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Introduction

As readers explore the Fall 2017 publication of the International Journal of the Whole Child, they quickly realize issues related to best practices represent a global context. Whether you are a teacher in Tanzania, a practitioner in the United States, or an early childhood educator in Saudi Arabia, teachers share the desire to maximize learning experiences on behalf of their children. In order to achieve holistic instruction and transformative thinking, we, as their teachers, read and reflect to enrich our intellect, expand and innovate our instruction, and heighten our awareness to dignify what it truly means to be a child; we acknowledge the culture of childhood. In this issue, readers consider the roles of the teacher as well as examine the relationship between instructional alternatives and transformative thinking. In order to achieve this goal, IJWC provides readers with different publication venues.

Initially, IJWC describes the relationship between educational and theoretical underpinnings and holistic and appropriate practices. Next, Pictures for Reflection underscores the importance of following through with holistic learning for, not only our young children, but as well for our elementary and adolescent learners. New to our spring 2017 issue, the subsequent section, entitled "Tech Talk," identifies several technologies that support students with disabilities. Finally, in ETC., a straightforward argument is made for the importance of children's sand play. With respect to the ETC. section, readers ask, "Why this most unusual title for this section?" Thank you for this question. The answer is that one of the IJWC goals is not to be a typical journal targeting a particular audience. IJWC intends to provide relevance for a range of readers and to do so in a variety of publication alternatives. The ETC. section highlights what developmentally appropriate theory looks and sounds like in the real world. This section may include articles, newsletters, teachers' lesson plans, video clips, teacher-made brochures or other materials to support practitioners in their classrooms.

Articles

In the first article, "Gender Equity in Diverse Curriculum Content: Views from Primary Teachers in Tanzania," Jessica Essary and James Hoot believe baseline research describing teacher-beliefs is critical in determining how existing perspectives may influence how gender inequities impact a learner's social capitol in a particular context. Despite increased government efforts on the African continent to prioritize quality education, of the nine out of 10 children who begin primary school, only six will complete their studies and of this number, only three children will achieve mastery in literacy and numeracy skills. In an effort to improve not merely the numbers of children attending school, but as well the quality of instruction, this manuscript provides data identifying Tanzanian teachers' perceptions of the value of boys and girls studying particular subject matter. The authors believe in order to create gender responsive curriculum, it is not merely teacher training that improves gender equitable practices, but as well it is

critical to acknowledge individual teachers' beliefs, experiences, and backgrounds. The importance of introducing teachers' voices to inform government policy is described. This study identifies how teachers representing a range of geographic locations, SES frameworks, and ethnic diversity, provide insight and reflection regarding their own beliefs associated with subject matter and gender equity.

In the second article, "Teachers' Perspectives on Language Assessment and Effective Strategies for Young English Language Learners in Florida," *Tunde Szecsi, Tara Lashley, Sydney Nelson and Jill Sherman* frame an argument for the critical importance of teachers attaining language assessment literacy. With increased school focus on students' secondary language, the authors describe how language strategies can be productive only when language teachers are "knowledgeable about the assessment, the process of implementation, interpretation of assessment data, and most importantly, the use of these results for further improving education. The authors report their findings describing elementary school teachers' views about the English language learners' (ELLs') program placement assessment, and progress assessment. Interview data explored teachers' perspectives on the effectiveness of these assessments and the connection between language assessment and curricular decisions. Classroom observations were also conducted to gain insight into language strategies that teacher-participants used to promote more effective teaching and learning for ELLs. Implications for teachers, teacher educators and school district personnel are described.

In the third article, "Teaching Sustainable Practices as Part of a Holistic Education in the Saudi Context," Ahlam Alghamdi, James Ernest, and Fatimah Hafiz discuss how experiences with sand and water can be used to support sustainable environments in Saudi Arabia. Building on the potential of storytelling as an effective instructional strategy, authors describe how children learn the importance of regarding their local environment and discover the relevance of conserving natural resources as an ethical responsibility for their country's future. This article provides readers with a discussion of how quality early childhood practices can support children's critical and transformative thinking. Further, despite the young age of the children, authors illustrate how informed educators can deepen children's regard for their responsibility for time and place in history.

ETC.

In the article, "The Nitty Gritty of Sand Play," Rebecca Giles and Karyn Tunks strongly argue for educators revisiting the potential value of allowing children access to sand as a medium for learning and development. They respond to the common complaints when including sand play ("sand is messy," and "sand play leads to misbehavior",) by clarifying several proactive strategies for organization and clean-up. Most importantly, they describe how, as children play in the sand, they naturally integrate and learn about science, mathematics, and language. Children communicate, negotiate, and share; sand play becomes powerful instructional alternative for academic learning, developmental support, and individual growth. After reading this article, readers will be willing and ready to bring sand into the in-and-outdoor classrooms.

Tech Talk

William Burgess, in "Today's Classroom Accessibility," discusses current software in order for educators to most appropriately connect students with disabilities with effective technologies. He reminds readers that before considering technology as an instructional alternative, it is critical to respect all students within any population of disability as unique and individual. This means, regardless of impairment, educators take the time to know their students as individuals with particular needs and interests. He provides readers with numerous examples of how technology can support learning for different disabilities. Further, he describes how both typical and atypical students may benefit. This content serves as a platform to motivate and facilitate educators as they seek ways to support their diverse community of learners.

Pictures for Reflection

Take a look at an older child who is thoroughly enjoying group play and a team sport, on Page 41.

Gender Equity in Diverse Curriculum Content: Views from Primary Teachers in Tanzania

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Abstract

While rhetoric concerning gender equity is beginning to emerge in many African nations, a dearth of research examines the status of gender equity in actual Sub-Saharan African classrooms. The purpose of this study was to explore teacher views of gender equity pertaining to primary grade boys and girls. Data were collected using the Teacher Attitudes Survey (TAS) (Anderson, 2005). This instrument was administered to 137 randomly selected Tanzanian primary grade teachers. Findings suggest significant differences exist in what teachers perceive to be important for boys and girls to learn when the curriculum is broken down by subject. Discussion of findings provides suggestions for future international comparative research on gender equity in African classrooms.

Introduction

The positive outcomes associated with completion of basic education are well known internationally. Among these are an increase in literacy rates, economic prosperity, status mobility, and individual autonomy (Spodek & Saracho, 2014; Zachrisson, & Dearing, 2015). On the African continent, nine out of 10 children begin primary school. However, only six will finish primary school and only three will master basic literacy and numeracy skills (ADEA, 2006). Perhaps the major reason for this dropout rate is that more immediate issues (e.g., health emergencies, sanitation provisions, and water access) often take precedence over national education agendas, leaving issues such as gender inequities in schooling not addressed.

While providing quality education in African nations is becoming a priority for increasing government agendas, understanding the complex needs of marginalized children in order to address educational inequities continues to be a major challenge. During the 1990's many African countries increased access to education in response to Education for All (EFA) and Millennium Development Goals (MDG) by providing more schools and teachers (Zhang, 2006). The number of schools and teachers increased from 1999 to 2009 by 500% (UNESCO, 2010). National leadership, outside aid, and more effective policies have allowed many African countries to demonstrate that it is possible to provide education even in the world's poorest areas (UNESCO, 2010). However, while brick and mortar schools have become more accessible for some, the *quality* of that education, levels of achievement, and advancement among students remain problematic (Oldekop et. al., 2016). For education to be accessible and valuable, improvements in both access and quality in schooling need to progress simultaneously. The Education for All Global Monitoring Report (UNESCO, 2010) has the following to say:

> The ultimate measure of any education system is not how many children are in school, but what- and how well- they learn. Yet there is growing evidence that the world is moving more quickly to get children into school than to improve the quality of the education offered (p.7).

Since the quality of education is strongly linked to the quality of the classroom teacher, this current study begins to explore one critical variable in educational improvement-gender equity. Specifically, this investigation provides researchers, teacher educators, and policy makers with an extended understanding of gender equity with respect to teachers' pedagogical decision-making.

The influence of teacher perspectives on teacher pedagogy

Reports of gender inequities in Sub-Saharan African societies raise increasing concerns among government officials and education stakeholders. As in many African nations, policy makers in Tanzania are working to prioritize improvements in curriculum and teacher pedagogy to address these concerns. Resulting policies have the potential to begin to close the gender divide (Aikman, Unterhalter, & Challender, 2005). As has been recently pointed out, however, early education policy at the national levels seldom translates into improved *classroom* practices (Bakuza, 2014; Tandika, 2015). Perhaps the major reason for this is that the voices of practicing teachers are seldom considered in policy development. Research suggests that teachers' prior beliefs have a greater influence on teachers' pedagogy than their formal knowledge (Ethell & McMeniman, 2002). As Anderson (2005) notes, "Theories about the role of beliefs in pedagogical decision-making are important… since efforts to raise awareness about gender equity in school may confirm or challenge teachers' existing beliefs about boys' and girls' ability to succeed in an academic setting" (p. 41)." In light of these findings, greater attention to teachers' beliefs appear warranted.

Teachers' expectations of boy and girl students in Sub-Saharan Africa

Teachers' expectations of their students are highly related to variations in student achievement (ADEA, 2006). Primary school environments, which have similar treatment of both genders and equal curricular opportunities for boys and girls, have been significantly associated with decreased dropout rates among girls. However, investigations in Sub-Saharan Africa stake strong claims that teachers view academic subjects as more or less important for boys and girls (Lloyd, Mensch, & Clark, 2000). In agreement with

an earlier investigation in Malawi (Davison & Kanyuka, 1992), Anderson's (2005) Benin study also found that teachers believe girls require primarily domestic skills in their lives. This study analyzed 324 teacher views of student behavior and questioned how these perceptions influenced gender equity in teachers' pedagogical practices. Anderson (2005) found that when teachers addressed their perceptions of the importance of vocational/domestic studies, they, on average, emphasized cooking, sewing and typing as subjects important for girls. In contrast, they listed mechanics as an important subject for boys.

Formal schooling may also maintain messages of a hidden gender curriculum. Images in textbooks often display females engaged in domestic chores more often than males. For example, in an analysis of the home economics curriculum in Tanzania, a strong reflection of the participants' belief in girls' roles as mothers and homemakers emerged (Stambach, 2000). When teachers utilize these materials, they are sending hidden messages, which condone a gendered curricular belief system.

The historical context of equity in educational development in Tanzania

Indicators of gender-equity in the classroom are relational and exist within a cultural context. In the article "Gender Equality in Education: Definitions and measurements," Subrahmanian (2005) calls on researchers to recognize these relational aspects within the educational system. To comprehend equity in education, it is helpful to understand the general context of education within a particular society before conducting a baseline examination of equity in the classroom. This allows for looking beyond the surface of equality indicators to understand deep-rooted traditions, which may have influenced the equity within an educational experience (e.g., power influences, collective action efforts, and opportunities for distributive justice). Each country in Sub-Saharan Africa has a historical education account of its own. In order to better understand educational equity in Tanzania, it is valuable to know a bit about the historical context of education in this country.

On December 9, 1961, after centuries of foreign rule (i.e., Portugal, Germany, and Britain, respectively), Tanzania was challenged to quickly implement a new education system. President Julius Kambarage Nyerere (1922 -1999) implemented a First Five-Year Development Plan. Within this plan, there was a response to the urgent need for educated citizens. Without tribal discrimination, classes were offered to any and all adults in Tanzania. The implementation of this plan reduced the illiteracy rate, from 71.9 percent in 1961 to 15 percent by 1985. Tanzania's history of supporting ideals of equity among ethnicities in education and within the government since the 1960's is often discussed as a factor which can be attributed to making it a relatively peaceful nation in contrast with its many war-torn, neighboring countries (Marlow-Ferguson, 2002).

Within Tanzania's *Primary Education Development Programme II Plan (PEDP),* mainstreaming gender issues is recognized as a goal that is an "important contribution to the achievement of access to education and quality and equity in education" (Tanzanian Ministry of Education, 2007, p. 6). This is consistent with Tanzania's Vision 2025. Within the PEDP, the Tanzanian Ministry of Education (2007) clearly addresses the desire to design capacity training models to respond to gender needs, provide gender responsive pedagogy, monitor and evaluate gender mainstreaming, take into account system-wide variations among schools when implementing interventions, and create indicators for gender responsive pedagogy (Objective 28, Tanzanian Ministry of Education, 2007). In planning for the future, the recommendations from the current research investigation may be helpful for the government, considering the lack of baseline data, which pertain to the relevance and need for such goals.

Research Question:

The following research question guided this investigation:

What are Tanzanian teachers' perceptions of the value of boys and girls studying particular subject matter?

Methodology

Sample

Tanzania is composed of 364,900 square miles. According to the last Population and Housing Census in Tanzania, there were approximately 44.9 million Tanzanians in 2012 (i.e., with about 1.3 million living on the island of Zanzibar). Teacher training is offered in 34 government and 43 non-government colleges in Tanzania (United Republic of Tanzania, 2013). The most recent data suggests that out of the 205,387 teachers employed in Tanzania in 2007, approximately 5,958 obtained a degree in teaching (Tanzanian Government Ministry of Educational Statistics, 2007). This investigation samples 137 degree seeking, primary emphasis, in-service teachers in training.

The site where this research was conducted was purposively selected. The teachers enrolled were from a variety of regions making it the most geographically representative teacher training college (TTC) in Tanzania. Permission to collect data was granted after the senior researcher met with the headmaster on site. Next, university affiliates administered the survey to a random, interval, systematically selected group (chosen from the entire enrollment list). The survey was provided to this group in February, 2012 after an assembly session. The final copy of the surveys were mailed in a sealed envelope to the senior researcher by a representative from the Immaculate Heart Sisters of Africa. Out of the 150 original teachers randomly selected, 10 declined the opportunity to remain and fill out the survey. Further, three surveys were eliminated due to a large amount of missing data.

The average age of the teachers in this sample was 22. Descriptive data collected from the sample demonstrates that out of the 137 participants, 41(29.9%) were predominately from the city and 96 (70.1%) were predominately from rural areas. As the population is increasingly becoming more urban and less rural, the sample mirrors this ongoing, slight demographic shift, which corresponds with the trend documented over the last decade (United Nations Population Division, World Urbanization Prospects, 2015).

There were 83 males (60.6%), and 54 females (39.4%). In 2007, there were 10,036 (53.5%) males in government teacher training colleges and 8,718 (46.5%) females for a total of 18,754 teachers enrolled (Ministry of Education and Vocational Training Mainland and Zanzibar 2008, p.17). Although there were 83 males (60.6%), and 54 females (39.4%), this may be representative of trends in 2012. The enrollment of girls in government schooling has decreased by more than 200 students each year from 2004-2007 (Ministry of Education and Vocational Training Mainland and Zanzibar, p. 18). One might assume that the larger representation of males in this study's sample (60.6%) may be due to an increasing number of females entering non-government institutions instead of government schools.

In this study, 14.6% of this sample had mothers or fathers with no schooling. In the sample, 54.7% (75) of teachers' mothers and 38% (52) of fathers were reported to have dropped out of school after completing primary education. When it came to achieving higher levels of education, 19 (13.9%) of the fathers completed the advanced form of secondary school (high school) while only five (3.6%) of mothers were able to achieve this level. In addition, only three teachers' mothers had college degrees, while 10 fathers had college degrees. Table 1 provides a descriptive overview of the sample of this study.

Table 1
Sample Description (n = 137)

Variable	Description	Values	Range	Mean	Median	Mode
Age	Age of teacher	Continuous	18-48	**21.61**	21.0	20
Gender	Sex of the teacher	0= Male 1= Female	0-1	**.39**	0	0
Urban/ Rural Personal History	Teacher grew up predominately in a village/villages or a city/cities	0= village 1=city	0-1	**.30**	0	0
Mother's Education	The last grade achieved by the teacher's Mother	Number of Years 1-7= Standards 8-11= Ordinary Forms 12-13= Advanced Forms 14-16= College 17-18= Masters	0-16	**7.50**	7	7
Father's Education	The last grade achieved by the teacher's Father	Number of Years 1-7= Standards 8-11= Ordinary Forms 12-13= Advanced Forms 14-16= College 17-18= Masters	0-18	**8.85**	7	7
Career Satisfaction	Teachers' satisfaction rating of the teaching opportunities in Tanzania	1= Very Unsatisfied 2= Slightly Unsatisfied 3= Neutral 4=Somewhat Satisfied 5= Very Satisfied	1-5	**3.79**	4.0	4.0

Instrumentation

Until Anderson's (2005) development of the Teacher Attitudes Survey (TAS) there was *no* instrument specifically designed to measure teachers' perceptions of gender equity in their practices. The TAS examines Tanzanian teachers' self-reported beliefs about girls' and boys' needs and abilities as students. This instrument was further chosen because it was the only survey found specifically designed to measure gender equity in teacher pedagogy as it relates to teacher perspectives. The Cronbach's Alpha reliability levels of the composite variables of the TAS (at an alpha level of .05) suggested a strong reliability among each formed subset of the questions, with even the lowest score being rather strong at .68 (Anderson, 2005, p. 120-122).

Adaptations were made of the original survey through a number of sources. First, a focus group of Tanzanian primary teachers provided feedback on the content of this survey (e.g., taking out unnecessary words that did not change the meaning). Additional questions were provided as a result of research recommendations from Aikman, Unterhalter, and Challender (2005) who developed additional indicators of gender equity in teacher pedagogy. By adapting the instrument in terms of: 1) the descriptive information collected, 2) the order and wording of the questions, and 3) the particular questions chosen, the investigation provided a different, yet meaningful, comparable analysis that may better examine common links among the predictor and predicted variables between the Benin (Anderson, 2005) and Tanzanian data. This provided an opportunity for cross-cultural comparisons, such as that suggested in Anderson's study (2005).

Since subjects in Tanzania are taught in English in primary schools, the survey was administered in English. Teachers self-rated their support for the importance of different curriculum content on a 1-7 Likert scale, where 1-3 represent decreasing levels of agreement (negative perception), a value of 4 represents neutrality, and 5-7 represents increasing levels of agreement (positive perception) for each indicator.

Results

The primary purpose of this investigation was to examine Tanzanian teachers' perceptions of the value of boys and girls studying particular subject matter. To determine possible gender differences among teachers' perceptions regarding course content more suitable for boys/girls, paired t-tests were conducted (see Table 2). The largest mean differences existed regarding: mechanics (5.04) and cooking (5.48). Teachers favored boys learning mechanics and girls learning how to cook. Teachers tended to be 'neutral' in their perceptions about the importance of boys learning biology (4.64), and girls to learning English (4.40). To discuss the remaining results, we begin with teachers' strongest reported beliefs and end with areas teachers' 'strongly disagreed' for each gender.

Table 2: Teachers' Perceptions about Subject Matter Importance in Boys' and Girls' Primary Schooling in Tanzania, According to Paired T-tests, N=137

Boy-Girl Difference in Teacher's Perceptions Statistical significance based on paired t-tests (2-tailed hypothesis test)	Boys' Mean (S.E.)	Girls' Mean (S.E.)	Boy-Girl Mean Difference: 2-tailed Statistical Significance
It is important for <u>boys</u>/girls to learn basic Math	5.45 (.119)	2.81 (.139)	2.64***
It is important for <u>boys</u>/girls to learn advanced Math	5.95 (.196)	2.81 (.148)	3.14***
It is important for <u>boys</u>/girls to learn Chemistry	5.82 (.205)	2.40 (.218)	3.42***
It is important for <u>boys/girls</u> to learn English	3.85 (.257)	4.40 (.256)	-.555
It is important for <u>boys</u>/girls to learn Accounting	5.20 (.236)	3.09 (.246)	2.11***
It is important for boys/<u>girls</u> to learn Kiswahili	3.12 (.155)	5.62 (.101)	-2.50***
It is important for boys/<u>girls</u> to learn Cooking	1.17 (.087)	6.65 (.121)	-5.48***
It is important for <u>boys</u>/girls to learn Mechanics	6.61 (.127)	1.57 (.151)	5.04***
It is important for boys/<u>girls</u> to learn Typing	2.42 (.106)	5.62 (.101)	-3.20***
It is important for <u>boys</u>/girls to learn Biology	4.64 (.251)	3.63 (.255)	1.01*
It is important for boys/<u>girls</u> to learn Sewing	2.84 (.237)	5.38 (.228)	-2.54***
It is important for boys/<u>girls</u> to learn Computer	2.31 (.213)	5.99 (.192)	-3.68***

$*p \leq .05$, $**p \leq .01$, $***p \leq .001$

Teachers tended to 'agree' that it is important for boys to learn mechanics and 'somewhat agree' that it is important for boys to learn math (5.45), advanced math (5.95), chemistry (5.82), and accounting (5.20). For their female students, teachers tended to 'agree' that it is important for girls to learn cooking (6.65) and 'somewhat agree' that it is important for girls to learn Kiswahili (5.62), typing (5.62), sewing (5.38), and computer skills (5.99).

The teachers in this sample 'somewhat disagreed' that it is important for boys to learn English (3.85) and Kiswahili (3.12). These teachers 'disagreed' that it is important for boys to learn typing (2.42), sewing (2.84), and computer skills (2.31). The importance for boys to learn cooking is something with which teachers 'strongly disagreed.'

Teachers in this sample 'somewhat disagree' that it is important for girls to learn accounting (3.09), and biology (3.63). These teachers tend to 'disagree' that it is important for girls to learn math (2.81),

advanced math (2.81), and chemistry (2.40). Teachers 'strongly disagree' that it is important for girls to learn mechanics (1.57).

The perceptions of teachers did not significantly vary among teachers depending upon their profiles in combination with their background characteristics [i.e., age, area of origin (rural or urban), parents' schooling level achieved, sex (male or female), and career satisfaction]. Yet, there are stark differences in what the teachers in the sample perceive to be important when the curriculum is broken down subject by subject. Overall, the null hypothesis was rejected for every indicator except for English language learning. English language learning was the only item that was not significantly different. The teachers considered English to be important for the education of both boys and girls.

Discussion

Similar to most societal norms (Aikman, Unterhalter, & Challender, 2005) and related research studies (e.g. Davison & Kanyuka, 1992; Anderson, 2005), teachers in this study believed it is more beneficial for girls to learn domestic subjects (cooking and sewing) than boys. These data are consistent with findings (Biraimah, 1989) from a Nigerian classroom study, which demonstrated designated roles for boys were often positions of authority, while girls were mostly assigned leadership roles that related to domestic responsibilities.

Cross-cultural comparisons between this study and Anderson's study in Benin suggests that teachers in Benin were less gender specific about the subjects boys and girls may be taught, on average, than the teachers in the Tanzania sample. Moreover, teachers in this Tanzania sample, on average, 'somewhat disagree' that it was important for girls to learn accounting (3.09), and biology (3.63), tend to 'disagree' that it was important for girls to learn math (2.81), advanced math (2.81), and chemistry (2.40), and 'strongly disagree' that it was important for girls to learn mechanics (1.57). However, on average, Benin teachers did not disagree with any indicators, and, instead, selected various levels of 'agreement' on every subject being important for both boys and girls to learn.

In addition, in Anderson's Benin study, there was no statistically significant difference in teachers' perceptions of the importance of computer skills, accounting, biology, and advanced math subjects for boys and girls to learn. However, teachers considered more of the subject matter indicators of greater importance for girls than for boys to learn [i.e., advanced math (-.213, p.001), typing (-.213, p.001), accounting (-.403, p.001), French (-.197 p.01), sewing (-.467, p.001), and cooking (-.601, p.001)] with the only exception being mechanics (.537, p.001). Contrasts in the Tanzania and Benin studies suggest that teachers' perceptions may vary by cultural context. Yet, due to the lack of in-depth teacher explanation, findings from these exploratory studies call for further investigation.

Designing culturally-relevant gender equity teaching interventions

Gender sensitivity training in Tanzania has recently been recognized as a major educational weakness. The need to strengthen the current teacher-training curriculum in terms of gender has been suggested in government recommendations (Tanzanian Ministry of Education, 2007). Moreover, goals regarding educational reform in Tanzania are heavily focused on improving teacher professional development and practice in the area of gender equity by the year 2025 (Tanzanian Ministry of Education, 2007). Although

this study identifies inequities in teacher perspectives, which may be found in their practices, gender inequities are complex problems requiring thorough examination prior to implementing effective solutions. Therefore, additional research is needed to determine how these perspectives are developed, how the perspectives may influence individual learners, and how might gender inequities in curriculum influence a child's social capital in a particular cultural context.

Table 3: Comparative Table of Teachers' Perceptions Regarding Subject Matter Importance in Boys' and Girls' Primary Schooling in Tanzania (Essary, 2012) N=137 and Benin (Anderson, 2005) N=324

It is important for boys/girls to learn…	Boy-Girl Mean Difference: (Anderson, 2005) in Benin	Benin direction of opinion favoring: N = Neutral B = Boys G = Girls	Boy-Girl Mean Difference: (Essary, 2012) in Tanzania	Tanzania direction of opinion favoring: N = Neutral B = Boys G = Girls
basic Math	-.021	N	2.64***	B
advanced Math	-.213***	G	3.14***	B
Chemistry	.035	N	3.42***	B
Accounting	-.208***	G	2.11***	B
Cooking	-.601***	G	-5.48***	G
Mechanics	.537***	B	5.04***	B
Typing	-.403***	G	-3.20***	G
Biology	.003	N	1.01*	B
Sewing	-.467***	G	-2.54***	G
Computer	-.112	G	-3.68***	G

*p ≤ .05, **p≤ .01, ***p≤ .001

Political and educational leaders often develop broad goals to address inequities in classroom scenarios from a narrow viewpoint (UNESCO, 2010). UNESCO (2010) suggests "successful interventions against marginalization have to tackle specific underlying causes that may be missed by blanket interventions" (UNESCO, 2010 p.185). When complex problems arrive on a political agenda, solutions may overlook the human, material, and financial resources needed. Consequently, complex issues (e.g., gender inequity

in the classroom) are frequently bandaged with blanket responses. Without research to support these decisions, solutions are likely to be ineffective and/or unsustainable (e.g. such as providing a gender equity training package without knowing about the specific contextual factors which influence teacher perspectives).

In her study of gender issues in Benin classrooms, Anderson (2005) noted specific unexpected findings. This researcher found that teacher's professional academic preparation in Benin had an unintended negative impact on teachers' use of gender equity in classroom practices (EIC) with girl students. Results suggest that by introducing gender equity training systems, the training itself may emphasize gender prejudices and thus negatively impact teacher pedagogy. Anderson (2005) suggests, "The negative relationship between professional certification and the implementation of EIC strategies, challenges that commonly held view that training expands teachers' professional knowledge base and generally improves teacher practice" (p. 73).

Examining and expanding previously documented variables that create gender equity in teacher pedagogy (its predictors & indicators) might provide future researchers with a more thorough understanding of the structures and processes taking place in a gender-equitable classroom (Subrahmanian, 2005). Future investigations may examine the norms and values institutionalized within the pedagogical relationship between students and teachers in Tanzanian classrooms and further define the predictors and indicators of gender equity in teacher pedagogy.

A review of research on pedagogy and teacher development in eastern Sub-Saharan Africa states that "there is a robust body of knowledge that suggests that teaching practices are informed by ideas, beliefs and images that (a) teachers begin to develop well before embracing teaching as a career and (b) that traditional teacher preparation isn't successfully challenging" (Dembele & Miaro-II, 2003, p.3). By recognizing the existence of gender biases, teachers may more readily begin to consider how to eliminate them (Frawley, 2005). For example, while referring to the research findings evidenced within this investigation, teachers can be asked to theorize why the individuals in this sample reported that mechanics are more important for boys to learn about and less important for girls. Teachers' perspectives may be collected through qualitative methods, which provide in-depth insights on the development of their opinions on subject matter importance for boys and girls. Such insights and teacher suggested solutions for inequities might be used in designing culturally responsive gender equity training.

The availability and quality of primary schooling in Sub-Saharan Africa has been a growing focus of research, political change, and international financial support over the past two decades. Yet, when considering the level of complexity involved in understanding gender inequities, research initiatives continue to be warranted, and this challenge is not to be underestimated. Prior to designing teacher-training interventions, additional studies are necessary to examine which factors have influenced teachers' perspectives. Since teachers' perceptions shape the way they receive, resist, and transform policies (Blackmore, 1998), if a pedagogical change to improve equity in education is warranted, teachers may be more willing to use new strategies when reform efforts consider their beliefs, experiences, and backgrounds. Before designing training programs, conducting a community level evaluation may provide a detailed narrative on how each teacher's experiences led to development of gender bias. Through participatory, critical, reflective analysis, teachers can examine how such biases may be a problem within the classroom. Also, through this process, the teacher may be offered an opportunity to become a part of designing an intervention to address such issues. This aim cannot be achieved solely through other common methods of qualitative investigation (e.g., interviews, focus groups) (Donnely, 2015).

Recommendations for Practice

Training interventions and gender research may encourage gender equity if the focus is on exploring how to improve the quality of education for both boys *and* girls. Currently, much international gender equity research focuses on girls' needs in the classroom. If too much focus is placed on girls, the pendulum may shift and perceptions and practices towards boys may display more inequities (Weaver-Hightower, 2003), or vice-versa.

When implementing training programs, organizers must be mindful of the social landscape that is being targeted. For example, if teachers receive gender training in areas that are already demonstrating equity, their time may be wasted. In addition, due to exposure to popular gender stereotypes, teachers may also create biases that did not previously exist.

The training design and other gender equity interventions should receive feedback from focus groups of gender equity researchers before being conducted. These researchers may assist in providing practical considerations for the proposed intervention. For example, one anonymous gender equity expert who briefly provided commentary in a *European Evaluation Society* session in Dublin, Ireland recently suggested that all trainings should be co-conducted by a male and female who share responsibility equally. She believes this provides a model of both gender equality and equity. What trainers have to say may gain credibility with the teachers when they see the trainers are able to model gender equity in their practices while working together, regardless of gender differences.

Direction for future studies investigating gender equity in curriculum content

Improving gender equity in teacher pedagogy is *not* a complete solution for all gender inequities that children face in their school experience. Beyond individual teacher inputs, factors such as the resources in the physical classroom environment or other systematic differences may result in differential discouragement for girls and/or boys. For instance, if girls and boys are taught the same content, with 'equity in the classroom pedagogy' used for both, yet still perform poorly or drop out, other influential factors may be interacting.

Educational quality is not simply created with inputs or variables that undergo certain reliable combinations to ensure predictable outcomes. For example, poverty can influence inequities. Further, politicians and researchers rarely come from marginalized backgrounds and often go to great lengths in order to understand what solutions might be most effective in confronting complex educational problems. Efforts for school improvement may be in vain if the social processes of teaching, learning, and mediating changes (teachers, students, and management/policies) are not well understood before intervention planning commences. This can lead to slippages and oversights that can weaken improvement efforts (Tao, 2010).

There are a plethora of potential gender equity research topics in Sub-Saharan African education that may be investigated further. For example, one might conduct research that examines:

1) What activities outside of school hours may compliment or distract from educational attainment among rural vs. urban female and male children.
2) What cultural beliefs and common proverbs influence the importance of children's familial roles? How do these roles influence a boy or girl child's schooling?

3) How might teachers' childhood experiences influence how they developed their own gender equity perspectives over time?

These are a few among many examples of factors that may be resulting in differential discouragement for girls' and/or boys' education and warrant examination in future research in Sub-Saharan Africa.

Limitations

This baseline study sought to begin examining gender inequities in the classroom in Tanzania. There are many aspects that can influence gender inequities in teacher pedagogy. This study was designed to examine only teachers' perspectives regarding gender-related subject matter importance. Essentially, this study contains preliminary information for future studies of gender inequities in Tanzania and other Sub-Saharan African countries. This is the first step in approaching subsequent research on gender equity in Tanzanian classrooms, but not entirely representative of all the possible factors. Further, teachers' voices were limited in this study. Although teachers were able to report their perceptions on the TAS, there was a limited option of responses and no area for teachers to elaborate on the rationale for their views.

Conclusion

Understanding the negative effects training can have on teacher pedagogy encourages careful planning prior to testing an intervention for gender equity teacher training. This study was minimally invasive by design in order to gather baseline data on gender equity in Tanzanian teacher pedagogy. The collection and substantiation of more evidence and information are needed to continue this process in the most nonintrusive manner as possible. In the PEDP, the Tanzanian Ministry of Education noted in the Gender Equality section (Goal 4.5 Educational Research: "Responses to unique local realitites can only be achieved if local educators organize and reflect on their own experiences and use these reflections to design local interventions that will improve pupils' learning" (Tanzanian Ministry of Education, 2007). Teachers' voices may be amplified through practical aspects of national involvement (e.g., non-profit organization to support teacher networking) and teacher research involvement.

This study provided baseline data and contextual information that systematically informs *what* teachers' perspectives and practices appear to be among Tanzanian primary school teachers. This information may assist others in understanding the call for future *sequential explanatory mixed-method* research designs. Such a design may allow for insights from a participatory, critical, and reflective qualitative examination to highlight *why* teachers maintain the perspectives and practices illuminated in this study (Creswell & Plano Clark, 2007). For example, teachers' reactions to gender inequities may be collected by including pictures of scenarios that suggest individuals are crossing gender boundaries and videotaping survey participants' reactions and in-depth critical reflections.

Finally, as educational practitioners, teachers should be more involved in suggesting what changes (e.g., policy, additional resources, etc.) might support the use of more equitable practices. In order for gender equity teacher training to be meaningful for educators, training should evaluate how to challenge the perceptions of teachers in a way that accurately represents their needs. Therefore, involving teachers in the design of gender equity training is highly warranted.

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Teachers' Perspectives on Language Assessment and Effective Strategies for Young English Language Learners in Florida

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Abstract

This article reports on the findings of an empirical study that examined elementary school teachers' views about the English language learners' (ELLs) program placement assessment, and progress

assessment. Specifically, the interviews in the study explored teachers' perspectives on the effectiveness of these assessments and the connection between language assessment and curricular decisions. In addition, classroom observations were conducted to gain insights into language strategies that these teachers used to promote better teaching and learning for ELLs. In this article, an overview of the current assessment system for ELLs in Florida is provided, then the findings regarding the value of assessment are discussed as well as effective teaching strategies. The article concludes with implications for teachers, teacher educators and school district personnel.

Introduction

The increased focus on language assessment promotes effective teaching and learning. However, these efforts can be productive only when language teachers are knowledgeable about the assessment, the process of implementation, interpretation of assessment results, and most importantly, the use of these results for further improving education. Studies indicate that language teachers are often unprepared to maximize the benefits of assessment results (Popham, 2004). For their contribution to be effective, teachers must have language assessment literacy, which is defined as "the acquisition of knowledge, skills, and principles of test construction, test interpretation and use, test evaluation, and classroom-based assessments alongside the development of a critical stance about the functions of assessment within a larger educational context" (Lam, 2015 p. 170).

Language assessment literacy must be an acquired and mastered skill for teachers who educate English language learners (ELLs) in the United States of America. Out of 5 million ELLs in the public schools in the USA, many of them have no or limited access to quality educational programs (Anyon, 2005; Orfield & Lee, 2004). The lack of access to an optimal education, which includes quality English language teaching, is mirrored by the achievement gap between ELLs and native speakers of English. Specifically, there *was a 36-point gap at the 4th-grade level and a 44-point gap at the 8th-grade level between the scores of native English speakers and ELLs, and this achievement gap has remained unchanged each year between 2002 and 2011 (*National Center for Education Statistics, 2013). In addition, ELLs' high dropout rate and low college enrollment and graduation numbers suggest the ineffectiveness of educating ELLs in the public school system (Giambo, 2010; National Center for Educational Statistics, 2013; Romo, 2013)

In Florida, 28% of school-aged students speak a language other than English at home (US Census Bureau, 2015). In public schools in Florida, the META Consent Decree, which is the framework for compliance with federal and state laws, regulates the identification, eligibility and programmatic assessment for ELLs (FDOE Consent Decree, n.d.). *Considering the stagnating achievement gap, questions related to the role of* assessment and language instruction across the curriculum in a multilingual classroom are essential to ask in order to determine the current status, effective practices, and areas for improvement. It is essential to examine teachers' perceptions of the nature and effectiveness of language assessment because teachers' views and beliefs regarding language teaching have an impact on their practices, instruction, and communication in and outside the classroom (DeJong & Harper, 2005; Zheng, 2009). In this current article, authors report on a small scale study in which six early childhood teachers shared their views about language assessments and effective strategies for young English language learners in Florida. To situate the study, authors provide an overview of the current assessment system for ELLs in public schools. Then we describe the themes of these teachers' views that emerged to make some conclusions related to the current situation.

Current Identification and Assessment of English Language Learners

The current landscape of language assessment for ELLs in Florida is determined by the META Consent Decree which addresses the civil rights of ELL students, such as their right to equal access to all education programs. Through these rights, the META Consent Decree provides a structure that ensures the delivery of comprehensible instruction to which ELLs are entitled. (FDOE Rules & Legislation, n.d.). As Table 1 shows it consists of six major sections which cover identification of ELL students, assessment, access to programming and categorical programs, the requirements for personnel, and monitoring and outcome measures

Section	Description
Section I: Identification and Assessment	All students with limited English proficiency must be properly identified and assessed to ensure the provision of appropriate services. This section details the procedures for placement of students in the English for Speakers of Other Languages (ESOL) program, their exit from the program, and the monitoring of students who have been exited.
Section II: Equal access to appropriate programming	All ELLs are entitled to programming which is appropriate to their level of English proficiency, their level of academic achievement, and any special needs they may have. ELLs shall have equal access to appropriate English language instruction, as well as instruction in basic subject areas, which is understandable to the students given their level of English proficiency.
Section III: Equal access to appropriate categorical and programs	ELLs are entitled to equal access to all programs appropriate to their academic needs, such as compensatory, exceptional, adult, vocational or early childhood education, as well as dropout prevention and other support services, without regard to their level of English proficiency.
Section IV: Personnel	This section details the certificate coverage and in-service training that teachers must have in order to be qualified to instruct ESOL students. Teachers may obtain the necessary training through university course work or through school district provided in-service training.
Section V: Monitoring issues	The Florida Department of Education (FDOE) is charged with the monitoring of local school districts to ensure compliance with the provisions of the Consent Decree pursuant to federal and state laws.
Section VI: Outcome measures	FDOE is required to develop an evaluation system to address equal access and program effectiveness. This evaluation system is to collect and analyze data regarding the progress of ELL students and include comparisons between the ELL and the non-ELL population regarding retention rates, graduation rates, dropout rates, grade point averages and state assessment scores

Table 1 Description of sections of Meta Consent Decree
Source: FLDOE *Rules & Legislation, n.d.*

Identification of ELLs

For the purpose of this study*, Section I. Identification and Assessment* contains essential information about language assessments. According to the META Consent Decree, a home language survey must be administered upon registration in a public school. The survey has the following questions:

Is a language other than English used in the home?

Does the student have a first language other than English?

Does the student most frequently speak a language other than English?

When there is at least one 'yes' for these questions, the students will be assessed for English proficiency in reading, writing, speaking and listening in English within 20 days after enrollment. If the student scores in the 32th percentile or below on any of these subskills, the student is classified as an ELL who is eligible for English for speakers of other languages (ESOL) services. In addition, ELLs are to be assessed in academic areas to assist the teacher who develops the instructional program. Consequently, the student will receive ESOL services according to his/her individualized ESOL plan. Students classified as ELLs continue to receive appropriate instruction and services until he/she is reclassified as English proficient (FDS Florida Administrative, 2017). Table 2 provides information about the identification process with consideration of the different entry points for ELLs. It shows how different school districts collaborate in terms of accepting assessment results for students who are moving from one school district to the other.
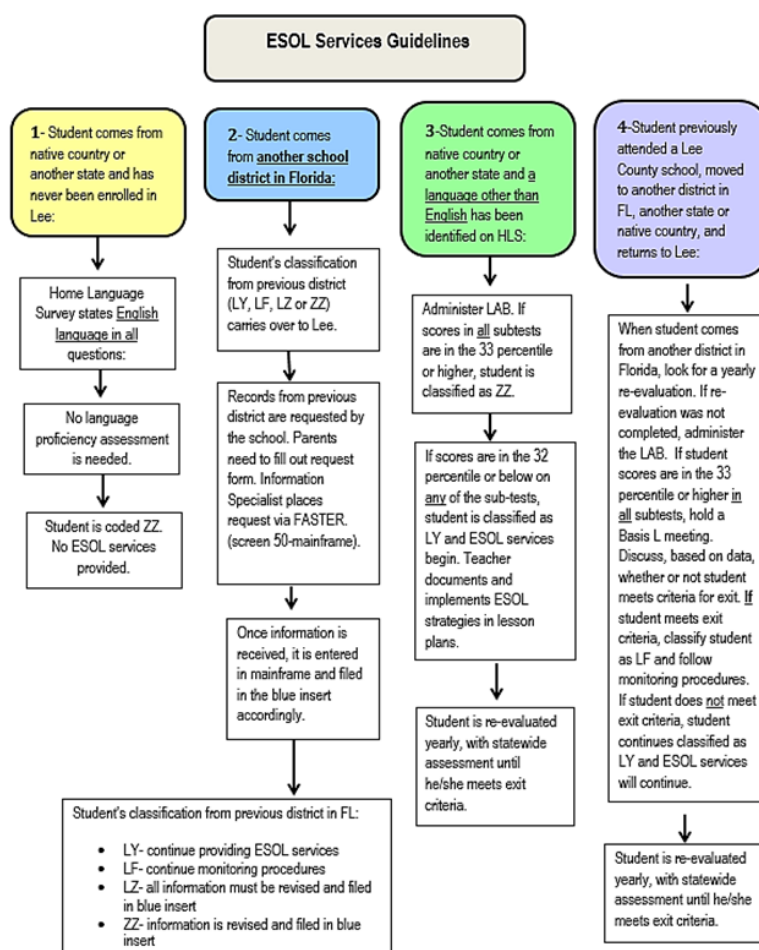

Table 2 Identification process of ELL in Florida
Source: ESOL Services, n.d.

Language Assessment of ELLs

In the selected school district in this study, a variety of language assessments are used for determining placement and documenting progress of ELLs. Specifically, for determining the correct placement of ELLs, the *Language Assessment Battery (LAB*) is used to measure English language proficiency in listening, speaking, reading, and writing. Additional assessment is used in ELLs native language to measure their academic preparedness e.g. in reading in the native language. In Florida, 72% of ELLs (N= 199,000) speak Spanish as their native language. The second largest student population (N=27, 500) which is 10% of ELLs in Florida, speak Haitian Creole as their native language (Soto, Hooker & Batalova, 2015). When a student comes from a Spanish speaking country, *Aprenda,* an assessment targeting reading and math skills in Spanish for students in K-12 grades is used to identify the student's academic needs. Furthermore, *Aprenda* is also used to determine the student's eligibility for gifted programs. In addition, *Crane,* an assessment to determine a Spanish speaking student's dominant language is administered for ensuring that the student's dominant language is used for further screening and evaluation of special needs. In the case of students from Haiti, *EKA* is used to measure students' reading level in their native language. Furthermore, to collect information about the educational background of students who are non-Spanish native speakers, parents are surveyed with a form due to the lack of appropriate assessment. (District ELL plan, 2016).

After the identification process, the ELL receives appropriate language instruction and annually takes an assessment to measure his/her progress. In selected school districts, *ACCESS for ELLs 2.0* assessment is utilized for this purpose. It is a large-scale English language proficiency assessment administered to kindergarten through 12th grade ELLs. It is aligned with the *WIDA English Language Development Standards (*WIDA, n.d.) and assesses listening, speaking, reading, and writing. The purpose of using *ACCESS for ELLs 2.0* is (1) helping students and families understand students' current level of English language proficiency (2) serving as one of multiple measures used to determine whether students are prepared to exit ESOL programs, (3) providing teachers with information for enhancing instruction and learning, and (4) providing districts with information that will help them evaluate the effectiveness of their ESOL/bilingual programs. Table 3 demonstrates the path for ELLs who meet/do not meet the exit criteria from the ESOL program (District ELL plan, 2016).
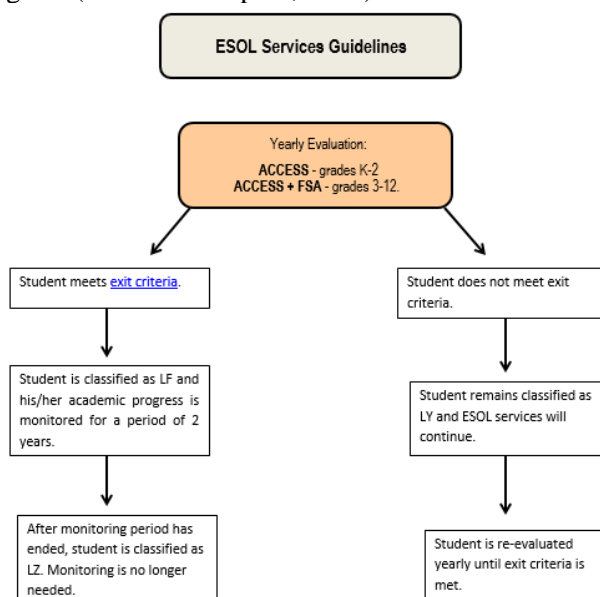

Table 3 Processes addressing yearly language assessment results
Source: ESOL Services, n.d.

When an ELL meets the exit criteria, the student stops receiving ESOL services. However, he/she is monitored for two more years to ensure that his/her language proficiency is satisfactory for grade level academic work. In case the ESOL committee finds that the student's academic achievement is impeded by the lack of language proficiency, the student will re-enter the ESOL program. Ultimately, after the monitoring period is over, the student is no longer identified as ELL (FDS Administrative, 2017.).

Although the process and assessments are regulated by the META Consent Decree, school districts also have flexibility regarding the type of assessment to be used for program placement and/or progress monitoring. When aligned with the Meta Consent requirements, school district professionals can determine the specific ESOL plan for the given district (District ELL plan, 2016). The implementation of this plan is monitored by the Department of Education, and the assessment data inform state officials about the outcomes of the educational program for the ELLs (FDOE Rules & Legislation, n.d.).

Methodology

The purpose of this study was to explore teachers' views about the use and effectiveness of language assessments and to gain insights into their perspectives on best teaching practices with ELLs. Therefore, the following questions were posed:

What views do teachers of young ELLs hold about language assessment and its use for curricular decisions?

What pedagogical practices do teachers find effective for teaching English as a second language to young children?

Participants

In this study, we used convenience sampling composed of five teachers - two kindergarten teachers, three third grade teachers,- and one paraprofessional who was hired for assisting ELLs. All participants had at least one year of teaching experience with ELLs. The five teachers had ESOL endorsement, which was composed of the completion of five college classes or 300 hours of professional development at the school district level. Therefore, these teachers met the state requirement which mandates that all public school teachers who teach ELLs are required to earn ESOL endorsement (FLDOE Rules and regulations, n.d.). The paraprofessional who was a native speaker of the Spanish language had 18 hours of training in ESOL. In addition, one teacher out of five was fluent in Spanish: all others were monolingual.

Data Collection and Analysis

Individual structured interviews were conducted. Nine questions were posed to each teacher regarding 1.) experience with teaching ELLs, 2.) the effectiveness of placement and progress assessments and 3.) pedagogical approaches used to promote better teaching and learning for ELLS. Interviewees were also asked to respond with examples of each. The approximately 30 minute interviews were audio recorded and transcribed. In addition, observations were conducted to gain insights into the strategies that teachers used to facilitate ELLs' language and subject area learning. Both the interview data and the observation data were analyzed with the "data analysis spiral" approach which includes the following steps: (1) data management (2) initial reading and taking notes and (3) coding, describing and interpreting data (Creswell, 2003). The findings were organized based on the categories that emerged through the data analysis and reported by the research questions.

Findings

Teachers' Views on Language Assessment

This study examined teachers' views about language assessment for ELLs in public schools. Overall, to various degrees, teachers were familiar with different types of assessments e.g. *LAB* and *ACCESS for ELLs 2.0*. However, often they referred to assessment in reading, alphabet knowledge and vocabulary as language assessment for ELLs. This lack of clarity of the purpose of different assessments might indicate a gap in their knowledge regarding the proper use of specific language assessments for ELLs.

From the interviews, the following themes emerged: (1) confusion in perceived responsibilities and (2) flaws in the use of assessment data. In terms of holding responsibility for assessment, teachers expressed frustration. They mentioned that in their schools, it is the ESOL teacher or ESOL paraprofessional who is responsible for administering the placement and progress assessment rather than the classroom teachers. Teachers felt that they are often excluded from test result discussions and instead that they are only given the final decisions and scores. Ultimately, most teachers felt that there was a lack of communication about testing and test results between classroom teacher and ESOL professionals. For example, one teacher stated, "I do not feel that they[assessments] are effective at all. We have no initial testing data on the student." Another teacher supported the same view, "Since testing results are not shared and explained, I do not feel that they are effective at all." Although they recognized the lack of communication and collaboration between classroom teachers and ESOL professionals, the teachers did not mention any steps that they tried to take in order to mitigate the problem. This lack of collaboration and effective use of assessment data can result in a lack of accountability, which probably negatively impact the education of ELLs. Interestingly, the one teacher who held the highest ESOL qualifications emphasized the importance of language assessment results for planning instruction while acknowledging her role as well. She noted that, "Language assessment data is essential when planning for ELLs. Language data lets me know if I need to focus on phonics, fluency or comprehension. ELLs do not perform well in vocabulary assessment, so the data helps me decide whether to reteach the materials." Overall, it seems that teachers see their involvement in language assessment in various ways. Most teachers do not feel accountable for the meaningful use of assessment results, though some recognize the important link between assessment results and planning appropriate instruction and act accordingly.

Teachers pointed out several flaws related to the current language assessments. They felt that students can exit the ESOL program too early due to the very low cut score (32 percentile). Teachers in this study believed that these students would need further help in learning English in order to successfully participate in academic learning. Furthermore, regarding another flaw, one teacher stated, "These assessments don't always show what ELLs are truly capable of doing." She advocated for bilingual assessment, which would provide a more valid picture of the student's performance level in a given subject. Several teachers felt that students should be allowed to "test in the language they are fluent in". Clearly they recognized that ELLs are often unable to demonstrate their knowledge in a subject area due to the lack of English proficiency.

Teachers' Views on Effective Strategies for ELLs

In this study, we also examined teachers' views about effective teaching strategies for ELLs in kindergarten and third grade. Overall, kindergarten teachers in the study focused on social language development for communication in everyday situations. Teachers of third graders, however, emphasized the importance of developing academic vocabulary and sentence structure essential in subject areas such as science and social studies. From the interviews and the observations, a variety of effective strategies for young ELLs emerged.

For both teaching English for social and academic purposes, using visuals was found as a basic and important strategy. Specifically, all teachers in the observation used graphic organizers for teaching vocabulary. These graphic organizers displayed information about the new vocabulary in written and picture form. In addition, the most frequently used visual strategies were, for example, creating flip-books, using vocabulary charts, and using pictures to express meaning.

Teachers pointed out that essential vocabulary should be explicitly taught to help ELLs develop social and academic language in English. Regarding language for social purposes, the explicit vocabulary instruction was infused in everyday activities, such as calendar time and snack time. In addition, one teacher shared that she taught practical phrases such as "tie, please" so the ELL students could practice their English skills in simple social situations. In addition, with these simple practical expressions, ELLs were able to express their needs without becoming frustrated due to the lack of language proficiency. In terms of academic vocabulary, a teacher discussed how she pre- taught academic vocabulary, prior to whole group reading: sharing the meaning of the word, often with pictures and giving examples for how to use the word in sentences. Afterwards, when these words were encountered during the reading, the teacher checked for understanding by asking comprehension questions using the new vocabulary.

Kagan Activities (Kagan, 2009.) was a broadly used strategy to increase interaction between students in the kindergarten classroom. In particular, these Kagan activities often target both academic and social purposes simultaneously using collaboration, cooperation and interaction among students. For example, in an activity during the observation, students moved around the room to find a partner with whom they talked about a specific topic, such as dinner last night. Moreover, to increase interaction most teachers seemed to use the strategy of peer tutoring: sometimes paring students with native speakers of English and at other times pairing them with students who speak the same language e.g. Spanish.

Planning instruction that incorporates ELLs' background knowledge and experience is important. Although only one teacher acknowledged the importance of students' background knowledge, she strongly emphasized the need for building the bridge between experiences at school and home. She stated, "I use a culturally responsive approach when working with ELLs. I try to teach through their cultural strength, while helping them connect to their home lives and prior experiences to make learning meaningful." Conversely, another teacher commented on the lack of ELLs' background knowledge. Clearly, she did not realize and recognize the value of the knowledge that ELLs bring from their own culture. She seemed to evaluate issues from the majority 's perspective, disregarding the "funds of knowledge" children with different cultural backgrounds possess (Gonzales, Moll, & Amanti, 2005).

Discussion and Conclusions

This study was designed on the assumption that all teachers who teach English language learners must have language assessment literacy, which includes the ability to administer, score and interpret results of language assessments. Specifically, the certification exam for ESOL teachers in Florida requires teachers to have specific competencies related to assessment, e.g. "Evaluate formal and informal assessments to measure oral language, literacy, and academic achievement" and "Determine appropriate accommodations during formal and informal assessments of ELLs at varying English language proficiency levels." (Competencies and Skills, 2015, p. 85). This mandated skill set is essential in order for teachers to be knowledgeable users of language assessment. Ultimately this knowledge will drive their curricular decisions and instruction and maximize the learning opportunity for ELLs.

This study suggests that teachers have knowledge and understanding about assessment to various degrees. It seems that teachers who have more extensive preparation in ESOL topics are the ones who can fulfill the expectations in terms of using assessment to design optimal instruction. They are also the ones who seem to pursue culturally responsive approaches and acknowledge students' diverse backgrounds and experiences. On the other hand, some teachers, often with less ESOL preparation, separate their own duties from those including language assessment. This approach is not conducive to ELLs' academic progress. In most schools in Florida, ELLs are integrated into mainstream classrooms with children who are native speakers of English. Therefore, it is the classroom teacher who is responsible for using strategies that make instruction accessible and understandable for ELLs. To be able to select and implement effective strategies, teachers must understand the student's proficiency level and language related needs from the assessment results. Therefore, continuous professional development in topics related to ESOL is essential for teachers so that they are able to utilize assessment data for instruction and to infuse students' experiential and cultural background in the curriculum.

Teachers in this study pointed out two major challenges – early exit from ESOL programs and the lack of opportunity for taking subject area assessment in the native language. Their awareness of the inappropriate early exit from ESOL services is important because these teachers have become advocates for extended ESOL services that provide additional language instruction to students who exit the ESOL program prematurely.

Some of these teachers also seemed to be supportive of emergent bilingualism, which involves the process of English language learning with the maintenance and development of the native language of the ELLs (Garcia, Kleifgen, & Falchi, 2008). Teachers in this study acknowledged that ELLs could benefit from a learning environment in which their native language is recognized and supported to avoid subtractive bilingualism in which the new language suppresses the first language (Wright, 2010). This finding is important because bilingualism and bilingual education are often targeted by supporters of the English only movement (Ricento, 2005). These teachers' request for bilingual assessment indicates their understanding of how language proficiency and subject area knowledge should be assessed separately. Ultimately, the more teachers understand the benefits of bilingualism, the more they can be expected to advocate and implement appropriate assessment and instruction for ELLs.

This study had a limited number of participants. Therefore, the in-depth exploration of their views on language assessment and ESOL strategies was meaningful rather than aiming for more generalizable findings. Although a higher number of participants might add additional views on the topic of investigation, it would not challenge the existence of the views of these participants (Ernest 2001). It is important to keep in mind that these participants were from one school district, therefore, their views might be impacted by their experience in this shared context. It is also important to note that these teachers volunteered to participate in the study, therefore we assume they had a special interest in ELLs. Because of these limitations, teachers' views explored in this preliminary qualitative study cannot be generalized beyond the context. For future research, it would be meaningful to examine teachers' views about ESOL assessment and effective teaching and learning strategies in a study that would recruit participants from wider geographical locations.

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Teaching Sustainable Practices as Part of a Holistic Education in the Saudi Context

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Abstract

Children of every culture love to hear stories about their heritage. Storytelling creates shared experiences through the combination of time and space (Langellier, 2011). Educators and parents often use storytelling to explore characters, plot, setting, conflict, and resolution or other key elements of a story. From a more holistic view, storytelling is a teaching tool that is a natural way to teach about the environment and ethical and moral obligations to each other; it has the potential to create a social process that supports cultural survival (Rankin, Hansteen-Izora, & Packer, 2007). Storytelling can help maintain a sustainable culture, which is a basic element of a sustainable society (Abdul-Malik, 2012). Supplementing traditional benefits of storytelling, many activities and routines in early childhood lend themselves to broader discussions of sustainability. In this article, we will share an example of how sand and water activities have been used to support sustainable environments in Saudi Arabia. To do this, we explore how transformative and developmentally appropriate activities fit within a Saudi early childhood context, and provide examples of experiences that support a whole child approach to education.

Sustainability and Education

The term *sustainable development* was first proposed three decades ago (International Union for Conservation of Nature, 1980) and is "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment and Development, 1987, p. 43). Sustainability, in general, refers to thinking of a long-term goal of having a more sustainable world or "thinking about forever." According to the United Nations Educational, Scientific and Cultural Organization (UNESCO, 2005), sustainable development comes about when you have four interrelated and coordinated dimensions: ecologic, economic, political, and social stability. Ecological, or natural, sustainability considers resources, such as food and water, which support life. Economic sustainability is related to people's salaries, jobs, and income. Economic sustainability is best defined by its broad definition of maintenance of capital, or keeping capital intact. Political sustainability is concerned with the political system and political power's role in making decisions about social and economic consumption of natural resources. Finally, social and cultural sustainability deal with human rights and people's interaction through culturally appropriate aspects.

The role of education as a catalyst for sustainable development was proposed during the 1992 United Nations Conference on Environment and Development (UNCED):

> Education is critical for promoting sustainable development and improving the capacity of the people to address environment and development issues.... It is critical for achieving environmental and ethical awareness, values and attitudes, skills and behavior consistent with sustainable development and for effective public participation in decision-making (Hopkins & McKeown, 2002, p.15).

Although it is well acknowledged that education is a critical practical tool for sustainable development (Manteaw, 2012), progress in the area of education for sustainable development (ESD) was limited until December 2002 when the United Nation (UN) announced the years 2005-2014 to be the Decade of Education for Sustainable Development (UN, 2015). Conceptually, education had been considered essential to help bring the four domains together (UNESCO, 2005), and more recently, research has provided support for education as the key to a nation's sustainable development (Gyberg & Löfgren, 2016).

The concept of ESD was originally described as "a world where everyone has the opportunity to benefit from quality education and learn the values, behavior, and lifestyles required for a sustainable future and for positive societal transformation" (UNESCO, 2005, p. 5). Within ESD, programs are developmentally and culturally appropriate and should consider the local environmental, economic, and societal and cultural factors (UNESCO, 2006). Teacher-education organizations have been identified as carrying the key to training and encouraging teachers to apply sustainability in their classroom, which will, in turn, globally impact the future (Alelaimat & Taha, 2013). However, without a shift in thinking about the pedagogical practices we use in education, teachers are not likely to consider a more holistic education that "aims at the integration of elements: self and world; mind and body; knowing and feeling; the personal and societal; the practical and transcendent" (Griffin, 1981, p. 111) while, at the same time, valuing ESD. To move beyond the traditional focus of reading, writing, and math, a promising approach to ESD integrates developmentally appropriate practices within a transformative model of teaching in education. As Samuelsson and Kaga (2008, p.14) believe, "Every child has the right to adequate care, learning, development and protection, and a sustainable society is where everyone's rights are recognized, respected and fulfilled." Not only is engaging children in appropriate practices enough, but we should be developing a child's sense of responsibility toward a sustainable world.

Connecting Developmentally Appropriate Practice with Culture

In the 1987, the National Association of the Education of Young Children (NAEYC) released the first position statement about developmentally appropriate practices (DAP) for young children. The DAP guidelines are based on research and theories of how young children develop and learn. The guidelines provide teachers and care providers with examples of best practice in early childhood education (ECE) serving children from birth to 8 years old (Copple & Bredekamp, 2009). Since DAP's first edition, the guidelines have received criticism from professions in the field of ECE, with editions in 1997 and 2009 that have responded to the criticisms.

The universal consensus underlying DAP philosophy was the rejection of an education that focused on drill and practice and ignored higher level thinking skills (National Commission on Excellence in Education, 1983). Thus, the authors of DAP have advocated for a learning style that focus on the whole of the child using effective teaching approaches and practices. The learning style based on DAP guidelines is a child-centered pedagogy where the child is a center of the overall learning process (Samuels, 1994; Aldridge, 1992). Children in developmentally appropriate classrooms are seen as active learners, problem-solvers, and actions-takers (Stuhmcke, 2012). As DAP was initially based on a framework of well-known European theorists' views of child development and theory, questions have been raised about the relevance to children from different ethnicities (e.g., Delpit, 1988; Jipson, 1991; Kessler, 1991; Wien, 1995; Spodek, 1991; Lubeck, 1998).

The diversity of human culture and the wealth of social and traditional values has shaped the ways in which education has evolved in different parts of the world (UNESCO, 2009). Therefore, many see early childhood education as influenced by varied social perspectives deeply rooted in local culture and customs (Spodek & Saracho, 1996; Mallory & New, 1994; Hoot, Parmar, Hujala-Huttunen, Cao, & Chacon, 1996; McMullen, Elicker, Wang, Erdiller, Lee, Lin, & Sun, 2005). A shift in more recent versions of DAP emphasizes an awareness of cultural appropriateness and attention to the role of bringing children's culture to the classroom (Walsh, Sproule, McGuinness, Trew, & Ingram, 2010). To do this, teachers bring children's culture into the classroom by knowing what is culturally important to the children as well as listening with an open mind to family's preferences regarding child rearing and education (Copple, Bredekamp, Koralek, & Charner, 2013). As Copple et al. (2013) note, this is a shift to pluralism where educators "create a harmony in the face of differing practices, [and where] it is important to move away from viewing contrasting practices as right or wrong, instead thinking of them simply as different" (p. 20).

Even with the most diverse early childhood classrooms, teachers cannot have in-depth knowledge of the cultural dimensions of specific individuals or families. Indeed, teachers cannot have a detailed understanding of every culture they encounter in the classroom (Copple et.al., 2013). Culture is a highly complex concept and encompasses various aspects of human living patterns within a particular social structure. Culture is a complex term that "represents traditional and contemporary expressions of human achievement (e.g. language, art, tools, religious beliefs and practices, values, architecture, fables, traditions, customs and all other forms of human endeavors) that bind together groups of people" (UNESCO, 2012, p.16). Rather than teachers using a top-down approach to bring culture to a classroom, a goal of teaching for transformation to change the world to be a better place is a natural fit for ESD.

Transformation as a Model of teaching

Aldridge and Goldman (2007) argue that educational practices and approaches usually fall under three main categories: transmission, transaction, and transformation. Teaching as transmission considers teaching as the action of transmitting knowledge from the teacher's head to the student's head. As much social knowledge is transmitted (e.g., names of letters, remembering sequences such as numbers or months of the year), transmission works well if a teacher simply wants a student to repeat what a teacher tells them, often without knowing if a child understands the information they are repeating. The second model is teaching as transaction. Here, teachers guide students to construct their knowledge through investigation or exploration, often following their interests.

The third general model considers teaching as a transformative experience and one that leads to meaningful change. As an ancient Chinese proverb says, "if I don't change my direction, I will likely end up where I'm headed." In the same way, transformational teaching often begins with changing students' thinking in order to change their actions and follows a process of reflecting on what we learn and challenging our belief systems, which shifts our perspectives and assumptions. Transformational teaching is intended to change people's views of themselves and the world around them (Wright Knapp, 2013). As with transformative education, taking action is a key feature for DAP which encourages and supports children to be active agents in their own environments (Aldridge & Goldman, 2007). Teaching within a DAP framework supports teachers' decision-making skills as intentional in planning and practice, but also stresses building a caring community for learners, and establishing reciprocal relationships with families (Copple & Bredekamp, 2009). A good example of bringing DAP culturally sensitive practices together with transformational teaching, toward a goal of ESD is seen with how children learn about the importance of sand and water in Saudi culture.
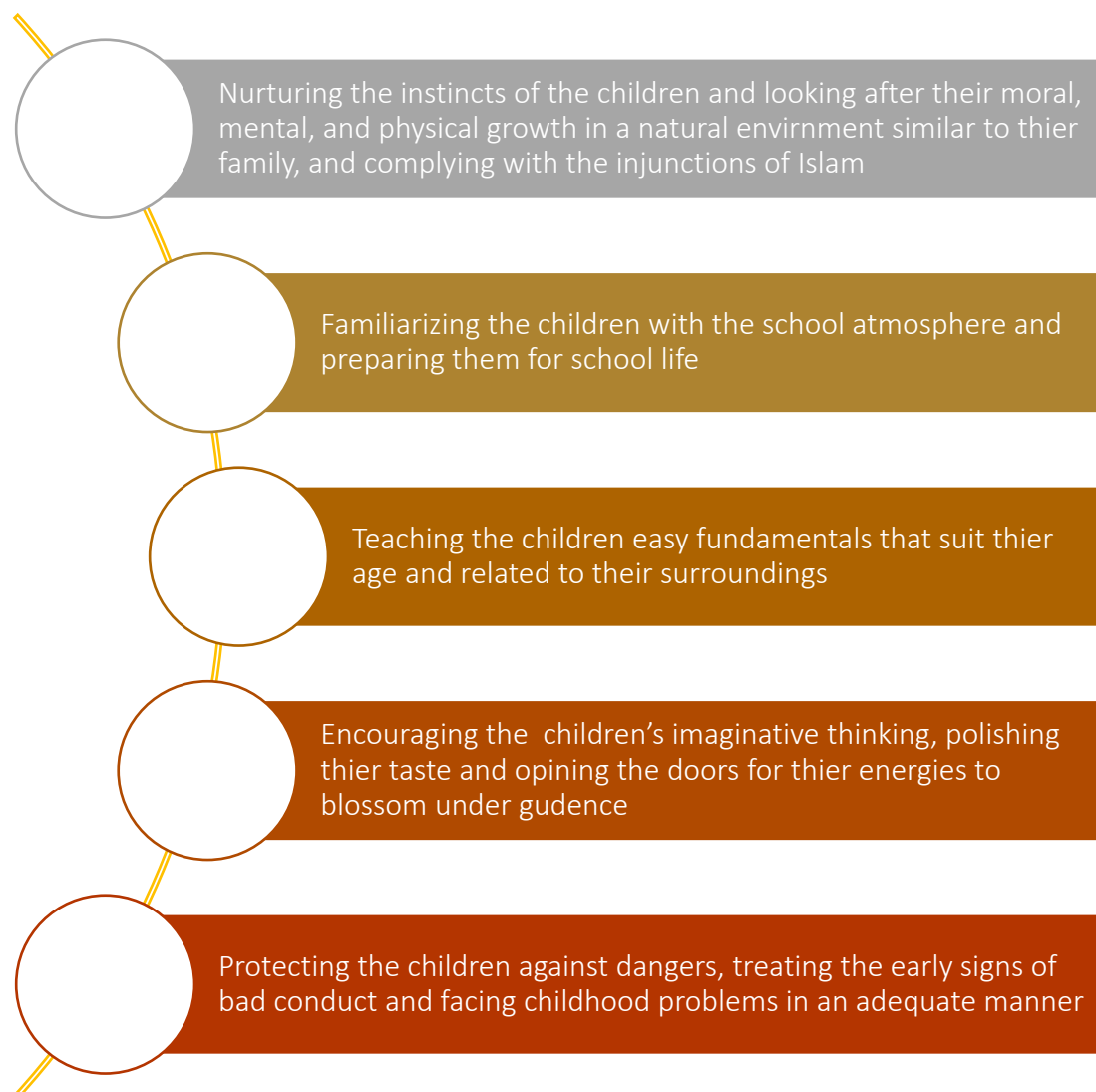
A Case Study of Saudi Arabia's Transformational Practices in ECE

Educational Influences in Saudi Arabia

Early childhood education in the Kingdom of Saudi Arabia is highly influenced by the unique religious characteristics of Saudi society. Saudi Arabia known as the most religious and conservative society in the Middle East and is also known as "The Land of the Two Holy Mosques" with Al-Masjid Al-Haram in Mecca city, and Al-Masjid Al-Nabwi in Madinah city. Geographically, where these two mosques are, gives the country a special responsibility among other Muslims nations as custodian for the most sacred places of Islamic faith. This religious significance in the country has shaped the identity and the nation's philosophy of education.

The presence of Islamic spirit and faith is strongly supported in all level of formal education and ECE. The education in the preschool years, known as kindergarten level, is the earliest stage of education and considers a general orientation for formal schooling (Al Sunbul, Al Khateeb, Matwalli, & Abdu Al Jawad, 2008). The Educational Policy in Saudi Arabia (1970) is used as a main reference for developing ECE programming. The document defines objectives and goals that serve as guidelines for preschool teaching. The objectives encompass different aspects of children rearing (see Figure 1) with a notable presence of cultural and spiritual values that mesh with the Saudi philosophy of educating young children (World Data on Education Report, UNSECO, 2010/2011, p.8).

Figure 1: The Main Objectives of Saudi Early Childhood Education

Nurturing the instincts of the children and looking after their moral, mental, and physical growth in a natural envirnment similar to thier family, and complying with the injunctions of Islam

Familiarizing the children with the school atmosphere and preparing them for school life

Teaching the children easy fundamentals that suit thier age and related to their surroundings

Encouraging the children's imaginative thinking, polishing thier taste and opining the doors for thier energies to blossom under gudence

Protecting the children against dangers, treating the early signs of bad conduct and facing childhood problems in an adequate manner

The curriculum implemented in preschool programs is the National Self-Learning Advanced Curriculum developed by the Ministry of Education in 2002 (Al Sunbul et al., 2008). The curriculum is based on three core considerations for Saudi preschool teaching. They are: a) suitability for children's developmental stage of physical, social, emotional, and cognitive growth, b) abundance of age appropriate learning experiences and hands-on activities, and c) considering children's present and future lives (Al jabreen & Lash, 2016). All units and lessons are designed in theme-related experiences with a list of objectives and suggested activities with some room for the teacher allowing for flexible implementation.

The content of any learning unit falls under three categories: academic, vigorous, and religious contents (Al Hamed, Zayadah, Al Otebi, & Matwali, 2007). Academic content includes letters, numbers, and subject matter in different content areas (e.g., math, science, geography, history). Children's physical development includes outdoor/indoor play, hands-on activities and games. Religious content is integrated in the daily program through Qur'an recitation, daily supplication, and storytelling time, which mostly

relates to Hadith legislation (the Prophet Muhammad's legacy and teachings). Finally, the curriculum also advocates for teaching skills related to self-exploring, environmental observations, cooperative work, developing the spoken language, good conduct and manners, socialization, following rules, cleanliness and personal hygiene (Megren, 2003).

Recently, the country has witnessed major improvements in its educational system starting with the preprimary and preschool levels. Current educational reforms, associated with alternative ways to work with young children in the Kingdom, show a remarkable shift to a Western style of educating young children. The Saudi Early Learning Standards (SELS; Ministry of Education, 2015) reflect NAEYC standards and presents a new policy to support children's comprehensive development toward optimal learning while still considering Saudi culture and tradition. The SELS is a culturally appropriate package that respects Saudi Arabian policy regarding educational philosophy and at the same time is aligned with NAEYC's global vision of ECE around the world (Ministry of Education, 2015).

Water and Sand Learning Unit

Water and Sand is a learning unit for preschoolers taught as a part of the self-learning advanced curriculum in the Kingdom of Saudi Arabia. The ecological feature of the desert-like country is widespread and is part of a sand landscape that covers most of the Arabian Peninsula. It is known as one of the largest continuous bodies of sand in the world with a land surface of about 900,000 miles (Saudi General Authority of Statistic, 2017). The land is locally named *Rub Al-Khali*, or in English *Empty Quarter*, in reference to its dryness and extreme climate. Within this desert territory, the country is arguably the least water-secure region in the world. According to the World Resources Institute (2015), Saudi Arabia is considered one of the world's most water-stressed countries. The shortage of water resources have led the Saudi Ministry of Water and Electricity (MOWE) to initiate a national campaign for sustainable water consumption (Ouda, Shawesh, Al-Olabi, Younes, & Al-Waked, 2013). The campaign has received much attention from the educational sector in the country including preprimary and primary education.

Natural resources. The growing threat of water shortage and the nature of the geographical area makes water and sand two essential components of Saudi children's ecological surrounding. One of the main objectives that guides the Water and Sand unit is to help children develop a growing wealth of knowledge and understanding about the country's natural resources with special focus on water resources and conservation. Learning experiences designed for this unit include: watching a video of sea water desalination process in the kingdom, creating a poster about using water responsibly, and discussing ways of preventing the waste of water in school and at home.

History and culture. Sand, on the other hand, is a natural element of the planet and at the same time a dominant ecological feature for this specific environment. Essentially, sand is not only considered an elemental component of a child's immediate surroundings, rather, it is deeply connected to historically and culturally valued events of the country. For example, a hundred years ago, the home tent lifestyle was popular in the Arabian Peninsula region where modern Saudi Arabia is now located. With oil exploration, the rapid economic wealth has led to major transformational changes in the country. Valuing this transformation of the desert into modern society is strongly supported through education and the Water and Sand unit is an example of how history and culture are important parts of Saudi's philosophy of educating young children. Learning experiences associated with this unit reinforce children's participation in nationalistic behavior and traditional customs. Examples for some popular activities in a Water and Sand unit include: wear traditional clothes in dramatic play area, discuss ways people might adapt to live

in the desert, read a book about safety with respect to local weather challenges (e.g., sunstroke, sand storm).

Patriotism. Within Saudi policy, patriotism is an important dimension of educating young children. Children's emotional and cultural attachments help to develop a sense of national loyalty and is an important value educationally and culturally appreciated in Saudi Arabia. According to the Saudi Early Learning Standards (SELS, 2015), patriotism is a most important standard that is strongly supported throughout education and starts as early as the preschool years. As the document notes, "children begin to appreciate and take pride in the characteristics of their group, those characteristics become an important component of their sense of self, which will later develop into a sense of citizenship in the Kingdom of Saudi Arabia" (2015, p. 124). It is common to see children in Saudi preschools bringing the history of their great grandparent's generations to topics of interest in the classroom. Children are often seen building a tent with local materials, wearing traditional clothes, or sitting on the floor. All are customary activities that children enjoy in the dramatic play center.

Home Tent Lifestyle in Dramatic Play Center

Integrating Rich Cultural Texts with DAP Activities

One strong tradition of the Saudi preschool is to use stories as a powerful medium for mixing historical and religious teachings with social guidance. Saudi storytelling, as with many cultures, includes many historical references, but also includes very explicit connections to religious beliefs. These can be intentionally connected to current-day challenges as the following describes:

It is a storytelling time where children sit quietly on the carpet waiting for the teacher to read them a story. Ms. Amal walks toward the book shelf and chooses a book about how life began in the barren Arabian Peninsula. As she walks back to the carpet, Ms. Amal says to her children, "Are you excited to hear a story about a well that was originally dug by an angel from heaven?" As children stare at her with eyes filled with curiosity, Ms. Amal starts to read. A long long time ago, Prophet Abraham, his wife Hajer, and his son Ismael had a long journey. They walked and walked for a long time until they reached a desert of the Arabian Peninsula. They came to a very dry valley named Mecca. The valley had no sign of life, no trees, no food, and no water. Prophet Abraham, for almighty purpose, left his wife and son with little food and water and walked away. Hajer began to drink the water and eat the food that Abraham had left for her so she could feed Ismael her milk. But that water and food soon ran out. Hajer and his baby were so Hungry and thirsty. She looked for food and water but she couldn't find any. She was running back and forth between two hills of Al-Safa and Al-Marwa seven times looking for people to help her. The last time she reached Al-Marwa hill, she heard a voice calling her. All of a sudden, she saw an angel digging the earth until the water flowed from the ground. Hajer tried to contain the spring water and shouted Zom Zom--meaning stop flowing--which was later named ZamZam. The water kept flowing and flowing and never stopped until this day.

After reading this type of story, teachers talk to children about conservation and the value of water and its relationship to sand. Children are then directed to a sand box. Values are connected to their religious teachings and help create the strong intergenerational bonds. The story of the abundance of sand and the need to respect water leads to children playing frequently with sand in the Kingdom. Each preschool has to have a proper sand area in its facility with appropriate equipment and tools in order to meet standards. The sand used is all purified natural sand regulated to 20 inches in height above the walking surface for children's safety. Sand located in outdoor areas must be protected for the extreme hot weather by providing suitable shelter and appropriate air conditioning.

Children Play in Small Group in Sand Block Area

To prepare the sand for children, the sand's surface is commonly sprayed with some minimal amount of water to cool it down and allow opportunities for children to engage in manipulative play. Children are encouraged to take off their shoes and socks before entering the sand area; children benefit from playing with sand as much as they benefit from playing with water. Sand is a compelling source of pleasure for most children whether on a warm beach, attractive sandbox, or messy playground. Children enjoy sand as sensory learning and a joyful experience where children can see, touch, smell, hear, and more importantly, explore one of the basic elements in nature. Many conversations emerge as teachers talk to children about mixing sand with water to allow children to observe the physical properties of sand change in texture, consistency, smell, and color. Sand is an outstanding medium for many mathematical and scientific thinking skills and sand can play a valuable role in stimulating children's cognitive growth. Building, digging, scooping, sifting, or burying are all hands-on activities that build upon children's exposure to concepts such as counting, measuring, balancing, dividing, predicting as well as using various learning contexts such as heavy, light, more, less, or equal. Playing with sand works well for developing children's language and verbal communication. As children play with sand, they talk, negotiate, and exchange thoughts. This leads to children cooperating as a group which, in turn, enhances children's creativity and imaginative play. Moreover, playing with sand also supports children's physical development. Children are using physical energy as they interact with sand. When appropriate tools and props are provided, playing with sand is a fun way to develop children's gross and fine motor skills.

Conclusion

Children have the right to a well-resourced tomorrow. Education for sustainability could be meaningfully addressed by adapting approaches that see children as significant contributors to their environment. Providing children with learning experiences that encourage them to make a positive change in their environment is consistent with DAP and becomes a transformative education. Nature differs in its geography in different parts of the world which, in turn, is associated with a diversity in human culture, styles of adaptation, as well as ways to sustain natural resources. Recognizing children's curiosity about the world around them is a common theme in ECE throughout different parts of the world. Once coupled with educating young children about science and the environment, children have an instinctive desire to explore, especially when it comes to base elements like water and sand. The use of the Water & Sand learning unit can help with promoting sustainable ways of thinking about natural resources, and, in particular, consider the unique history and culture of the country of Saudi Arabia. The Saudi experience of how children engage in exploring and interacting with the Water & Sand learning unit can lead to sustainable practices that are environmentally, educationally, and culturally appropriate.

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Pictures for Reflection

As children grow older, they are more cognitively mature and better able to participate in group games and team sports. Unlike younger children, older children understand and follow the rules, recognize their strengths, and focus on areas requiring practice. Older children are better able to communicate, negotiate, and compromise. As adults support children's participation in group games and team sports, they continue to be aware, not only of age, but stages as well. Children develop differently and despite ages, some children may be more physically able, socially competent, or emotionally mature than others. Adults are watchful to ensure children can participate and develop in a safe context without fear of bullying.

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Today's Classroom Accessibility

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What do we, as teachers, do or think when we find out that a student with a disability will be in our class? Hopefully, we celebrate the diversity that this will add to our classroom culture, but if you are unfamiliar with particular differences (hearing, vision, motor, or learning disabilities), you may be uncertain about this unknown. Here are a few thoughts to support your efforts to maintain a just and equitable classroom learning environment.

Initially, and perhaps most importantly, an important practice is to talk with a student with a disability in the same tone and manner as you do with all other students. For example, blind and visually impaired students do not require you to slow your pace or raise the volume of your voice. If a sign-language interpreter is required, you will want to face and speak with the student and not the interpreter. If a student with a disability is struggling with a task that is easy for other students, such as opening a door, promote independence by asking the student if she or he wants help or if his or her preference is independence. All students with disabilities are not the same; interact with atypical students as individuals and not merely as disabilities.

After remembering to regard basic social premises, teachers consider what different technologies might do to support students with disabilities. For example, students with a hearing impairment, might benefit from a basic room microphone, such as a Redcat by Lightspeed, might be adequate to boost spoken audio to intelligible levels. Truly, a room microphone is a benefit for all students, and that is a point to value about many technologies for people with disabilities. If the room microphone is not sufficient, the student with a hearing disability may need a mic system that can broadcast to his or her hearing aids, such as the Roger mic by Phonak. It is also important to make sure that any videos presented in class have captions and any recorded audio has a transcript.

Recalling that students with any disability remain unique and will, therefore, vary widely within their particular population is critical. For example, students with a vision impairment differ in their ability to see and interact with class materials. A student with color blindness may just need you to avoid certain

color combinations when you're creating presentations or handouts. These color combinations are determined by the [type of color blindness](#) for each individual. If iPads are used in the classroom, iOS has strong accessibility features built right in. One of these is the option to [present screen colors through a color filter](#) that makes difficult colors, those that would have otherwise been difficult to differentiate, stand out for people with color blindness.

For students that are legally blind but still have some vision, large print (18 pt. font or higher) that has a [high color contrast](#) might suit the need. Again, iPads have software features, such as built-in screen magnification, that aid students with low vision. If students use desktops or laptops, they may require third-party software for screen magnification and/or text-to-speech synthesis. A quality product for Mac and PC that performs both functions is [ZoomText](#), but individual students might be able to achieve adequate assistance from the accessibility functions that come pre-installed on both Macs and PCs.

Students who are blind will need some additional learning supports in your classroom. The first consideration is speaking anything that is presented visually. Teachers naturally do this as they write something on the board for all students to both hear and see information; speaking aloud is effective instruction for all students. Another way to ensure equal access to information is providing students a [fully-accessible, digital version](#) of class materials ahead of time or at the beginning of class. That way, students who are blind or visually impaired can use screen reading technologies, like [JAWS](#) or [VoiceOver](#), to gain an efficient understanding of the flow of the presentation, in addition to being able to preview any visuals that might be incorporated.

Once again, it is important to highlight the premise that students with a disability remain unique. Depending on the particular disability, students with a mobility impairment represent a range of different needs. A popular classroom accommodation for mobility impairment is speech recognition; both Macs and PCs have this built into their latest operating systems. [Cortana in Windows](#) is a virtual assistant that can aid students in a variety of tasks, and [Siri on the Mac](#) can do a similar set of functions. Past these virtual assistants, though, speech recognition for document creation can be a great boon, and in that task, [Dragon NaturallySpeaking by Nuance](#) is the most popular and arguably the most comprehensive solution, allowing students with mobility impairment the ability to control the entire operating system through speech. Macs do have a dictation feature that will allow students to speak text into a document, and even Google Docs has an embedded dictation feature. Contemporary inclusive teachers may seriously consider providing all students the power of a tool like dictation because it benefits both typical and atypical students in their learning. Students that are non-verbal, having a mobility impairment or not, would not benefit from speech recognition, but there are other digital tools that can assist in classroom communication. One example of this is an [augmentative and alternative communication (AAC) board](#). The ability of an app to contain hundreds or thousands of custom AAC charts allows faster and more effective communication. Text prediction is another software feature that can aid students who are non-verbal. This function is present in a wide array of devices and softwares, but [Texthelp's Read&Write](#) is known for its focus on making this tool streamlined and powerful.

Speaking of Read&Write, the other tools in this software suite are tailored to assist students with learning disabilities. Some of the features of the Read&Write software are:

- Improve reading comprehension: hear web pages and documents read aloud with a choice of natural voices

- Help students understand unfamiliar words with text and picture dictionaries
- Develop writing skills and confidence with word prediction
- Support homework and independent research with study skills tools
- Turn documents and web pages into MP3 files for easy listening on the move
- Assist English Language Learners and students studying a second language
- Accessibility features like screen masking provide extra support to students with dyslexia and other literacy challenges

Kurzweil 3000 is a competitor to Read&Write and has a set of tools that almost mirror the latter. Admittedly, both of these pieces of software are expensive, but they demonstrate a significant impact on student comprehension and retention for all students in the classroom. This means, while providing specific support for students with learning disabilities, these software packages benefit typical learners, as well.

This brief overview of technologies for students with disabilities provides ideas of ways in which teachers provide equivalent classroom experiences for students with disabilities. The goal is to "level the playing field" so that no student is at a disadvantage. Providing access to information and the means to showcase understanding is essential. And, in the process of exploring technologies as an instructional alternative, it is discovered that all students, typical and atypical, can benefit.

You are invited to follow the hyperlinks provided in this article to find out more about any particular assistive technology, and feel free to email me at William.Burgess@mtsu.edu with any specific questions about their implementation. None of the solutions mentioned are the single answer, but together, they create a platform on which learners of today and tomorrow will shape the world.

The Nitty, Gritty of Sand Play

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According to Maria Montessori, "There is only one substance that the modern child is allowed to handle quite freely, and that is sand" (Montessori, 1967, p. 168). Sand is accessible throughout the world and is one of the few granular materials that does not readily decompose. As an open-ended, sensory motor activity, sand play is highly compatible with the explorative, imaginative nature of young children and well-suited for promoting the fun and expansive learning that embodies childhood.

At eighteen months, Alex explores the sensation of sand as she digs with her feet.

A popular view of play as a frivolous pursuit has resulted in a rigorous academic curriculum and absence of sand tables in many of today's preschool classrooms as well as the removal of sand boxes on playgrounds. The reasons given for not offering sand play include "children misbehave at the sand table" and "it makes too much of a mess." Such superficial objections overlook the immense value of sand play.

During sand play children learn by exploring and manipulating their surroundings. According to constructivist theory (Piaget, 1945), children intuitively interact with materials to build a conceptual understanding of their world that gradually becomes increasingly complex through continued interactions. The more exposure a child has with a play material, such as sand, the more adept they become at interacting with the material.

Three-year-old Abby observes moist sand drop as
she shakes it from her plastic shovel.

Sand play promotes physical, cognitive, language, and social-emotional abilities, including fine and large motor skills, cooperative building, sharing, and pretending (Jarrett, French-Lee, Bulunuz, & Bulunz, 2010). Further, as children make and test hypotheses about sand's physical properties, cognitive development is enhanced through increased knowledge of the scientific process (Kieff & Casbergue, 2000) and mathematical thinking and problem solving are improved (West & Cox, 2001). Improved physical development results from children grasping and manipulating various objects to dig, scoop, pour, smooth, mold, and shape sand. Children's language and literacy development is facilitated during sand play as they engage in conversations with peers, hear context specific vocabulary used in meaningful situations, and observe adults recording their thoughts and experiences in print. Children practice the social-emotional skills of sharing, caring, cooperating, and negotiating as they learn to accept the views of others and show respect for their creations.

Adults extend children's play by stimulating, directing, and supporting children's development and learning by providing the experiences that each child needs (NAEYC, 2009). Adults can support children's sand play by offering time, space, and materials that broaden the possibilities of imaginative scenarios or prompt spontaneous inquiries.

At four, Michael gathers moist sand into a mound, possibly attempting to recreate the bucket-mold tower nearby.

Sand play can occur in various forms either inside or out. Small tubs of sand are ideal for a single child and can be grouped together in close proximity to encourage interaction among children with clear boundaries for each individual. Large shallow containers, like under-the-bed storage boxes or a wading pool, can be used to encourage cooperative play among small groups. Placing sand containers near walls or other borders gives definition to the space allotted for sand play. A tile floor or nonporous surface is preferred but not required. A protective covering, such as a tarp or plastic shower curtain, can be positioned under sand containers on a table top or the ground to help contain spills and safeguard flooring. A broom and dustpan or hand held vacuum cleaner should also be available to children for ease of clean-up (Wellhousen & Crowther, 2004). Sand for outside play can be placed in containers, wooden boxes, sunken pits or simply piled on the ground. For indoor and outdoor sand play, proximity to a water source is a plus (Work, 2002), and covering the sand when not in use is highly recommended. A lightweight mesh cover that lets in water, air, and light provides best overall health and cleanliness of outside sand areas (Keeler, 2014). Regardless of location, only sand labeled as "sterilized" or "washed and screened" should be used for children's play.

While sand itself is intrinsically appealing, children's interest in sand play and the challenges it offers can be continuously maintained by adding a variety of interesting accessories. From common household items to crafts supplies and objects from nature, there are numerous possibilities (see Textbox). The best options are those that can be used for multiple purposes allowing children to incorporate them into their play in ways that reflect and represent their knowledge and experience (Goldhaber, Lipson, Sortino, & Daniels, 1996). By rotating the selection of toys and accompaniments, clutter is avoided while choice remains.

Plastic Easter eggs find a new purpose during sand play.

Adding water to sand creates a new dimension. Wet sand, which has the ideal consistency for molding, sculpting, and building, is an irresistible material for play (Mechling, 2016). Allowing children to mix sand and water often increases the length of time they are engaged in play compared to their play in areas were the two mediums are kept separate (Jarrett, French-Lee, Bulunuz, & Bulunz, 2010).

Sand – dry or wet, inside or out – is a medium with so much potential for fun and learning that it cannot be ignored!

Accessories

Kitchen utensils

forks, spoons, spatulas, slotted turner, solid turner, serrated spoons, wooden spoons, potato mashers, whisks, strainers, funnels, measuring spoons and cups, pie servers, pasta fork, honey server, tongs, ice cream scoop, baster, steeping ball or tea infuser, and rolling pins

Non-breakable dishes

pitchers, cups, mugs, saucers, plates, cereal bowls and mixing bowls

Cookware

pots, pans, kettles, muffin tins, cookie sheets, and pie plates

Plastics

storage containers, assorted lids, colanders, scoops, shovels, molds, cookie cutters, sieves, colanders, buckets, and pails

Gardening supplies

hand tools, gloves, plastic flower pots, and watering cans

Craft supplies

latch hook canvas, plastic flowers, jewels, beads, glitter, sequins, yarn, string, pipe cleaners (chenille sticks), tongue depressors, popsicle sticks, empty spools
cloth scraps, buttons, and paint brushes

Small toys

wooden blocks, marbles, plastic animals, assorted vehicles, dollhouse furniture, model train railroad accessories, magnetic letters,

Natural items

stones, small rocks, shells, sticks, twigs, pieces of bamboo, bark, leaves, flowers, acorns, nuts, seeds, seed pods, feathers, and pine cones

Recycled Materials

paper towel and toilet paper rolls, berry baskets, net bags from potatoes or citrus fruit, egg cartons, empty spice bottles, corrugated cardboard, pieces of foil, packing peanuts, milk jugs, and 2-liter bottles

Miscellaneous

back scratchers, large plastic combs, spray bottles, Easter eggs, aquarium gravel and net, shaving cream, pieces of PVC pipe, ping pong balls, small tiles, plastic tubing, straws, and toothpicks

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