

REACHING THE ZONE OF PROXIMAL DEVELOPMENT THROUGH THE INTEGRATION OF ECOLOGICAL EQUILIBRIUM IN THE CLASSROOM

CHIA, Ogheneovo Esther

Department of General Studies Education

School of General Education, Federal College of Education Nigeria.

Corresponding email: otuenuether@gmail.com

Abstract

In the pursuit of quality education, many factors inter play with the success of the whole educational process. This expository paper seeks to appraise the strategies and approaches which can be used by the educational community to achieve ecological equilibrium in the classroom and adopt motivational strategies to enable the learner reach the zone of proximal development. The goal of motivation in this paper is aimed at promoting the learners abilities, potentials, creativity, critical thinking skills and not that of the teacher. Pushing the learner beyond their comfort zones to the realm of possibilities is one of the aims of the zone of proximal development. To attain ecological equilibrium in the classroom, there is a need to adapt, harmonize and integrate the student, teacher, teaching and learning content, strategies and the learning environment to reach the zone of proximal development.

Keywords: Classroom Ecological Equilibrium, zone of proximal development, learning environment.

Introduction

Education is aimed at equipping the learner with new knowledge, skills, attitudes, values and creates a path to navigate through to a higher social class in the society. In Nigeria at present, children are attending schools whose system is now outdated and ineffective in a real, highly dynamic world that is changing very fast. There is, therefore, a growing concern that something is not right with our present educational system of teaching or learning. In today's classrooms, teachers need to design lessons that empower students to "make meaning through mindful manipulation of input" (Fogarty, 1999).

Motivation to develop critical thinking and problem solving skills must be explored in our present educational system, to enable learners in developing countries like Nigeria comfortably compete with their counterparts in other parts of the world. The goal of this expository paper is to discuss the tactics and approaches that educators can use to create ecological equilibrium in the classroom and to employ motivational strategies to help students reach their zone of proximal growth.

Classroom Ecological Equilibrium

Classroom ecological equilibrium refers to the total balance of the physical, social, and mental environment in the classroom. It encompasses a union between the teacher, the learner, the materials and the environment within which learning is situated. The effective harmonization of all variables in the educational environment will create a balance in the teaching and learning process. A positively motivated classroom environment provides the necessary conditions for effective student learning. Many researchers describe the elements of the physical environment that impact the learning culture, including the shape and arrangement of the classroom, the grouping of the students in the available space, and the learning materials available for students' use. Teachers who use these elements strategically encourage students to participate enthusiastically in the learning process (Faulk & Evanshen, 2013).

The learning environment may be viewed as a living organism or an ecosystem. According to Smith, Smith, and De Lisi, (2001,) "the classroom is bounded in space and time and contains within it a number of relatively autonomous components that interact with one another in a mostly purposeful fashion". An ecosystem is a [community](#) of living organisms in conjunction with the [nonliving](#)

[components](#) of their environment (things like air, water and mineral soil), interacting as a system (Molles, 1999, Schuller et al 2005 & Gurevitch et al 2006). The school works as an ecosystem, the network of interactions among the school as a learning organism, and between these organisms (the teacher, the learners, parents, administrators and teaching materials) and their environment clearly shows that they are mutually dependent on each other for survival and efficiency. A positive classroom environment unites students as they work, achieve, and grow. When teachers set up the proper classroom environment, students can develop competence in intellectual endeavors (Smith, Smith, & De Lisi, 2001).

Zone of Proximal Development

The zone of proximal development (ZPD) has been defined as: "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance, or in collaboration with more capable peers" (Vygotsky, 1978). [Vygotsky](#) views interaction with peers as an effective way of developing skills and strategies. He suggests that teachers use cooperative learning exercises where less competent

children develop with help from more skilful peers - within the zone of proximal development.

Vygotsky believed that when a student is in the ZPD for a particular task, providing the appropriate assistance will give the student enough of a "boost" to achieve the task. Unlike Piagetian theory, where a child would be just influenced by society, Vygotsky sought to explain the development of a child through a transformative collaborative practice which involved cultural influences, cultural tools, and other individuals (Vianna, & Stetsenko 2006). The emphasis on this developmental learning is collaboration, which leads to Vygotsky's zone of proximal development (ZPD). Vygotsky viewed the ZPD as the gap between where the learner currently resided and the learner's potential for development. Vygotsky's famous definition of zone of proximal development states that the ZPD is "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance, or in collaboration with more capable peers." (Vygotsky, 1978). ZPD is an area where the child cannot solve the problem alone but can successfully solve it under the

guidance or in collaboration with an adult or a more advanced peer – this is where real learning is possible (Woolfolk, Winne & Perry 2000).

According to Vygotsky (1999), problem solving should be under the guidance of a competent adult or capable peer. By tapping into each student's zone of proximal development, you can assure that you will be maximizing your students' learning potential. Lui (2012) summarizes the benefits of ZPD theory for learners:

1. Students are presented with challenging but reasonable tasks that stimulate thinking and motivate efforts to learn.
2. Meaningful instruction and feedback helps drive further development at an appropriate pace.
3. A learning environment where students are valued as individuals, a collaborative group, and a class.
4. A learning environment where student's creativity and thought processes are acknowledged and accepted.

Steps in Integrating Classroom Ecological Equilibrium

Students are the raw materials for education, as well as the major products of educational changes; and, most

importantly, students are vital members of the labor force participating in the creation of education" (Lengnick-Hall and Sanders, 1997). Time management, learning methods, maturity, demography, experiential history, cultural orientation, and interests are all examples of the increasing diversity of individual characteristics among students. As a result, Senge et al. (1994) propose that teachers should be "producers of environments that allow students to learn as much as possible," or that schools should become learning habitats in which people form relationships, students develop their own individual instruction plan, and a variety of investigating system options replace passive information reception. Timely and relevant to real life: Making the content relevant to real life can increase a student's motivation. As such, teachers should emphasize the links between real life and school subjects, design assignments, and experiments that use everyday materials and situations, and use personal anecdotes (Palmer, 2007).

The use of diverse instructional material is indispensable to student motivation in the learning environment. Olson (1997) notes that student motivation depends on the extent to which the teacher is able to satisfy the student's need for (1) feeling in control of their learning, (2) feeling competent, and (3) feeling connected to

others. As such, content also must be included to satisfy each of these student needs. Following are some suggestions for Ingredient 3 or content contributions that will build student motivation. Variety can be brought into the class by including activities wherein the students are physically active with a thinking component. Other forms of variety can be added into the content via dramatizations, model making, and out-of-classroom activities (Palmer, 2007).

Ecological Principles for Classroom Application

The word ecology implies the study of environments, their structure, content, and impact on people. An environment is, after all, a complex living system which dictates the ways and manners of human behavior, mode of thinking and channels through which feelings are expressed. A USDA Forest Service social scientist, faculty members, and graduate students from the University of Georgia's Institute of Ecology compiled a list of eight general ecological principles which are adaptation, behavior, diversity, emergent properties, energy flow, growth and development, limits and regulation (Barrett, Peles, & Odum, 1997). The following principles would be employed to promote classroom ecology.

Adaptation: the way a life system looks or behaves is not random or accidental; rather it is the result of changing to survive in a dynamic environment (Barrett, Peles, & Odum, 1997). Classroom adaption of all learning materials and abilities is required as part of the motivating process in order to make the classroom engaging, amusing, and participatory. Teachers must be aware of attention cycles and use student-centered enhanced lecture approaches to promote student attention (Bunce, Flens, and Neiles, 2010).

Behavior: living systems evolve behavioral responses to stress and disturbances to enhance survival (Barrett, Peles, & Odum, 1997). Positive verbal words of encouragement are required to support learners' survivability in the classroom, and this can significantly boost student motivation. Positive behavioral responses and efforts should be commended; this will boost a student's self-esteem. Emphasizing his or her performance in relation to personal goals can help to build self-esteem (Palmer, 2007).

Diversity: Changes in environmental conditions over time have led to variety within each level of organization (Barrett, Peles, & Odum, 1997). To motivate learners to learn the teacher must make the learning environment safe and promote

healthy competition in the classroom. The learning environment must be available, accessible and devoid of any form of threat and distraction should be minimized. The environment needs to be accessible, safe, positive, personalized as much as possible, and empowering (Williams & Williams 2011).

Emergent Properties: when different levels of organization are functioning together, new properties are created that were not operational at lower levels (Barrett, Peles, & Odum, 1997). In the classroom, motivation encourages collaboration and active engagement. "Students engage their efforts more effectively and efficiently through self-management and self-leadership, taking ownership of their educational experience and customizing the learning process to match their unique interests and competencies" (Lengnick-Hall and Sanders, 1997). Teachers and other stakeholders in the educational process are expected to welcome this shift toward enhanced self-participation, personalized learning, and self-ownership (Andersen, 2011).

Energy Flow: energy cannot be created or destroyed but it can change form, energy quality is always degraded through transformation (Barrett, Peles, & Odum, 1997). Motivation is what moves us to do

something. It involves energy and drive to learn, work effectively, and achieve potential. Dowson and McInerney, (2003 and 2004) suggest that salient motivations determine: (a) what activities people do or do not engage in (“attraction”), (b) how long they engage in these activities (“retention”) and, (c) the depth to which they engage in these activities (“concentration”).

Growth and Development: as organisms and systems increase in size, changes occur that allow survival. Growth rate slows as maximum capacity is met (Barrett, Peles, & Odum, 1997). Growth and development of the learners can be greatly increased through motivation. Effective goal setting within manageable time limits will motivate learners to achieve great potentials. Setting appropriately challenging levels of goals, divided according to different phases of attainment, is crucial in motivating students to engage in learning (Bandura, 1997; Locke & Latham, 2002) and make them self-regulated learners (Locke & Latham, 1990; Schunk, 1991).

Limits: there are limits to how much stress can be tolerated by living systems (Barrett, Peles, & Odum, 1997). This implies that stress should be removed or reduced in the classroom. Concerted efforts should be made to make learning stress free for all

members of the learning community (teachers, students, parents, materials and administrators).

Regulation: energy is spent if a signal is sent to increase or decrease some function to maintain balance (Barrett, Peles, & Odum, 1997). The teacher's job include a cycle of order, warmth, and guidance, as well as encouraging involvement and belonging, and then monitoring and changing as needed (Osher, Bear, Sprague & Doyle, 2010).

Conclusion

Conclusively, this expository paper has highlighted a number of ways to improve and promote teaching and learning in the classroom through the use of divergent activities to reach the zone of proximal development. The zone of proximal development can be reached through ecological balancing of the classroom, learning environment and motivation. Murray and Arroyo (2002) indicate that the zone of proximal development can be characterized from both cognitive and affective perspectives. From the affective perspective the learner should avoid the extremes of being bored and being confused and frustrated. From the cognitive perspective we say that material should not be too difficult or easy. Both boredom and confusion can lead to

distraction, frustration, and lack of motivation. Of course the optimal conditions differ for each learner and differ for the same learner in different contexts

In an attempt to achieve ecological equilibrium teaching and learning materials must be stimulating, meaningful, and should reflect the current and future needs of all learners. All teaching and learning materials must be reviewed and updated frequently. The teaching methods or strategies should be interactive, innovative and should involve diverse contemporary process to promote active and student centered learning. The success of any teaching and learning process is the effective harmonization of all afore mentioned factors to create an ecological union and achieve equilibrium in the classroom and education in general.

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