APPLICATION OF UNIVERSAL DESIGN IN EARLY CHILDHOOD EDUCATION ENVIRONMENTS: A MODEL FOR FACILITATING INCLUSION OF CHILDREN WITH DISABILITIES IN GHANA

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Abstract:

With contemporary classrooms becoming increasingly diverse, educational authorities, teachers and school administrators are looking for innovative ways of coping with diversity of students. Historically, barriers to inclusion have been based on the explicit exclusion of individuals with disabilities and other minority groups. In order to create inclusive environments for diverse learners, the system of Early Childhood Education (ECE) centers in Ghana must be totally reconfigured, which will require shifts in our educational practices. The concept of Universality provides an important starting point for educational and social transformation. Situating it on the postmodern theoretical view point, this paper argues that in discussion of the approaches to enhance educational access for students with disabilities in Early Childhood Education in Ghana, the emerging models of Universal Design for Learning must be the focal point.

Keywords: early childhood education, universal design, inclusive education, children with disabilities

1. Introduction

In the last few decades, the view of special education has gradually changed in many countries. Instead of segregating students with disabilities in special classes and schools, the ideology of including all children in the regular schools has now dominated special education discourse. Meo (2008) argued that the traditional classification of students as either 'regular' or 'special' is an aberration, which inaccurately represents

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the diversity present in classrooms today. The inclusive philosophy, therefore, reconstructs disability away from individual pathology, and into a lens of social construction (Bennett, 2009). The new concept recognizes the interaction between student, learning environment, and curriculum. Inclusion *"relates not just to access but to active and productive involvement"* (Bennett, 2009, p. 2) of students with special needs in general education classrooms. Yet, within this re-conceptualization lays challenges. Giangreco (2010) observed that when children with disabilities are placed in the regular education classrooms, many of them do not fully participate in the academic or social life of the classroom.

The inevitable difference among children implies that the educational system needs to be more comfortable through the creation of inclusive communities that value diversity, and to provide appropriate and differentiated education for all. This changing paradigm requires a reconstruction in school organization and curriculum so that school becomes a supportive environment that embraces and educates all children (Lypsky, & Gartner 1996). Carrington (1999) noted that this ideology of inclusive education, assumes a different set of beliefs and assumptions that demand different set of practices in school. Inclusion involves all students having the right to be belong, to actively participate with others in the learning experiences provided, to be valued as members of school community, and to have access to a system that delivers quality education that is best suited to their unique competencies, skills and attributes (Ainscow, 2000; Farrel, 2000).

Historically, one of the basic challenges confronting inclusive education is based on the explicit exclusion of individuals with disabilities from the mainstream activities. Therefore, to create inclusive school environments, the system of early childhood education (ECE) centers in Ghana must be totally reconfigured, which will require changes in the practices in the school system. The concept of universal design provides an important starting point for the educational and school transformation.

Based on the postmodern theoretical view point, this paper argues that in looking for new ways to enhance educational access for students with disabilities in ECE in Ghana, the emerging models of Universal Design for Learning (UDL) must be the focal point. To support these arguments, the author explains the core elements of universal design, as well as other conceptual connections to inclusion of children with disabilities in ECE. The paper concludes by examining the critical approaches to the application of UDL in ECE centers in Ghana.

2. Post-Modern Discursive Framework

The term postmodernism encompasses many divergent points of view generally, referring to decisive break with modernity in which cultural symbols, media-driven images and other forces of symbolic signification have changed the nature of social organization and the relation of individuals to the social worlds (Turner, 1998). Among the key features of postmodernism is a deep mistrust about progressivism, and its consequent teleology. Postmodernists concern themselves with investigating products of culture. In particular, postmodern theory is interested in the interpretation of the signs and symbols of cultural marketplace, and how these symbols resonate within social cultures. In the view of postmodernist, there is no such a thing as objective truth. Rather, the postmodernist argues that all knowledge is seen as subjective, and is always influenced by personal cultural and political view. Furthermore, the postmodernist views knowledge as socially constructed and made up simply of claims to knowledge thus, "*no independent realities other than the minds and practices of those who create them and recreate them exists*" (Henry & Milovanovic, 1999 p. 5). The implication of this is that knowledge is seen as social construction which then becomes an outcome of individual, differentiating distinctions, and judging one distinction superior to another.

The postmodern orientation recognizes diversity among children, offer liberty through tolerating multiple perspectives without imposing personal and dominating views (Agbenyega, 2008). Accordingly, all the players within the social spaces are engaged in meaning making in an effort to understand their circumstances (Lather, 1991). Consequently, the postmodernist rejects the idea that the teacher should be the neutral transmitter of knowledge, while the student listens passively, and receives knowledge as immutable element (Lather, 1991). Agbenyega (2008) opined that the postmodern practice deconstructs the child from the center and reconstructs him as an existing member in relation with others within a particular context. This is particularly true when considering the Universal Design (UD), within the context of inclusive education for children with special needs. Universal Design is strategically configured in such a way to reach and meet the needs of all children. The UD unlocks practices that have not been working for teachers in ECE environments, and creates strategies that acknowledge teachers as partners in construction of knowledge.

In line with the postmodern ideology, the UD is arguably connected to experiential learning. In any learning enterprise, experience is fundamental. Increasingly, when children with special needs are included in the ECE environments, at least, they become strongly connected to others. In fact, experience is most of the time accorded significance as the "authentic" part of an individual relation to life (Usher &

Edwards, 2002). To be sure, experiential learning has been proposed as a progressive and emancipatory movement within education (Usher & Edwards, 2002). Experiential learning was developed in contrast to the imposition of knowledge from above into a teacher-centered pedagogical environment, which is argued, marginalizes the majority of learners by not giving value to their voices, and thereby disempowered and de-motivated these learners (Usher & Edwards, 2002). In this sense, experiential learning which is grounded on UD forms the basis for the cultivation of open ended desire for acquisition of knowledge and skills. In the postmodernist tradition, the knowledge that would be generated therefore becomes legitimate.

In the early childhood education environments, the practice of inclusive education stresses the subjective elements of children; encourages them to construct their own beliefs, attitudes and perception concerning learning. The postmodernist views the child with special needs as an existing member of the society, in relation to others and that true learning can occur within the social environment through active interaction with the elements within that social environment. Drawing from this theoretical framework, the application of the UD in the ECE centres legitimately supports the current inclusive argument. The implication is that there should be a total transformation of the school systems taking cognizance of the curriculum, teaching pedagogies, teacher preparation, administrative support systems, funding, and parental involvement in order to promote effective teaching and learning for all children including those with disabilities.

The concept of children with disabilities denotes a set of certain knowledge and practices in education and this type of knowledge and practices are recognized by the postmodernists as a way of meeting the needs of children with disabilities. Consequently, not only have schools been physically modified to accommodate children with disabilities but schools have introduced integration, mainstreaming and inclusion as means of providing children with special needs; education comparable to that provided for other children.

3. The Contextual Issues

Early childhood education (ECE) forms an integral part of the national education system in Ghana, and is protected by legislation that was passed in 2004. In recent times, the number of ECE centers has increased significantly. For example, from 2005 to 2010 the number of Kindergartens has increased from 7,009 to 17,471 (Ministry of Education, 2010). This dramatic increase has implication for enrolment. In 2009, enrolment was 1,338,454 and increased to 1,440,732 in 2010 growing by 7.6% (Ministry

of Education, 2010). It is apparent from these figures that the number of children with disabilities would increase. Although there are no official statistics on the number of children with disabilities who are enrolled in the kindergartens in the country, it is estimated that 144,732 indicating 10% of the enrolment figure in 2010 would be in school, by World Health Organization (WHO) estimation of 10% of the population. It is instructive to emphasize that ECE in Ghana has its challenges in terms of pedagogical, infrastructural, and institutional arrangements.

Historically, education in Ghana is based on post-colonial educational legacy which assumed a kind of oppressive pedagogy. Research points out that the Ghanaian system of schooling assumed *"hegemonic colonial way of organizing educational practice"* (Agbenyega, & Deku, 2011, p.15). The child in the postmodern educational paradigm occupies the center stage of learning; therefore, teaching and learning must be child-centered. However, the dominant form of pedagogy in the Ghanaian school system continues to be whole class instruction. The pervasive assumption is that knowledge is transmitted to students through direct instruction with occasional individual assistance. Students are seen as individuals and the success or otherwise of learning, as predominantly reflecting their individual attributes, and talents. Stetsenko and Arievitch (2002) were of the view that such practices far too often, fail to provide students with the cultural tools that are most beneficial to the development of their minds. That is, students are not given tools that would enable them to construct their actions in a form that is most conducive to the efficient transformation and the development of their minds. Instead, students are often faced with *"fragmented, poorly generalized phenomena that are supposed to be learned by simple memorizing them"* (Stetsenko & Arievitch, 2002, p.89).

Again, in the ECE centers in Ghana, spaces within the schools also have their own sociologic dynamics (Agbenyega 2008). Except for a few privately owned early childhood centers which have attractive classrooms, refectories, playgrounds and gymnasiums, the publicly owned early childhood centers, some of which are housed in dilapidated classroom buildings, sheds, and church rooms. This observation is confirmed by Agbenyega (2008) where he found in a qualitative study that the physical environments of the ECE centers in Ghana contrasts what Bredekamp and Coopple (1997) recommended for developmentally appropriate early childhood programmes. According to these recommendations, the ECE centers must have *"a clean environment, well repaired and well ventilated classroom spaces that are divided into richly equipped activity areas, in addition to sufficient play areas, with adequate play materials, to enhance child development"* (p.36). While Ghana does maintain a National Policy on the Rights of People with Disabilities, this policy does not specifically address children's rights, as

regards accessibility of buildings and transportations for children with disabilities. The basic feature, and the main deficiency, is that this type of environmental disregard and pedagogical practice would not help all students to learn in a way that would take their individual needs into consideration. Educational authorities need to know how to respond to the burgeoning diversity of contemporary classrooms in early childhood education environments. The use of one-size-fits-all curriculum, and practice, no longer meets the needs of majority of learners. The use of single-spaced lessons delivered through a singular instructional approach, disregards the different learning styles, and interests present in all classrooms (Guild, 2001). The current educational practices employed by early childhood educators often focus on exposing and remedying deficits, setting up several students for a pattern of failure (Levine, 2003). The current pedagogic system is based mainly on transmission of knowledge. The essence of this model is to mold students according to a set of skills and attitudes, and a body of knowledge pre-established by the teacher (Matusov & Hayes, 2002). Children are often viewed as inept, and deficient. In the case of children with special needs, their presumed deficiencies often, include negative stereotyping, and negative attitudes. In fact, the best prescription is to segregate, and damp them in special school environments without the option of joining the mainstream, even if their problems are ameliorated.

Lave (1992) insisted that learning is inherent in many activities. Learning occurs despite the expectations, and intentions of more experienced members of the community. The children might learn what they were not expected to learn, instead of what was expected of them to learn (Eckert, 1989). Lave and Wagner (1991) further argued that learning is a communal process, situated in a community of practice which underscores the socio-cultural and postmodernist perspectives. Learning is always a question about membership and participation in the community practices. This view has inspired many educational practitioners, and researchers to explore, and define new forms of guidance that can be used in schools for achieving instructional goals, for example, instructional conversation (Tharp & Gallimore, 1988), reciprocal teaching (Brown & Palinscar, 1987), cognitive apprentices (Rogoff, 1990), community of learners (Brown & Campione, 1994), practice and problem based- learning (Wilkerson & Gijselaiers, 1996), and dialogue inquiry (Wells, 1999). One common theme that is central to these conceptual approaches to instruction is that learning involves active participation in community of learners. The consequence of this is to develop leverage for all learners in the community, including those with special needs. After all, the primary function of schooling is, or should be, to prepare students for participation, and

not just in classroom activities, but in out of school activities that are valued within our society.

From this perspective, it is clear that there is no single "right pedagogy" (Rivalland, 2000). It is for this reason that ECE centers must embrace a new, but effective system of pedagogical practice that can promote good education, and enhance effective environments that would encourage community learning. The Universal Design (UD) has become part of public dialogue about schooling and about inclusive education (Mcgurie, Scott & Shaw, 2006). It is worth noting that UD, and its components, have been applied in higher education in advanced countries for the purpose inclusive education, however, there is the need to extend its application to early childhood education environments in Ghana.

3.1 Universal Design (UD)

The Center for Universal Design (1997) defined Universal Design (UD) as "the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design" (p. 1). This term was used by Ronald Mace during the 1970s when he found the Center for Universal Design at North Carolina State University. Since then this concept has been applied to architectural designs, and proactively consider human diversity in the design of public places so that the resultant environments and products are usable by diverse public (Welch, 1995; Wilcoff & Abed, 1994). Utilizing the notion of UD and the benefits of universal accessibility for all, educational developers have developed a range of ways that UD can be applied to educational environments. In this section, one of the conceptual underpinnings of the application of UDL to education is explored. This approach is to establish the conceptual baseline for the application of UD in ECE environments.

3.2 Universal Design for Learning (UDL)

Universal Design for Learning (UDL) is defined by the Council for Exceptional Children (1998) as the design of instructional materials and activities that allow learning goals to be achieved by individuals, despite wide variety of differences in abilities. In other words, the individuals should be able to see, hear, speak, write and understand, attend, organize, engage, remember information, and move freely (Ouelett, 2004). The UDL is achieved by means of flexible curricular materials, and activities that provide alternatives for students with differing abilities. These alternatives are built in the instructional designs and operating systems of educational materials. The primary purpose of this is to demonstrate respect for the diverse individual learning styles without requiring individual adaptations.

UDL supports and maintains high educational standards. It requires forethought and planning to achieve the greatest benefit. While accommodations and modifications are focused on one child, and are made to enable the child to "fit" into the environment, UDL creates learning environments, including curriculum, assessment, activities and physical environments that embrace and support all children. By considering the range of diversity at the initial planning stages, educators would be able to provide a positive educational experience, and reach a greater number of learners.

For learning environments to be truly accessible for all, it is important to provide learners with a range of options that consciously promote engagement, interest, and motivation. While maintaining a curricular focus on key concepts, offering learners opportunities to engage in activities in range of formats and experiences, acknowledges and addresses variations in learners' skills. No doubt, UDL is an approach to teaching that consists of proactive design and use of inclusive instructional strategies that benefit a broad range of learners, including those with disabilities (Scott, McGuire & Embry, 2002; Scott, McGuire & Foley, 2003). Providing flexible means of representation addresses the potential, perpetual, or cognitive barriers to learning (CAST, 2004). While no single method of representation will provide equal access for all learners, multiple representations allow students to utilize their preferred modes. For example, the combinations of text, audio, graphical images address a range of perceptual barriers.

Rose and Meyer (2000) applied the principles of UDL in high school classrooms which included students with disabilities. The authors found that all students benefited from the inclusion of UDL in the ways that various subject areas were taught. They made a particular note of the potential of UDL for developing new means and methods of teaching when they proposed that "*applied to instruction, the principles of universal design can guide the development of education tools to accommodate the diverse needs of learners*" (p. 39).

In a study of students with high support needs, Rose, Sethuraman and Meo (2000) found that UDL can address the needs of many students with severe levels of functional disabilities. According to them, UDL provides educators with a framework to customize learning goals and assemble curriculum materials that are appropriate for all learners. Spooner, Baker, Harris, Ahlgrim-Delzell, & Browder (2007) in a study concluded that pre-service teachers can develop lesson plans accessible to all diverse learners when they are trained to use UDL.

3.3 Principles of UDL

Disability studies and education scholars who focus on issues of access have adapted the core principles of UD in architecture to learning and instruction, resulting in the

UDL. These principles are intended as a blue print framework for supporting all learners. The three principles as put forth by CAST (2009) include: multiple means of representation, multiple means of engagement, and multiple means of expression.

A.   Multiple means of representation

This principle ensures that instructions, questions, expectations and learning opportunities are provided in various formats at different levels of complexity, addressing a range of abilities, levels and needs. This implies that teachers must use a variety of materials, visuals, environments, and technological devices that would allow all children regardless of their abilities to understand and master the learning process in order to reach the intended outcomes.

B.   Multiple means of engagement

This principle ensures that various opportunities are presented for arousing children's attention, curiosity and motivation. By so doing a wide range of interests, preferences and personal styles would be addressed. Engagement is maintained by providing various levels of scaffolding, repetition and appropriate challenges to ensure successful learning. This presupposes that varieties of activities for students to participate and be actively involved in the learning process are provided.

C.   Multiple means of expression

This principle ensures that children have variety of formats for responding. Children are given the opportunity to use variety of resources including toys and materials, to demonstrate what they know, and express their ideas, feelings, preferences individual strengths and abilities. The teacher also uses variety of methods to allow children to express what they are able to do in order to determine the target outcomes.

In sum, Conn-Powers, Cross, Traub and Hutter-Pishgahi (2006) suggested that the goal of UDL should be to design early childhood education programme that meets the needs of all learners within a common setting rather than relying solely upon specializes programmes and settings. For early childhood environments, UDL suggests that instructional design encompasses a range of flexible learning materials and activities. These learning materials and activities should incorporate variety of opportunities and ways (visual, auditory, kinesthetic and tactile), to access the curriculum goals, and learning objectives, offer multiple methods by which to process information, and include a range of methods for children to demonstrate their knowledge and learning. Simply put, UDL encourages early childhood environments to exhilarate children's senses with exciting, engaging and authentic learning opportunities.

3.4 UDL and Inclusive Education

In considering UDL as an alternative paradigm for addressing the instructional needs of students with disabilities and those at risk of learning challenges, it is important to contextualize the UDL concept within the inclusive education discourse. Inclusive education should be conceptualized as approaches to planning and delivering instruction, assessing learning outcomes, which emanated from the ideology of diversity, incorporate adaptations and accommodation to meet the needs of students with special needs. Bremer (2004) proposed that UDL should become the synonym for effective instruction in inclusive environments. The implication is that all learners including those with special needs would access instruction, have an authentic assessment that is flexible and adaptable. UDL focuses on educational equity, and like inclusive education; UDL is designed to meet the needs of students with disabilities who for a long time have been segregated from the mainstream education. Furthermore, the goal of inclusive education is equal participation of all groups that is mutually shaped to meet their needs. Inclusive education and UDL demand that ECE institutions and individual educators, must be committed to examine the issues of difference, discrimination, inequity and the exclusion of children with disabilities (UNESCO 1994). The genuine application of UDL would require educators to move beyond simply honoring differences and what can be done about them in the classrooms, to creating real inclusiveness and feelings of being welcome.

The application of UDL Within the context of inclusive education meant that there should be a shift in how we think about teaching and learning. First of all, people must be seen not as disabled but must be seen as having variations in ability. The understanding is that their skills fall along a continuum of abilities with regards to physical psychological, mental abilities, and these variations can change over time and context (Fletcher, 2000). Additionally, UDL purports to modify instruction for all learners, not just with those with disabilities but all other learners. Rose, Sethuraman and Meo (2000) agreed that UDL in inclusive education expands on the choice of curriculum materials to include, digital and online resources as well as texts.

From the perspective of classroom environment and within, the child acquires new skills, develops independence in learning and behaviours, develops age appropriate behaviours and develops friendly relations with peers in the classroom community. The environment within the classroom must stimulate communication between children, their teachers and their peers. This involves organization of sitting patterns and relations, where children are able to communicate freely with each other and value norms of cooperative learning, and where competition is discouraged. Every

child in the classroom should be accepted and be part of the group, motivated to contribute in a collaborative manner.

The classroom environment needs to be reconfigured and retrofitted in the sense that all activities taking place in this space must respect the differences, whether due to age, gender, ethnicity, or on the grounds of disability. Finally, designing the environments that would consider the diverse learning styles, and provide a variety of ways for students to demonstrate knowledge would likely have the potential to stimulate inclusiveness. This approach underscores the postmodern educational thought and practice through the leverage of the environment for students to become the centre of the learning process.

3.5 Application of UDL in Early Childhood Education

Given a new direction, the postmodern theory signals a new and renewed interest in the way classrooms in the ECE centers are organized to facilitate the inclusion of children with disabilities. Undoubtedly, UDL has a wide variety of applications; however, only a few have been enumerated and discussed. Below are some of the components that can be applied in the design of our ECE classrooms.

- **Physical environments:** The design of the physical environment should enable all children to have access, and equitable opportunities for full participation in all activities. This includes structures, permanent and movable equipment, furnishings, storage and materials.
- **Health and safety programs**: The design of health and safety programme should minimize risks and hazards for all children; it should ensure that all children regardless of their health status or condition have access to early care and education, by minimizing interruptions in their learning due to illness or injury.
- **Social and emotional environment**: This should offer all children equitable access, and full membership to the social and emotional life of the group. It should support their social and emotional development.
- **Instructional environment**: The instructional environments should enable all children equitable access to learning opportunities and multiple means of engagement and learning. This includes the curriculum, instructional practices, materials and activities.
- **Individual assessment and programme evaluation practices**: This should provide multiple approaches to finding out what children know and can do, in order to equitably assess individual learning, development and educational progress.

- **Family involvement practices**: The design for family involvement should support the equitable access of all families in the full range of experiences. This includes ongoing communication, learning opportunities and programme involvement activities.

Burgstanhler, (2008) suggested that UDL can be applied in all aspects of instructional techniques and curricular assessment. His propositions are similar in many ways to the ones discussed above. Consequently, the following can be very useful tool for teachers in ECE classrooms:

- **Class climate**: Adopt practices that reflect high values with respect to both diversity and inclusiveness.

- **Interaction:** Encourage regular and effective interactions between children and teachers, and ensure that communication methods are accessible to all learners.

- **Physical environments and products**: Ensure that facilities, activities, materials and equipment are physically accessible to and usable by all students, and that all students' characteristics are addressed in safety considerations.

- **Delivery methods**: Use multiple, accessible methods that are accessible to all learners

- **Information resources and technology**: Ensure that materials and other resources are engaging, flexible and accessible to all.

- **Feedback**: Provide specific feedback on regular basis.

- **Assessment**: Regularly assess children's progress, using multiple accessible methods and tools, and adjust instruction accordingly.

- **Accommodation**: Plan for accommodations for children whose needs are not met by the instructional design.

3.7 Instructional implications

- Present the schedule verbally and visually.
- Discuss the schedule in groups or one-on-one.
- Post the schedule on the wall in series of icons and or photographs.
- Provide toys and materials that combine different and multiple sensory features, for example: colorful materials that make sounds. Toys and materials can be used in different and multiple ways, and allow children to interact with them in ways best suited for them. Provide toys and materials with interesting shapes and textures, and provide toys and materials that move as well as toys and materials that can be held, shaken and mouthed.

- Communicate with the children in many different ways, including talking, singing songs, and reading books, showing pictures, playing music, dancing, and using gestures.
- Provide multiple, and varied ways for children to direct their play, for example, the dramatic play area should be stocked with an array of creative, open- ended materials that would encourage children to participate in personally meaningful ways. Children may choose to act out roles and scenarios that are either fantasy or reality based that represent their own culture.
- Children are encouraged to express their understanding in many different ways, for example, children learning nursery rhymes may recite or sing the rhymes individually or in small groups, act them out in the dramatic play area, or with puppets.

4. Conclusion

The framework for the goal of inclusive education in the ECE can be achieved through the application of UDL model. Fact is that the reinvention of childhood has become more imperative in contemporary times; therefore, it is important that our educational environments open up more to inclusive teaching and learning. The recognition that there is diversity among children, and accepting that knowledge is socially constructed, underscores the need for applying UDL in promoting inclusive education.

Universal Design holds great potentials for expanding inclusive education practices for ECE. UDL, notwithstanding, is not a radically new way of conducting instruction. In fact, it is intentionally built on what practitioners in the field already know from research and practice about creating accessible environments that promote good teaching. The principles of UDL extend the knowledge base by providing the framework for thinking about making the ECE environments more inclusive in practices. UDL provides an avenue within the postmodern discursive paradigm, and the principles and ideas of UDL, when applied within the ECE environments would open even more understanding of inclusive practices in the educational systems. However, a more pragmatic way in implementing the UDL principles is to move this discussion to the next level, by conducting a systematic scientific investigation on the effectiveness and applicability of UDL for the ECE

The possibilities of more flexible approaches could be realized through the application of the concepts and principles of UDL to the educational setting. It seems obvious that this theoretical framework underlying the issues of diversity, difference and individual needs, has the potential to address the matters that confront the context

of quality education and better accessibility for all students, including those with disabilities. Perhaps, more importantly, the application of UDL should call for innovations in institutional structures that would promote good practice. Curriculum development professionals, have important contributions to make, in the promotion of UDL for the individual success and for the institutional practices. In this perspective, these professionals would serve as supportive agents for promoting effective inclusive teaching and learning. Furthermore, the principles of UDL offer a useful model for innovations that would lead to conceptualization and development of appropriate curriculum for the ECE.

It must be admitted that while these guidelines and components in the UDL model provide concrete ways, for which instructional designers and other educators can move closer to the goal of inclusive education, they are not all that easy to implement in the real learning environments. For example, many older buildings are not accessible to students in wheel chairs, and making them accessible would be a major expense. Technology and equipment are expensive to acquire, and capacity building for technology usage is a challenge within the Ghanaian context. Many classes are large, with diverse needs, and many of such classrooms lacked support structures. It is therefore, necessary for the ECE institutions to carefully select what technology and equipment they may need most, within their capacity.

Universal design is argued to relate to teaching and learning as an approach that benefits all learners, including those with special needs. UDL provides a framework and a tool for educators to gain better understanding that surrounds different learning styles and facilitates the teaching and the learning process. This framework presents a variety of methods for teachers to access different learning styles, in ways that allow children who learn differently to regain their dignity. To make early childhood education environments inclusive, there is the need to consider other innovative ways in which vulnerable children are reached, included and fully engaged in the general curriculum.

The theoretical and the philosophical representations of ways to engage and transform the practice of universal accessibility of early childhood education, must stimulate further debates on finding appropriate ways of blending technology and learning together. What needs to be done now is for educators to transcend beyond theory, and seek to apply the principles to educational practices. The application of UDL is a pedagogical imperative that has the potential of addressing the needs of all children. Even though, the process seems to be a challenging task; however, it is important that teachers must learn new ways and approaches for teaching children with different learning abilities. Perhaps, most important, UDL provides a powerful

tacit message for early childhood educators, for achieving inclusive instructional environments.

Finally, it is important to emphasize that this discussion should challenge educational practitioners in looking for more innovative and practical ways of addressing diversity. The prospect of UDL is apparent and its benefits are enormous. Future research in the application of UDL should not only be directed to early childhood education, but more importantly, to basic and secondary education in Ghana.

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