategies the Student Used to Overcome Challenges

Early Identification of the Disability. Part of her life strategy included having a support worker and other support providers who help "improve my health and manage fatigue or pain." She has a set of "exercise and stretch plan to manage the discomfort and fatigue."

Motorized Equipment. Having a motorized electric wheelchair is an important part of the student's support plan. The motorized electric wheelchair allows her to move around campus freely and sit comfortably. She emphasized fatigue and pain. This was a big issue, especially during her practical sessions in school. Within the structured environment of the university, the student receives university support through Access Plan and uses the flexibility with which adjustments can be made to support her in her studies, but could all this be done when she is working full time? As noted, the student stated that she lacked access in the classroom and had to adapt to the classroom environment. Further, her strategy included the exercise that she could do when she experienced "discomfort in class or my university

environment." Full-time work, as she explained about her experience during practice, raises concerns about how she would cope and what accommodations, if any, could be made in schools. These concerns about the student's future needed to be addressed, but they are beyond the scope of this study.

CONCLUSION

This study gave insights into the challenges faced by an undergraduate with a physical disability may be limited due to the single-case study, but it gave an in-depth understanding of such challenges. Further, it raised questions that need to be considered when including individuals in the work environment. Some of these questions were beyond the research scope of this study, but they anticipate challenges ahead for individuals with disabilities and additional needs. In addition, while challenges lie ahead to meet diverse needs, the study revealed that teachers and lecturers clearly supported the student in this study. However, given that this was a case study, further study is warranted with a larger sample size and across different disabilities and/or learning difficulties.

REFERENCES

Alvarez Perez, P. R., de la Rosa, O. M. A. R., & Aguilar, D. E. L. (2010). Transition and access to higher education in students with special educational needs: A diagnosis of the difficulties in adaptation. *International Journal of University Teaching and Faculty Development, 3*(3), 165–179.

Allen, J., & Nichols, C. (2017). Do you hear me? Student voice, academic success and retention. *Student Success, 8*(2), 123–129. https://doi.org/10.5204/ssj.v8i2.387

Brant, S. (2011). From policy to practice in higher education: The experiences of disabled students in Norway. *International Journal of Disability, Development and Education, 58*(2), 107–120. https://doi.org/10.1080/1034912X.2011.570494

Broderick, A. (2018). Equality of what? The capability approach and the right of education for persons with disabilities. *Social Inclusion, 6*(1), 23–39. http://doi.org/10.17645/si.v6i1.1193

Couzens, D., Poed, S., Kataoa, M., Brandon, A., Hartley, J., & Keen, D. (2015). Support for students with hidden disabilities in universities: A case study. *International Journal of Disability, Development and Education, 62*(1), 24–41. http://doi.org/0.1080/1034912X.2014.984592

Chambers, D., Rabren, K., & Dunn, C. (2009). A comparison of transition from high school to adult life of students with and without disabilities. *Child Development for Exceptional Individuals, 32*(1), 42–52.

Creswell, J. W. (2013). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (3rd ed.). Pearson Education International.

Disability Standards for Education. (2005). Department of Education and Training, Australia. https//docs.education.gov.au

Dotras, P., Riera, J., Guasch, D., & Alvarez, M. (2012). Universal accessibility in the university environment and its perceptions by students with disabilities in Spain. *International Journal of Arts and Sciences 5*(5), 503–515.

Foreman, P., & Arthur-Kelly, M. (2017). *Inclusion in Action* (5th ed.). Cengage.

Hale, L., van der Meer, J., Rutherford, G., Clay, L., Janssen, J., & Powell, D. (2013). Exploring the integration of disability awareness into tertiary teaching and learning activities. *Journal of Education and Learning, 2*(1). https://doi.org/10.5539/jel.V2n1p147

Hitch, D., Macfarlane, S., & Nihill, C. (2015). Inclusive pedagogy in Australian universities: A review of current policies and professional development activities. *The International Journal of the First Year in Higher Education, 6*(1), 135–145. https://doi.org/ 10.5204/intjfye.v6i1.254

Hoskin, J., Boyle, C., & Anderson, J. (2015). Inclusive education in pre-schools: Predictors of pre-service teacher attitudes in Australia. *Teachers and Teaching: Theory and Practice, 21*(8), 974–989.

Hyde, M., Carpenter, L., & Conway, R. (2014). *Diversity, inclusion and engagement* (2nd ed.). Oxford University Press.

Kendall, L. (2016). Higher education and disability: Exploring student experiences. *Cogent Education*. https://doi.org/10.1080/2331186X.2016.1256142

Koch, L., Hennessey, M., Ingram, A., Rumrill, P., & Roessler, R. (2006). Faculty learning communities to promote full inclusion of students with disabilities on college and university campuses. *Rehabilitation Education, 20*(3), 191–200.

Lyons, G. (2017). Practising inclusion in diverse school communities. In P. Foreman, & M. Arthur-Kelly (Eds.), *Inclusion in Action* (5th ed.). Cengage.

Melero, N., Morina, A, & Lopez-Aguilar, R. (2018). In life-lines of Spanish students with disabilities during their university trajectory. *The Qualitative Report, 23*(5), 1127–1145.

Mosia, P. A., & Phasha, N. (2017). Access to curriculum for students with disabilities at higher education institutions: How does the National University of Lesotho fare? *African Journal of Disability, 6*. https://doi.org/10.4102/ajod.v6i0.257

Mitchell, D. (2014). *What really works in special and inclusive education: Using evidence based teaching strategies* (2nd ed.). Routledge.

Mwaipopo, R. N., Lihamba, A., & Njewele, D. C. (2011). Equity and equality in access to higher education: The experiences of students with disabilities in Tanzania. *Research in Comparative and International Education, 6*(4), 415–429. https://doi.org/10.2304/rcie.2011.6.4.415

Parker, V. (1999). Personal assistance for students with disabilities in HE: The experience of the University of East London. *Disability and Society, 14*(4), 483–504.

Pudaruth, S., Gunputh, R. P., & Singh, U. G. (2017). Forgotten, excluded or included? Students with disabilities: A case study at the University of Mauritius. *African Journal of Disability, 6*. https://doi.org/10.4102/ajod.v6i0.359

Reupert, A., Hemmings, B., & Connors, J. (2010). Do we practice what we preach? The teaching practices of inclusive educators in tertiary settings. *International Journal of Teaching and Learning in Higher Education, 22*(2), 120–130.

Ryan, J. (2007). Learning disabilities in Australian universities: Hidden, ignored, and unwelcome. *Journal of Learning Disabilities, 40*(5), 436–442.

Smith, M. (2010). Lecturers' attitudes towards inclusive teaching practice at a UK university: Will staff "resistance" hinder implementation? *Tertiary Education and Management, 16*(3), 211–227.

Strnadova, I., Hajkova, V., & Kvetonova, L. (2015). Voices of university students with disabilities: Inclusive education on the tertiary level—A reality or a distant dream? *International Journal of Inclusive Education, 19*(10), 1080–1095. https://doi.org/10.1080/13603116.2015.1037868

Taylor, M., Baskett, M., & Wren, C. (2010). Managing the transition to university for disabled students. *Education & Training, 52*(2), 165–175. https://doi.org/10.1108/00400911011027743

Theerapong, B. (2018). Barriers to inclusive higher education in Thailand: Voices of blind students. *Asia Pacific Education Review, 19*, 469–477. doi: 10.1007/s12564-017-9512-7

Wilson, A., Sokal., L., & Woloshyn, D. (2018). (Re)-Defining 'teacher': Preservice teachers with disabilities in Canadian teacher education programs. *Australasian Journal of Special and Inclusive Education, 42*(1), 17–29. https://doi.org/10.1017/jsi.2018.2

Cognitive Abilities and Math Problem Solving in English and Spanish Speaking Students with Learning Disabilities

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Abstract

This archival data study examined the relations between cognitive abilities and math reasoning for Hispanic English learner (EL) students in grades 1 through 5 with an identified learning disability. The 295 student participants were referred for an initial psycho-educational Spanish or English evaluation due to academic concerns by their school staff or by their parents. The results were analyzed using multiple regressions for their contribution to math reasoning ability. For students assessed in English, the best predictors for Math Reasoning were Lexical Knowledge (VL), General Sequential Reasoning (RG) Perceptual Speed 1 (P), Ideational Fluency (FI). For students assessed in Spanish, the best predictors for Math Reasoning were Lexical Knowledge (VL), Associative Memory (MA), Memory Span (MS), and Phonetic Coding (PC). By understanding the significant cognitive predictors for each group, educators can more effectively plan instruction to meet the needs of these students.

Keywords: *mathematics assessments, English learners, Hispanic, cognitive abilities*

INTRODUCTION

Hispanic students have the lowest education attainment levels of any racial group in the United States, despite being the largest and fastest-growing minority group (Kena et al., 2015). The majority of Hispanic students were born in the United States: kindergartners (93%), grades 1–8 (86%), and high school (77%). More than half (52%) of all Hispanic students in the United States were enrolled in only two states—Texas and California. According to the Texas Education Agency's Academic Profile report (2014) for the 2012–2013 school year, Hispanic students represented 51.3% of the total student population, and 17.1% of the students were identified as English learners (EL). Moreover, 16.6% of students were enrolled in bilingual or English as a second language programs and 8.5% of the total student population were identified as receiving Special Education services. In the 2013–2014 school year, student data showed that 51.8% of the students identified themselves as Hispanic, 17.5% were identified as EL, 17.1% were enrolled in bilingual or English as a second language programs, and 8.5% were receiving special education services.

Additionally, about 71% of the EL population in the United States speaks Spanish in the home, with an even larger representation in Texas (88.5%) (Batalova & McHugh, 2010). With the increased Hispanic population in public and private schools, particularly in Texas, it is essential to conduct research regarding the achievement outcomes for this population. Many EL students need specialized or individualized instruction due to their unique learning needs. To better understand how to meet these students' needs, this archival study explores the relationship between cognitive abilities and mathematical reasoning tasks for Hispanic English learner (EL) students in grades 1 through 5 with already identified learning disabilities. This study will not examine identification processes but rather examine the existing data of identified students to determine which cognitive predictor(s) may have an impact on mathematical reasoning tasks.

Literature Review

Math Achievement, Special Education, and ELs

The achievement gap in mathematics between Hispanic English learners and their English-speaking counterparts is well documented over the years in the National Assessment of Educational Progress (National Center for Educational Statistics, 2017). Language, poverty, and access to good mathematics instruction are considered some of the contributing factors in the achievement gap (Reardon et al., 2019). The gap can be

found at entry into kindergarten with about three quarters of a standard-deviation between White and Latino students (Reardon & Galindo, 2009). Furthermore, El students are underrepresented in special education, considering their portion of the overall school population (Morgan & Farkas, 2016). Low mathematics achievement of EL students, in conjunction with their representation in special education, make this an important issue for educators to examine. Acknowledging that many EL students with math difficulties are not being provided appropriate services (Swanson et al., 2020), this study explored which cognitive predictors can help educators better understand how to meet their students' needs with regards to mathematics learning.

EL Students and Mathematical Reasoning

Mathematical reasoning, which encompasses problem solving, is a cornerstone of mathematics education (National Governors Association Center for Best Practices [NGAC] and Council of Chief State School Officers [CCSSO], 2010; National Council of Teachers of Mathematics [NCTM], 2000). Mathematical problem solving, while mathematical in nature, is also a linguistic challenge for EL students. According to Cho et al. (2020), El students may perform poorly on mathematic assessment due to language demands despite having mathematics competencies. When considering oral language proficiency in English, including vocabulary skills and content knowledge, these skills may impact problem solving skills of EL students (Goldenberg, 2011). Furthermore, "well-developed oral proficiency in English may be a critical step to improving word problem-solving skills for ELLs" (Orosco, 2014, p. 45). Language comprehension is central to problem-solving instruction (Fuchs et al., 2019). Language development can increase as students learn mathematical concepts (Fernandez et al., 2009) and engage in problem-solving instruction. When learning mathematics, EL students are continually developing both mathematics and English knowledge, which depend on reading comprehension skills (Fuchs et al., 2015). Solving mathematics word problems requires students to have strong reading and language skills; often EL students are developing these skills in conjunction with their mathematics skills.

Cognitive Linkages to Academic Outcomes

Recent research has identified numerous cognitive processes that have been empirically linked to academic achievement (Evans et al., 2001; Fiorello et al., 2006; Floyd et al., 2007; Garcia & Stafford, 2000; Vanderwood et al., 2002). Through the use of fMRI analysis pre- and post-interventions for students with math

learning disabilities, Iuculano et al. (2015) found that brain activity changes predicted math skills in a study of 7- to 9-year-old children. Changes in brain activity across systems involving working memory, attention, visual-spatial skills, and quantity representation occurred after an eight-week math intervention. Educators can gain insight into best practices for teaching mathematical problem solving to Hispanic EL students with identified learning disabilities by understanding the cognitive underpinnings.

The following is the research on the seven cognitive processes that are linked to mathematics achievement.

Fluid Reasoning (Gf). Floyd et al.'s (2003) study, which utilized the standardization sample of the Woodcock-Johnson III (WJ III) Tests of Cognitive Abilities (COG) and Tests of Achievement (ACH), found that the broad ability of Fluid Reasoning (*Gf*) "demonstrated moderate relations with Math Calculation Skills and moderate-to-strong relations with Math Reasoning throughout childhood and adolescence" (p. 161). These results were similar to those of McGrew and Hessler's (1995) examination of the seven broad Cattell-Horn-Carroll (CHC) abilities and their relation to basic mathematics skills and mathematical reasoning. Furthermore, McGrew and Wendling's (2010) study found that broad fluid reasoning (*Gf*) consistently and significantly predicted basic mathematics skills at all ages. A stronger relationship was found between *Gf* and mathematics reasoning at younger ages. Broad fluid reasoning predicted mathematics reasoning with high significance at ages 6–13 and medium significance at ages 14–19.

Crystallized Intelligence or Comprehension-Knowledge (Gc). Hale et al. (2001) studied the relationship between Wechsler Intelligence Scale for Children III (WISC-III) subtests and academic achievement. Results from 174 children ranging in ages 6 to 16 indicated that *Gc* uniquely accounted for 10% of the variance in Mathematical Computation. Consistent with Hale et al.'s (2001) WISC-III study, Floyd et al.'s (2003) WJ III study found moderate *Gc* relations with Mathematics Calculation Skills after age 9. The influence of *Gc* on Mathematical Reasoning increased with age: moderate through age 10, and moderate-to-strong throughout childhood and adolescence. "Memory for general information" and "previous knowledge" were distinct cognitive deficits in children with a mathematics computation disability (Swanson & Jerman, 2006). At the individual profile analysis level, more children evidenced a broad ability *Gc* normative deficit than those who exhibited a normative strength in the mathematical reasoning

low-achieving group, but the same could not be said for the mathematics calculation low-achieving group (Proctor et al., 2005). Singer et al.'s (2019) research, involving 262 Spanish-speaking Uruguayan 3rd – 6th grade students, found that semantic language skills were directly related to math word problems.

Short-Term Memory (Gsm). The two short-term memory narrow abilities tested by the WJ III COG are working memory and memory span. Most research focused on working memory as it relates to mathematics. The relationship between working memory and mathematical skills is remarkably strong (Geary et al., 2007; Passolunghi & Siegel, 2004; Swanson & Jerman, 2006). Mannamaa et al. (2012) explored the cognitive correlates of three areas of mathematics skills: knowing, applying, and problem solving. Of the five types of working memory (WM) studied (WM-visuo-spatial, verbal WM–successive, verbal WM-simultaneous, phonological awareness, and phonological WM), only simultaneous verbal working memory directly related to mathematical problem-solving skills. When children worked on multi-step mental arithmetic problem solving, they applied verbal working memory skills, as each preceding step is stored in short-term memory for use in the next step (Dehn, 2008). Swanson & Beebe-Frankenberger (2004) studied the impact of working memory on the mathematical problem solving of first through third graders. The study indicated that working memory predicted performance in mathematics word problems, even when the influence of phonological processing (*Ga*) was partialed out.

Long-Term Retrieval (Glr). The broad ability of *Glr* exhibited significant relations with both Mathematics Calculation Skills and Mathematical Reasoning, but only during the first few school years. Moderate relations were noted with Mathematics Calculation Skills and Mathematical Reasoning skills between ages 6 and 8 (Floyd et al., 2003). Verbal fluency or ideational fluency—the ability to rapidly produce a series of words related to a specific provision—contributes to both mathematics calculation and mathematical reasoning in a sample of Swedish children whose mean age was 9 years old (Andersson, 2007).

Visual-Spatial Thinking or Visual Processing (Gv). Analyzing WISC-III subtests with a *Gf-Gc* theoretical framework, Hale et al. (2001) found that the subtests measuring *Gv*, Block Design and Object Assembly, contributed significantly to the total and unique variance of Mathematics Computation. The authors postulated that "column alignment and paper and pencil calculation" ostensibly require visual-spatial skills.

Niileksela and Reynolds' study, which included 43 children between the ages of 7 to 14 years, who had been previously identified with a learning disability (LD) in the area of mathematics, found that the LD mathematics group displayed weaknesses in the narrow ability of visualization (2014).

Auditory Processing (Ga) – Mathematics. Auditory processing involves the encoding of phonological depictions of symbols, which includes numerals and mathematical expressions. For example, when a child is presented with a mathematics problem (e.g., "2 + 3 ="), the child exchanges the numerals and mathematical expressions to reading-based code. The narrow ability of phonological processing influenced growth in mathematics computation skills (De Smedt & Boets, 2010; Hecht et al., 2001).

Research by Fuchs et al. (2006) supported a direct link between phonological decoding skills and the arithmetic skills of third graders, even when controlling for other abilities such as working memory, long-term memory, processing speed, and attention. While Hecht et al. (2001) controlled for reading ability, phonological awareness was found to be a significant predictor of mathematics computation skills in a longitudinal study of second graders who were assessed over a three-year period. Additionally, the cognitive abilities involved in phonological awareness significantly added to the growth in general computation skills at each assessed grade level.

Processing Speed (Gs) – Mathematics. When students were assessed using processing speed instruments, including rapid naming and coding, cognitive deficits were noted in children with mathematics calculation disabilities (Swanson & Jerman, 2006). Niileksela and Reynolds' (2014) study involving children with learning disabilities presented delays on the Speed of Information Processing subtest from the Differential Ability Scales-II (DAS-II). Floyd et al. (2003) found that the broad ability of Processing Speed (*Gs*) exhibited moderate-to-strong relations with mathematics calculations through childhood and adolescence and moderate relations with mathematical reasoning until age 14. Children with a mathematics learning disability (Cirino et al., 2015) or mathematics difficulty (Bull & Johnson, 1997) exhibited deficits in perceptual speed.

Given these seven cognitive processes are linked to mathematics achievements in conjunction with the understanding that language plays a role in Hispanic EL students' mathematics achievement, it is imperative to research and identify the significant predictors for

Hispanic English learners identified with a learning disability, depending on the language used in the mathematics assessment.

Theoretical Framework

This study used the CHC theory of cognitive abilities, described above. Carroll (1997) posited that intellectual ability does not determine the amount of learning that can occur; rather it impacts the "rate with which learning occurs or the time required for learning" (p. 43). For the purposes of this study, the narrow abilities discussed are those assessed on the WJ III COG (see Table 1).

Research Question

What is the predictive capacity of cognitive abilities on mathematical reasoning in Hispanic English learners identified with a learning disability, whether assessed in English or Spanish?

METHODS

Participants

Participants included Hispanic EL students from first grade through fifth grade who were referred for an initial psychoeducational evaluation due to academic concerns by their school staff or by their parents and met the eligibility criteria for a learning disability. The participants were enrolled in an urban Texas public independent school district or in a private or parochial school within the attendance boundaries of an urban Texas public independent school district during the 2012–2014 school years. All participants were evaluated during that period by state-certified educational diagnosticians who met all state requirements for education and training and hold a master's degree, per 7 T.A.C. § 239.84 (2017). The present study was conducted through a review of archival data records. To meet the criteria for inclusion in this study, the participant must have been assessed on the Mathematics Reasoning cluster and the 14 cognitive subtests using either the WJ III (Woodcock et al., 2001) or Bateria III (Munoz-Sandoval et al., 2005) COG and ACH. Of those screened, 295 met the criteria for inclusion in the current study.

English Learner. Within the school setting, an English learner (EL), used interchangeably with Limited English Proficient, is a student "whose primary language is other than English and whose English language skills are such that the student has difficulty performing ordinary classwork in English" (T.E.C. § 29.052, 1995).

The process of investigating identification of a learning disability for an EL begins with determining language proficiency in the student's first language and their second language. A comprehensive review of the student's information and language proficiency results helps determine the language of the cognitive and achievement assessment (Olvera & Gomez-Cerrillo, 2011). A thorough initial review will mitigate discriminatory practices in assessment.

Prior to the psychoeducational assessment, the language of testing was determined based on a variety of information sources, including the language used in the home, the primary language of the child as reported by the parent, Texas English Language Proficiency Assessment System results, the number of years instructed in a bilingual classroom, and oral language proficiency testing results. Once the testing language was determined, the child was administered either the WJ III or the Batería III COG and ACH.

Measures

Mathematics Assessments

The WJ III ACH and the Batería III ACH were used to measure Mathematic Reasoning. The Mathematics Reasoning composite, consisting of two untimed subtests—Applied Problems/Problemas Aplicados and Quantitative Concepts/Conceptos Cuantitativos—measures the ability to use mathematics knowledge and mathematical reasoning. The Applied Problems / Problemas aplicados subtest ($r = .92$) requires the student to solve mathematics problems by identifying the necessary procedure and performing calculations. The Applied Problems subtest includes various tasks. There are ten questions that examine cardinality. There are 18 questions that ask the students to problem solve. The problem types on the subtest include three Joint-Change-Unknown, four Joint-Change-Unknown, one Separate-Start-Unknown, five Separate-Result-Unknown, two comparison subtraction problems, one equal-grouping multiplication problem, and two measurement division problems (Carpenter et al., 2014). The subtest also includes questions on time, combinations, ratios, and word problems with money. In the assessment, the questions are read aloud, and the pictures related to the questions are provided; pencil and paper is available.

The Quantitative Concepts/Conceptos cuantitativos subtest ($r = .90$) measures "mathematical concepts, symbols, and vocabulary" (McGrew et al., 2007). While both subtests require an understanding of language, the examiner reads the items to the student. The Quantitative Concepts subtest is different than the Applied Problems subtest, in that the students are identify rather than solve problems. The questions include two on

cardinality, four on number recognition, three on counting, and five on mathematical symbol identification. Other questions include shape and coin identification, sequencing, and size comparisons (largest/smallest). Like the Applied Problems subtest, the questions are read aloud and the pictures related to the questions are provided.

Cognitive

Comprehension-Knowledge (Gc). Two subtests—Verbal Comprehension/Comprensión Verbal (VL) and General Information/Información General (KO)—operationalized the broad ability of Comprehension-Knowledge. Verbal Comprehension/Comprensión Verbal ($r =$ .90) measures language development or learned knowledge. General Information/Información General ($r =$ .87) assesses the extent of a student's general verbal knowledge.

Long-Term Retrieval (Glr). Two subtests—Visual-Auditory Learning/Aprendizaje Visual-Auditivo (MA) and Retrieval Fluency/Fluidez de Recuperación (FI)—were administered to all participants in the study. The Visual-Auditory Learning/Aprendizaje Visual-Auditivo subtest ($r =$ .86) assesses the student's ability to learn through paired association, remembering, and retrieving the information. The Retrieval Fluency/Fluidez de Recuperación subtest ($r =$ .81) measures the fluent retrieval of examples from a provided category (McGrew et al., 2007).

Visual-Spatial Thinking (Gv). Spatial Relations/Relaciones Espaciales (Vz) and Picture Recognition/Reconocimiento de Dibujos (MV) operationalized the broad ability of Gv. Spatial Relations/Relaciones Espaciales ($r =$ .81) requires the student to mentally manipulate items and identify which ones form the item prompt. On the Picture Recognition/Reconocimiento de Dibujos subtest ($r =$ .71), students must identify a previously presented picture out of a field of stimuli.

Auditory Processing (Ga). Two subtests—Sound Blending/Integración de Sonidos (PC1) and Incomplete Words/Palabras Incompletas (PC2)—were administered to assess the student's Ga ability. On the Sound Blending/Integración de Sonidos subtest ($r =$ .84), students listened to phonemes and were then asked to synthesize or blend the phonemes into words. The Incomplete Words/Palabras Incompletas subtest ($r =$ .78) provided an audio recording of a word with missing phonemes. The student had to determine the whole word.

Fluid Reasoning (Gf). Concept Formation/Formación de Conceptos (I) and Analysis-Synthesis/Análisis-Síntesis (RG) measured the student's Gf ability. Concept

Formation/Formación de Conceptos ($r =$ .94) is a visually presented inductive reasoning assessment. For Analysis-Synthesis/Análisis-Síntesis ($r =$ .90), participants were given the "rules" to follow when determining their response, thus assessing their deductive reasoning abilities.

Processing Speed (Gs). The broad ability of Gs was measured by two timed subtests—Visual Matching/Pareo Visual (P1) and Decision Speed/Rapidez en la Decision (P2). The student identifies and circles two matching numbers in a row on the Visual Matching/Pareo Visual subtest ($r =$ .88). Whereas, the Decision Speed/Rapidez en la Decision subtest ($r =$ .87) requires the student to identify and circle two similar pictures in each row.

Short-Term Memory (Gsm). Gsm was operationalized by Numbers Reversed/Inversión de Números (MW) and Memory for Words/Memoria para Palabras (MS). After hearing a span of numbers, participants must reverse the sequence on the Numbers Reversed/Inversión de Números ($r =$ .86) subtest. Memory for Words/Memoria para Palabras ($r =$ .78) asks the student to repeat a sequence of dissimilar words in the order presented.

According to Schrank et al. (2005), "All of the Batería III tests are either translations or adaptations of the parallel tests in the WJ III" (p. 12). Translation of subtests occurred when all WJ III test items stayed unchanged and only the directions were expressed in Spanish. Adaptation occurred when the subtest concept stayed fundamentally the same, but the test items were altered in some way. Of the cognitive measures involved in this study, six were adapted and eight were translated.

Procedure

The participants were assessed using the WJ III or Batería III COG and ACH (M = 100, SD = 15). In addition to the results of the WJ III and Batería III COG and ACH, demographic data (grade, gender, ethnicity, retention, economically disadvantaged) was collected. Students who were assessed with an instrument other than the WJ III or Batería III COG and ACH were excluded from this study. As part of the evaluation, broad cognitive abilities were measured with two subtests. The WJ III NU Technical Manual reports generally high reliabilities for the achievement and cognitive subtests (McGrew et al., 2007).

Data Analysis

The purpose of this study was to determine what narrow cognitive abilities for Hispanic English learners in grades 1 through 5 identified with a learning

Gender	Total Sample		English		Spanish	
	n	**Percent**	**n**	**Percent**	**n**	**Percent**
Female	105	35.6	29	35.8	76	35.5
Male	190	64.4	52	64.2	138	64.5
Grade						
1	28	9.5	3	3.7	25	11.7
2	57	19.3	13	16.0	44	20.6
3	76	25.8	17	21.0	59	27.6
4	80	27.1	27	33.3	53	24.8
5	54	18.3	21	25.9	33	15.4
Retained						
No	135	45.8	42	51.9	93	43.5
Yes	160	54.2	39	48.1	121	56.5
Economically Disadvantaged						
No	8	2.7	2	2.5	6	2.8
Yes	287	97.3	79	97.5	208	97.2
Total	295	-	81	-	214	-

Note. English = Hispanic EL students assessed in English;
Spanish = Hispanic EL students assessed in Spanish.

RESULTS

There were 295 participants who met the inclusion criteria for this study. As noted in Table 1, the participants included 190 males (64.4%) and 105 females (35.6%). Demographics for the urban school district for the same time period indicate that 51% of the students enrolled were male and 49% were female. Students included in this study were enrolled in grades 1 (9.5%), 2 (19.3%), 3 (25.8%), 4 (27.1%), and 5 (18.3%). Moreover, retained students were more robustly represented in the total sample as compared to those who were not retained (54.1% and 45.9%, respectively). Students in this sample identified as economically disadvantaged were more significantly accounted for (97.3%) than in the district's population (80.7%). At the time of testing, the participants were not receiving special education services.

Data were screened and found to meet the assumptions for linear multiple regression. An inspection of the P-P plot indicated that data were linear and homoscedastic. Three cases were found to be outside of the recommended range for standard residuals and the cases were removed from the data set. In addition, there was no evidence of multicollinearity as none of the associations between the predictor variables were greater than .70. Finally, the maximum Cook's distance was .120 (English) and .44 (Spanish), which were less than 1.00.

Multiple regression analysis was used to test which cognitive abilities significantly predicted students' math problem solving abilities (Table 4). The results of the regression indicated the four predictors explained approximately 49% of the variance ($R^2 = .485$), $F(4, 76 = 17.88, p<.001)$ for students assessed in English. It was found that Lexical Knowledge significantly predicted Math Reasoning ($\beta = .362, p<.01$); as did General Sequential Reasoning ($\beta = .152, p<.01$), Perceptual Speed ($\beta = .108, p<.05$), and Ideational Fluency ($\beta = .107, p<.05$).

disability best predict Mathematics Reasoning abilities when assessed in English or Spanish. Subgroups were created based on the language of the assessment. The data is presented by subgroups: (1) students assessed in English and (2) students assessed in Spanish. Descriptive statistics (see Table 1) and each subgroup's Mean scores for all cognitive predictors (see Table 2) were calculated.

After calculating the descriptive statistics, the variables were examined using Pearson Product Moment Correlations (see Table 3). This allowed for the examination of the independent variables (narrow cognitive abilities) and the dependent variable (Mathematical Reasoning). Data were screened for meeting the assumptions for linear multiple regression. Multiple regression analysis was used to test which cognitive abilities significantly predicted students' mathematics problem solving abilities.

Table 2
Mean scores for groups.

		Total Sample (*n*=295)	English (*n*=81)	Spanish (*n*=214)
Gc:VL	M	79.39	82.32	78.28
	SD	(10.27)	(9.44)	(10.37)
Gc:KO	M	78.85	79.72	78.52
	SD	(11.95)	(12.03)	(11.94)
Gf: I	M	88.56	87.54	88.94
	SD	(12.37)	(12.47)	(12.34)
Gf:RG	M	90.56	91.12	90.35
	SD	(13.48)	(14.46)	(13.12)
Glr:FI	M	83.00	84.72	82.35
	SD	(13.94)	(14.87)	(13.55)
Glr:MA	M	74.00	77.49	72.67
	SD	(16.10)	(13.61)	(16.78)
Gsm:MS	M	86.79	86.72	86.81
	SD	(13.88)	(13.52)	(14.05)
Gsm:MW	M	80.88	82.16	80.39
	SD	(16.61)	(16.87)	(16.53)
Gs:P1	M	86.01	87.57	91.70
	SD	(14.42)	(15.93)	(14.41)
Gs:P2	M	92.25	93.72	85.42
	SD	(14.59)	(15.06)	(13.80)
Ga:PC1	M	97.59	98.22	97.35
	SD	(14.78)	(13.62)	(15.22)
Ga:PC2	M	92.06	94.75	91.04
	SD	(15.30)	(11.82)	(16.34)
Gv:MV	M	98.74	101.37	97.74
	SD	(13.64)	(12.22)	(14.04)
Gv:SR	M	93.86	93.67	93.94
	SD	(9.55)	(9.36)	(9.64)
Math Reasoning (MR)	M	75.98	79.64	74.59
	SD	(11.15)	(8.51)	(11.72)

Note. English = Hispanic EL students assessed in English; Spanish = Hispanic EL students assessed in Spanish; MR = Math Reasoning; VL = Lexical Knowledge; KO = General Information; I = Induction; RG = General Sequential Reasoning; FI = Ideational Fluency; MA = Associative Memory; MS = Memory Span; MW = Working Memory; P1 = Perceptual Speed 1; P2 = Perceptual Speed 2; PC1 = Phonetic Coding 1; PC2 = Phonetic Coding 2; MV = Visual Memory; Vz = Visualization.

Table 5 exhibits the results of the regression and the regression model summary predicting Math Reasoning for Hispanic EL students assessed in Spanish. The regression model was significant, ($F[4, 209] = 20.44$, $p<.001$), ($R^2 = .281$). The results revealed that Lexical Knowledge ($\beta = .239$, $p<.01$), Associative Memory ($\beta = .173$, $p<.001$), Memory Span ($\beta = .188$, $p<.001$), and Phonetic Coding 1 ($\beta = .159$, $p<.01$) were significant predictors of Math Reasoning for students assessed in Spanish, explaining approximately 35% of the variance.

DISCUSSION

The purpose of this study was to investigate the CHC variables and their relation to achievement outcomes for Hispanic English learner (EL) students who were assessed in Spanish and English and were identified with a learning disability. The results indicated three significant predictors for students assessed in English and five significant predictors for students assessed in Spanish.

Predictor for Students Assessed in English or Spanish

For both Hispanic EL groups, the study found one significant predictor for Mathematical Reasoning skills, Lexical Knowledge (VL).

Lexical Knowledge (VL). Lexical Knowledge significantly predicted Mathematical Reasoning academic outcomes for students who were assessed in English and Spanish. Our results underscore the importance of culture and language in assessments. Language and linguistic complexity can create unintended bias in test items. Additionally, White and Jin (2011) found that

Measure	*Gc* VL	*Gc* KO	*Gf* I	*Gf* RG	*Glr* FI	*Glr* MA	*Gsm* MS	*Gsm* MW	*Gs* P1	*Gs* P2	*Ga* PC1	*Ga* PC2	*Gv* MV	*Gv* Vz
English MR	0.538***	0.379***	0.403***	0.479***	0.365**	0.245*	0.225*	0.201	0.379***	0.308**	0.218	0.089	0.295**	0.228*
Spanish MR	.340***	.195**	.054	.094	.149*	.338***	.299***	.198**	.160*	-.020	.283***	.257***	.011	.064

Note. MR = Math Reasoning; VL = Lexical Knowledge; KO = General Information; I = Induction; RG = General Sequential Reasoning; FI = Ideational Fluency; MA = Associative Memory; MS = Memory Span; MW = Working Memory; P1 = Perceptual Speed 1; P2 = Perceptual Speed 2; PC1 = Phonetic Coding 1; PC2 = Phonetic Coding 2; MV = Visual Memory; Vz = Visualization.

Note. $*p<.05$, $**p<.01$, $***p<.001$

the student's unique cultural experiences may differ from the item posed, thus negatively influencing the outcome. The language facets of math significantly impact Math Reasoning achievement outcomes and these increase with age (Floyd et al., 2003). The ability to read the math word problem was mitigated by the examiner orally reading the items to the student when administering the Math Reasoning subtest; nonetheless, a deficit in the ability to understand the meaning of the words and comprehend verbal directions may result in confusion (Mather & Wendling, 2015). Comprehending mathematics' specific vocabulary, in addition to the ability to understand word problems, notably impacts math problem-solving skills (Fuchs et al., 2019; Decker & Roberts, 2015; Mather & Wendling, 2015).

Many teachers have the misconception that mathematics is a universal language (Bottia et al., 2016; Irujo, 2007). However, mathematics teaching and learning is not a universal language. In fact, mathematics teaching and learning depend on language (Irujo, 2007), which has implications for EL students in the classroom. Mathematics has its own terminology not used in everyday interactions, so students who are still learning English will have the challenge of learning two languages in the mathematics classroom (Gutierrez & Irving, 2012). Within the mathematics classroom, Latino students frequently encounter difficulties with testing due to a lack of language proficiency (Escamilla et al., 2003). Furthermore, "a student's perceived mathematics competency may be conflated with his or her limited English proficiency" (Bottia, et al., 2016, pg. 510).

Additional Predictors for Students Assessed in Spanish

Additionally, for Hispanic EL students assessed in Spanish, Associative Memory (MA), Memory Span (MS), and Phonetic Coding 1 (PC) and were significant predictors of Mathematical Reasoning Skills.

Associative Memory (MA). The foundation of math skills involves paired associative memory (Geary et al., 2007; Osman & Stavy, 2006). Basic math fact fluency, learned through symbol association, is necessary for solving math problems found in daily life activities. Consistent with prior research, associative memory significantly predicted math problem solving abilities even when controlling for math calculation abilities (Decker & Roberts, 2015).

Memory Span (MS). Similar to Geary et al. (2009), the current study found that a child's ability to repeat words presented by the examiner in the exact same order predicted math outcomes in students assessed in Spanish. Auditory memory span involves focused attention to auditory stimuli, storage of sequenced stimuli in immediate memory, and replication of the sequence. The subtest measuring this narrow ability involved semantic rather than numeric code. The predictive ability of this verbal short-term memory skill should be considered in light of a child's semantic or acquired knowledge store. While these results are consistent with previous studies, employing memory span measures involving digits rather than words on EL students with disability may yield different results. Geary et al. (2000) found that when a student's IQ was partialed, verbal short-term memory no longer significantly predicted mathematic skills, suggesting that the short-term memory difficulties may be explained by a broader cognitive deficit. Consistent with Singer et al.'s (2019) research with Spanish speaking students, there was no direct relation to working memory.

Phonetic Coding 1 (PC). Phonetic Coding 1 was predictive of Math Reasoning achievement outcomes for the Spanish group. This study is consistent with findings that the ability to manipulate phonological format captures unique variance

Table 4

Math Reasoning: Multiple Regression Summary Table for Hispanic EL Students Assessed in English Final Model[a].

Variables	B	Standard Error	Standardized Coefficients	t	p
Lexical Knowledge	.362	.078	.402	4.624	.000
General Sequential Reasoning	.152	.053	.259	2.876	.005
Perceptual Speed 1	.108	.047	.202	2.299	.024
Ideational Fluency	.107	.050	.186	2.132	.036
Note: [a] = Dependent Variable: Math Reasoning					

in predicting math problem solving (Gathercole et al., 2006; Swanson & Beebe-Frankenberger, 2004). In the McGrew and Wendling (2010) synthesis of literature, phonetic coding was predictive of math reasoning abilities in the early years. Moreover, Floyd et al. (2003) found the unique contribution of phonetic coding at all ages. Students draw upon the phonological system while processing the text of a math word problem. Struggling with processing phonological information inhibits the further analysis of the word problem.

Additional Predictors for Students Assessed in English

Additionally, for Hispanic EL students assessed in English, General Sequential Reasoning (RG) and Perceptual Speed 1 (P1) significantly predicted Mathematical Reasoning Skills.

General Sequential Reasoning (RG). General Sequential Reasoning, or deductive reasoning, necessitates applying known rules to novel situations. For students in English, the significant predictive value of deductive reasoning abilities on math reasoning skills is consistent with previous research (Floyd et al., 2003; McGrew, 1997; McGrew & Hessler, 1995). Additionally, deductive reasoning abilities correspond with the task demands of math problem solving, which include applying mathematical knowledge and rules (Flanagan et al., 2013).

Perceptual Speed 1 (P1). For students assessed in English, the current study corroborated the significant relationship between the cognitive ability of processing speed and math problem-solving skills found in previous studies (Cirino et al., 2015; Floyd et al., 2003; McGrew & Hessler, 1995). Bull and Johnson (1997) found that processing speed was the best predictor of math outcomes in a sample of seven-year-olds, even when the reading ability was controlled in the regression analyses. Since early math skills (basic math facts) tend to be sequential in nature, the lack of automaticity would inhibit arithmetic development. More complex math tasks, such as addition with regrouping, will suffer if a student does not fluently know their basic addition facts.

CONCLUSION

This study is one of a few to examine the relationship between cognitive abilities and academic performance in a Hispanic English learner sample of students with learning disabilities. The findings suggest there are some shared cognitive predictors for both groups, as well as some specific cognitive predictors for each group. The significance of these findings is that certain strategies can help both populations and each population has additional strategies to benefit their learning.

Table 5

Math Reasoning: Multiple Regression Summary Table for Hispanic EL Students Assessed in Spanish Final Model[a].

Variables	B	Standard Error	Standardized Coefficients	t	p
Lexical Knowledge	.239	.070	.212	3.442	.001
Associative Memory	.173	.042	.247	4.090	.000
Memory Span	.188	.050	.225	3.771	.000
Phonetic Coding 1	.159	.046	.206	3.457	.001
Note: [a] = Dependent Variable: Math Reasoning					

Assessed in Spanish or English. The findings suggest that for Hispanic EL students, whether assessed in English or Spanish, lexical knowledge was the most significant predictor of mathematical reasoning. This finding reinforces the idea that language and comprehension matter in mathematical problem solving, which is supported by research (Cho et al., 2020; Fuchs et al., 2019; Bottia et al., 2016; Orosco et al., 2013). Language matters in problem solving for EL students. All teachers need to consider language and comprehension during problem solving instruction. Understanding the meaning of mathematic vocabulary and terms is only one part of mathematics word problem instruction. Teachers also need to help develop "mathematics comprehension strategies that give students the opportunities to develop the necessary language skills to solve word problems" (Orosco et al., 2013, p. 105). Using graphic organizers or other tools to help students work through and understand the word problem can benefit EL students with identified learning disabilities.

Teachers working with students who have identified learning disabilities, whether in English or Spanish, need to provide opportunities for students to develop their processing speed and mathematics comprehension. This will benefit students.

Assessed in Spanish. According to the findings of this study, EL students assessed in Spanish have different significant predictors than their English-assessed counterparts. For students assessed in Spanish, the most significant cognitive predictor was Associative Memory, which is fact fluency. This study suggests that for Hispanic EL students assessed in Spanish, knowing their facts is the most important factor in problem-solving instruction. This is very different than the findings from their English-assessed peers. This finding suggests that bilingual educators working with Spanish-speaking students with identified learning disabilities should ensure that fact fluency is part of their instruction, as it plays a major role in problem solving for these students.

The next significant cognitive predictor for Hispanic ELs assessed in Spanish is Memory Span. Again, this finding is different than their English-assessed peers. Memory Span is the ability to have focused attention to auditory stimulus, storage of sequential stimuli, and replication of the stimulus. One way bilingual teachers can help EL students with identified learning disabilities is to keep instructions short and simple. Another strategy is to provide instructions in written form so the student does not need to keep track of all the oral information. These two findings indicate that memory is important for these students and that mathematics instruction should incorporate opportunities that allow for memory skills to be developed.

The last significant predictor for EL students assessed in Spanish is language-related: Phonetic Coding I. Phonetic Coding is a reading skill. In terms of mathematics instruction, one way a teacher can help their student is to accompany oral information with visuals. For example, when teaching geometry, make sure that correct visuals are provided with all the vocabulary associated with the lesson. To assist older students, teach specific note-taking strategies or provide assistance with note-taking.

For Hispanic EL students assessed in Spanish, the best cognitive predictors are associated with memory, reading, and language. These learning strategies are not typically associated with mathematics problem solving instruction. While these findings are limited, it does suggest that bilingual and special educators need to consider literacy strategies in mathematics problem solving instruction for Hispanic EL students with identified learning disabilities.

Assessed in English. For EL students assessed in English, general sequential reasoning is a unique predictor. General sequential reasoning is measured when students are able to problem solve without given strategies. This cognitive predictor indicates that Hispanic EL students, assessed in English with identified learning disabilities, are more likely to succeed with an open-ended problem-solving structure. This open-ended type of problem-solving instruction is congruent with Carpenter et al.'s (2014) work on Cognitively Guided Instruction or CGI. Students need to develop their own strategies rather than follow the teacher's strategy. Iuculano et al.'s (2015) research identified "functional brain mechanisms underlying effective intervention in children with an MLD [math learning disability]."

Perceptual speed is processing speed. This means EL students with strong processing speed skills can be more successful at mathematical problem solving. This may seem intuitive to teachers; however, it is important that EL students with identified learning disabilities develop their processing speed skills through learning opportunities that focus on automaticity and not merely on the correct answer.

Ideational fluency, the rapid retrieval of information, predicted mathematical problem solving. Retrieval fluency involves executive functioning or executive control (Jewsbury & Bowden, 2016; Silvia, 2015). This predictor focusses on the quantity of information retrieved rapidly. Unsworth's (2017) research suggested

that individual differences in verbal fluency abilities are due to retrieval strategies and task demands. Within the area of mathematics, students who can quickly produce a variety of strategies for solving a problem and solutions to a problem increase the likelihood of success.

By understanding these cognitive abilities, mathematics educators, both general and special, can help to provide these types of mathematics learning opportunities for students.

Contributions to the Field of Mathematics Education

One of the biggest contributions of this study to mathematics education is the understanding that there are different cognitive predictors for Hispanic ELs with identified learning disabilities who are assessed in English as compared with those who are assessed in Spanish. This knowledge can help both mathematics educators and special educators when working with these students. While this study has a limited population, it may provide useful instructional strategy information to general and special educators.

Given the changing makeup of the population enrolled in public schools in the United States, future research should continue to study culturally- and linguistically-diverse populations. More research is needed in a broader population of students assessed in Spanish, such as a non-referred, bilingual education, or general education population. However, by beginning to look at the intersection of the mathematical problem-solving abilities of Hispanic EL students with special education needs, the findings from this study can give both general and special educators a better understand of how to plan mathematics problem-solving instruction in the classroom.

LIMITATIONS

Several limitations of our study influence the generalizability of our results. The student assessments reviewed were geographically restricted to a single large urban school district in the state of Texas. However, the EL proportions of the participants in this study (Table 1) is noteworthy given that the EL population is growing rapidly; as of 2018 they comprise approximately 10% of the total U.S. school population (McFarland et al., 2018). The impact of Lexical Knowledge (VL) on mathematics reasoning abilities in both the English and Spanish samples should be viewed in the context of language development, cultural issues, and socioeconomic status. Despite these limitations, by using a large Hispanic English Learner dataset, our findings present

a considerable contribution to research on cognitive abilities and their relation to academic outcomes for language minority students with a learning disability.

REFERENCES

Andersson, U. (2007). The contribution of working memory to children's mathematical word problem solving. Applied Cognitive Psychology: The Official *Journal of the Society for Applied Research in Memory and Cognition, 21*(9), 1201–1216.

Batalova, J. & McHugh, M. (2010). *Top languages spoken by English language learners nationally and by state*. Migration Policy Institute

Bilingual Education and Special Language Programs, T.E.C. § 29.052 (1995). https://statutes.capitol.texas.gov/Docs/ED/htm/ED.29.htm

Bottia, M. C., Valentino, L., Moller, S., Mickleson, R.A., & Stearns, E. (2016). Teacher collaboration and Latinos/as' mathematics achievement trajectories. *American Journal of Education, 122*(4), 505–535.

Bull, R., & Johnson, R. S. (1997). Children's arithmetical difficulties: Contributions from processing speed, item identification, and short-term memory. *Journal of Experimental Child Psychology, 65*(1), 1–24.

Calderon-Tena, C. O. (2016). Mathematical development: The role of broad cognitive processes. *Educational Psychology in Practice, 32*(2), 107–121.

Carpenter, T. P., Fennema, E., Franke, M. L., Levi, L., & Empson, S. B. (2014). *Children's mathematics: Cognitively guided instruction* (2nd ed.). Heinemann.

Carroll, J. B. (1997). The three-stratum theory of cognitive abilities. In D. P. Flanagan, J. L. Genshaft, & P. L. Harrison (Eds.), *Contemporary intellectual assessment: Theories, tests, and issues*. Guilford.

Cho, E. S., Fuchs, L. S., Seethaler, P. M., Fuchs, D., & Compton, D. L. (2020). Dynamic assessment for identifying Spanish-speaking English leaners' risk for mathematics disabilities: Does language of administration matter? *Journal of Learning Disabilities, 53*(5), 380–398.

Cirino, P. T., Fuchs, L. S., Elisa, J. T., Powell, S. R., & Schumacher, R. F. (2015). Cognitive and mathematical profiles for different forms of learning difficulties. *Journal of Learning Disabilities, 48*(2), 156–175.

Debrenti, E. (2017). Problem solving in elementary mathematics education. In Z. Kolar-Begović, R. Kolar-Šuper, & L. J. Matić (Eds.), *Mathematics Education as a Science and a Profession* (pp. 308–322). Element.

Decker, S. L., & Roberts, A. M. (2015). Specific cognitive predictors of early math problem solving. *Psychology in the Schools, 52*(5), 477–488. doi: 10.1002/pits.21837

Dehn, M. J. (2008). *Working memory and academic learning: Assessment and intervention*. Wiley.

De Smedt, B., & Boets, B. (2010). Phonological processing and arithmetic fact retrieval: Evidence from developmental dyslexia. *Neuropsychologia, 48*(14), 3973–3981.

Educational Diagnostician Certificate, 19, 7 TAC §239.84 (2017). https://texreg.sos.state.tx.us/public/readtac$ext.ViewTAC?tac_view=5&ti=19&pt=7&ch=239&sch=C&rl=Y

Escamilla, K., Chavez, L., Mahon, E., & Riley-Bernal, H. (2003). High-stakes testing, Latinos, and limited English proficient students: Lessons from Colorado. *Bilingual Research Journal, 27*(1), 25–49.

Evans, J. J., Floyd, R. G., McGrew, K. S., & Leforgee, M. H. (2001). The relations between measures of Cattell-Horn-Carroll (CHC) cognitive abilities and reading achievement during childhood and adolescence. *School Psychology Review, 31*(2), 246–262.

Fernandez, A., Anhalt, C. O., & Civil, M. (2009). Mathematical interviews to assess Latino students: Teachers' use of appropriate questioning strategies illustrates the interplay between language and math as English Language Learners describe their understanding of measurement in one-on-one interviews. *Teaching Children Mathematics, 16*(3), 162–169.

Fiorello, C. A., Hale, J. B., & Snyder, L. E. (2006). Cognitive hypothesis testing and response to intervention for children with reading problems. *Psychology in the Schools, 43*(8), 835–853.

Flanagan, D. P., Ortiz, S. O., & Alfonso, V. C. (2013). *Essentials of cross-battery assessment* (3rd ed.). Wiley.

Floyd, R. G., Evans, J. J., & McGrew, K. S. (2003). Relations between measures of Cattell-Horn-Carroll (CHC) cognitive abilities and mathematics achievement across the school-age years. *Psychology in the Schools, 40*(2), 155–171.

Floyd, R. G., Keith, T. Z., Taub, G. E., & McGrew, K. S. (2007). Cattell-Horn-Carroll cognitive abilities and their effects on reading decoding skills: *g* has indirect effects, more specific abilities have direct effects. *School Psychology Quarterly, 22*(2), 200–233.

Fuchs, L. S., Fuchs, D., Compton, D. L., Hamlett, C. L., & Wang, A. Y. (2015). Is word-problem solving a form of text comprehension? *Scientific Studies of Reading, 19*(3), 204–223.

Fuchs, L. S., Fuchs, D., Compton, D. L., Powell, S. R., Seethaler, P. M., Capizzi, A. M., Schatschneider, C., & Fletcher, J. M. (2006). Cognitive correlates of third-grade skill in arithmetic, algorithmic computation, and arithmetic word problems. J*ournal of Educational Psychology, 98*(1), 29–43.

Fuchs, L. S., Fuchs, D., Seethaler, P. M., Cuttling, L. E., & Mancilla-Martinez, J. (2019). Connections between reading comprehension and word-problem solving via oral language comprehension: Implications for comorbid learning disabilities. *New Directions for Child and Adolescent Development, 165*, 73–90.

Garcia, G. M., & Stafford, M. E. (2000). Prediction of reading by Ga and Gc specific cognitive abilities for low-SES white and Hispanic English-speaking children. *Psychology in the Schools, 37*(3), 227–235.

Gathercole, S. E., Alloway, T. P., Willis, C., & Adams, A. M. (2006). Working memory in children with reading disabilities. *Journal of Experimental Child Psychology 93*, 265–281.

Geary, D. C., Bailey, D. H., Littlefield, A., Wood, P., Hoard, M. K., & Nugent, L. (2009). First-grade predictors of mathematical learning disability: A latent class trajectory analysis. *Cognitive Development, 24*(4), 411–429.

Geary, D. C., Hamson, C. O., & Hoard, M. K. (2000). Numerical and arithmetical cognition: A longitudinal study of process and concept deficits in children with learning disability. *Journal of Experimental Child Psychology, 77*(3), 236–263.

Geary, D. C., Hoard, M. K., Byrd-Craven, J., Nugent, L., & Numtee, C. (2007). Cognitive mechanisms underlying achievement deficits in children with mathematical learning disability. *Child Development, 78*(4), 1343–1359.

Goldenberg, C. (2011). Reading instruction for English language learners. In *Handbook of reading research*, volume IV (pp. 710–736). Routledge.

Gutierrez, R., & Irving, S. E. (2012). *Latino/a and Black Students in Mathematics: Jobs for the Future*. https://files.eric.ed.gov/fulltext/ED561299.pdf

Hale, J. B., Fiorello, C. A., Kavanagh, J. A., Hoeppher, J. B., & Faither, R. A. (2001). WISC-III predictors of academic achievement for children with learning disabilities: Are global and factor scores comparable? *School Psychology Quarterly, 16*, 31–55.

Hecht, S. A., Torgesen, J. K., Wagner, R. K., & Rashotte, C. A. (2001). The relations between phonological processing abilities and emerging individual differences in mathematical computation skills: A longitudinal study from second to fifth grades. *Journal of Experimental Child Psychology, 79*, 192–227.

Irujo, S. (2007). So just what is the academic language of mathematics. *The ELL Outlook, 6*(3), 1-6.

Iuculano, T., Rosenberg-Lee, M., Richardson, J., Tenison, C., Fuchs, L., Supekar, K., & Menon, V. (2015). Cognitive tutoring induces widespread neuroplasticity and remediates brain function in children with mathematical learning disabilities. *Nature Communications, 6*.

Jewsbury, P.A., & Bowden, S.C. (2016). Construct validity of fluency and implications for t he factorial structure of memory. *Journal of Psychoeducational Assessment, 35*(5), 460-481.

Kena, G., Musu-Gillette, L., Robinson, J., Wang, X., Rathbun, A., Zhang, J., Wilkinson-Flicker, S., Barmer, A., & Dunlop Velez, E. (2015). *The condition of education 2015* (NCES 2015-144). U.S. Department of Education, National Center for Education Statistics. http://nces.ed.gov/pubsearch

Männamaa, M., Kikas, E., Peets, K., & Palu, A. (2012). Cognitive correlates of math skills in third-grade students. *Educational Psychology, 32*(1), 21-44.

Mather, N., & Wendling B. J. (2015). *Essentials of WJIV Tests of Achievement*. Wiley.

McFarland, J., Hussar, B., Wang, X., Shang, J., Wang, K., Rathbun, A., & Bullock-Mann, G. (2018). *The condition of education 2018* (NCES Report 2018-144). U.S. Department of Education, National Center for Education.

McGrew, K. S. (1997). Analysis of the major intelligence batteries according to a proposed comprehensive Gf-Gc framework. In D. P. Flanagan, J. L. Genshaft, & P. L. Harrison (Eds.), *Contemporary intellectual assessment: Theories, tests, and issues* (pp. 151–180). Guilford Press.

McGrew, K. S., & Hessler, G. L. (1995). The relationship between the WJ-R Gf-Gc cognitive clusters and mathematics achievement across the lifespan. *Journal of Psychoeducational Assessment, 13*, 21–38.

McGrew, K. S., Schrank, F. A., & Woodcock, R. W. (2007). *Woodcock-Johnson III normative update technical manual*. Riverside.

McGrew, K. S., & Wendling, B. J. (2010). Cattell-Horn-Carroll cognitive-achievement relations: What we have learned from the past 20 years of research. *Psychology in the Schools, 47*(7), 651–675.

Morgan, P. L., & Farkas, G. (2016). Are we helping all children learn that we are supposed to be helping? *Educational Researcher, 45*(3), 226–228.

Munoz-Sandoval, A. F., Woodcock, R. W., McGrew, K. S., & Mather, N. (2005). *Bateria III Woodcock-Munoz*. Riverside.

National Center for Educational Statistics. (2017). *National assessment of educational progress*. Author.

National Council of Teachers of Mathematics. (2000). *Principles and standards for school mathematics*. Author.

National Governors Association Center for Best Practices and Council of Chief State School Officers. (2010). *Common core state standards*. Authors.

Niileksela, C. R., & Reynolds, M. R. (2014). Global, broad, or specific cognitive differences? Using a MIMIC model to examine differences in CHC abilities in children with learning disabilities. *Journal of Learning Disabilities, 47*(3), 224–236.

Olvera, P., & Gomez-Cerrillo, L. (2011). A bilingual (English & Spanish) psychoeducational assessment MODEL grounded in Cattell-Horn-Carroll (CHC theory: A cross battery approach). *Contemporary School Psychology, 15*(1), 117–127.

Orosco, M. J. (2014). Word problem strategy for Latino English language learners at risk for math disabilities. *Learning Disability Quarterly, 37*(1), 45–53.

Orosco, M. J., Swanson, H. L., O'Connor, R., & Lussier, C. (2013). The effects of dynamic strategic math on English language learners' word problem solving. *The Journal of Special Education 47*, 96–107.

Osman, M., & Stavy, R. (2006). Development of intuitive rules: Evaluation the application of the dual-system framework to understanding children's intuitive reasoning. *Psychonomic Bulletin & Review, 13*, 1–19.

Passolunghi, M. C., & Siegel, L. S. (2004). Working memory and access to numerical information in children with disability in mathematics. *Journal of Experimental Child Psychology, 88*, 348–367.

Proctor, B. E., Floyd, R. G., & Shaver, R. B. (2005). Cattell-Horn-Carroll broad cognitive ability profiles of low math achievers. *Psychology in the Schools, 42*(1), 1–12.

Reardon, S. F., & Galindo, C., (2009). The Hispanic-White achievement gap in math and reading in elementary school in the elementary grades. *American Educational Research Journal, 46*, 853–891.

Reardon, S. F., Kalogides, D., & Shores, K. (2019). The geography of racial/ethnic test scores gap. *American Journal of Sociology, 124*(4), 1164–1221.

Schrank, F. A., McGrew, K. S., Ruef, M. L., Alvarado, C. G., Muñoz-Sandoval, A. F., & Woodcock, R. W. (2005). *Overview and technical supplement* (Batería III Woodcock-Muñoz Assessment Service Bulletin No. 1). Riverside.

Silvia, P. J. (2015). Intelligence and creativity are pretty similar after all. *Educational Psychology Review, 17*(4), 599–606.

Singer, V., Strasser, K., & Cuadro, A. (2019). Direct and indirect paths from linguistic skills to arithmetic school performance. *Journal of Educational Psychology, 111*(3), 434–445.

Swanson, H. L., & Beebe-Frankenberger, M. (2004). The relationship between working memory and mathematical problem solving in children at risk and not at risk for serious math difficulties. *Journal of Educational Psychology, 96*, 471–491.

Swanson, H. L., & Jerman, O. (2006). Math disabilities: A selective meta-analysis of the literature. *Review of Educational Research, 76*(2), 249–274.

Swanson, H. L., Kong, J., Petcu, S. D., & Pimentel, M. F. (2020). Can difficulties in language acquisition and specific learning disabilities be separated among English learners? *Expectational Children, 86*(3), 293–309.

Texas Education Agency. (2014). *Enrollment in Texas public schools, 2013–14*. (Document No. GE15 601 03). Author.

Unsworth, N. (2017). Examining the dynamics of strategic search from long-term memory. *Journal of Memory and Language, 93*, 135–153.

Vanderwood, M. L., McGrew, K. S., Flanagan, D. P., & Keith, T. Z. (2002). The contribution of general and specific cognitive abilities to reading achievement. *Learning and Individual Differences, 13*(2), 159–188.

White, C. D., & Jin, L. (2011). Evaluation of speech and language assessment approaches with bilingual children. *Journal of Communication Disorders, 46*(6), 613–627.

Woodcock, R. W., McGrew, K. S., & Mather, N. (2001). *Woodcock-Johnson III*. Riverside.

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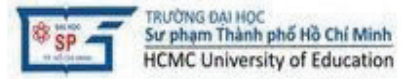
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