Assessment of the Application of the Principles of Constructivism in Middle Basic Education Schools in Imo State – Nigeria

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ABSTRACT

The study assessed the application of the principles of constructivism theory in Middle Basic Education Class in Owerri Senatorial Zone of Imo State. The population of the study consist 491,507 pupils in the middle basic classes of the 500 Public Basic Education schools. The participants are made up of 492 pupils drawn from 0.5 percent of the entire population. The design of the study was an evaluation research which involved an instrument: Principles of Constructivism Application Rating Scale (PCARS). The instrument was validated by experts. Based on Crombach – α approach using a one trial administration of PCARS on 30 students, a reliability coefficient of 0.91 was obtained. Mean scores and standard deviation were used to answer research questions. The result revealed all five principles of constructivism are applied in the Middle Basic Education Classes in the area studied. The Nigerian Educational system incorporates all aspects of constructivism, especially in policy and curriculum design, the actual implementation in the classrooms is very commendable. Capacity building and training of teachers for the Middle Basic Education level toward increased application of constructivism principles should be seriously addressed by Governments.

Key words: middle basic, education, constructivism, assessment, application, and principles

INTRODUCTION

In order to enhance teaching and learning procedures, the Nigerian educational system has undergone a number of innovations. Despite widespread support for student-centered strategies like constructivism, traditional teacher-centered methods still predominate in classrooms. Constructivist learning theory, put forth by academics like Piaget and Vygotsky, places a strong emphasis on active learning, teamwork, and the practical application of information.

The "theories of childhood development and education" developed by Jean Piaget and John Dewey gave rise to progressive education, which served as the basis for constructivism's development. In addition to concluding that children's logic and thought processes are fundamentally different from those of adults, Piaget maintained that humans learn by building one logical structure after another. Dewey advocated for education to be based on actual experience in his contribution. "If you have uncertainties about how learning occurs, engage in persistent investigation; study, contemplate, investigate different options, and arrive at your belief grounded in facts," he stated.

Jerome Brunner and David Ausbel are two of the first educators, philosophers, and sociologists with fresh insights into constructivism learning theory and practice. Bransford, Ernest Von Glassersfeld, Eleanor Duckworth, George Forman, Roger Schank, Jacqueline Grennon Brooks, and Martin G. Brooks are a few contemporary educators whose theories have been connected with constructivism.

"Constructivism as a theory of learning is regarded as an active process of building meaning from varied experience," claim Agulanna and Nwachukwu (2014). Contributing, George E. postulates that constructivism is the notion that students create their own knowledge, with each student socially and individually creating meaning as they study. Consequently, there is no other type of learning except creating meaning.

Constructivism is a theory that holds that the mind actively constructs memories, perceptions, and entire mental structures rather than passively acquiring them (Andrew 2001). Constructivism places a strong emphasis on the learner's active participation in developing comprehension and making sense of data. According to Nwafor (2007), constructivism is a theory based on the idea that people have an intrinsic desire to understand the universe. It can also be seen as an educational trend that encourages students to actively construct and comprehend what makes sense to them by using their experiences, as opposed to having material provided in a predetermined fashion (Nwafor 2007). Constructivism's theories are based on several ideas put forth by various academics, including:

According to John Dewey (1859), humans actively learn from their surroundings by thinking back on their experiences. He went on to say that active learning necessitates the learner's constant assimilation, accommodation, and construction of new knowledge. According to Dewey, students are active learners who can accomplish their own learning with the help of their teachers. He finished by stating that the classroom should be a setting that fosters social interaction and real-world problem-solving, utilizing the courses to address students' interests and help them develop their physical skills.

Jerome Brunner (1915): One of the main tenets of Brunner's theoretical framework is that learning is an active process in which students create new ideas or concepts using what they already know. When it comes to teaching, the teacher should make an effort to let the students come to their own conclusions. Active dialogue, or Socratic learning, should take place between the teacher and the pupils.

Lev Vygotsky (1896): Lev made social constructivism a popular theory. According to him, children's cognitive growth occurs within the framework of socialization and education, and learning and development are collaborative endeavors. He underlined that essential cognitive tools offered by culture, such as history, social context, customs, language, and religion, transform children's perceptual attention and memory capacities. This suggests that in order for learning to take place, the kid must first interact interpersonally with the social world before internalizing this experience. Vygotsky concentrated on the relationships that exist between individuals and the social-cultural setting in which they engage in shared experiences.

Symour Parperts is a modern constructivist theorist. His theory, which is based on creating an environment where constructivism can thrive, gave rise to his ground-breaking work in teaching children with computers, which has resulted in the widespread use of computers and information technology in education.

It is clear from the aforementioned and a careful analysis of the aforementioned theories that constructivism can be broadly divided into two categories: individual constructivism and societal constructivism. Cognitive learning theorists like Piaget and Gestalt emphasize the individual character of knowledge construction under individual constructivism. They contend that each learner's process of construction happens independently and without outside guidance. Piaget's internal processes—organization, assimilation, and accommodation—indicate that knowledge is an abstraction that develops with cognitive activity rather than a reflection of the outside world. According to Piaget's theory, "experience impacts thinking and thinking influences knowledge, exploration and discovery are preferable to teaching." Individual constructivism places more emphasis on the creation of personal meaning than on social interaction.

Conversely, social constructivist theorists see every student as an individual with distinct needs and backgrounds. Additionally, the learner is viewed as multifaceted and complex. According to social constructivist researchers, learning is active and people create meanings via their interactions with one another and their surroundings. As a result, knowledge is seen as a human product that is socially and culturally produced. Learning is a social process, according to social constructivist theory. Furthermore, real learning happens when people participate in social activities rather than being a process that just occurs inside our minds or a passive development of our behaviors that is shaped by outside influences.

We will critically analyze the five fundamental aspects of constructivism—activity-based, reflective, collaborative, inquiry-based, and evolving learning—in order to relate the theory to the Nigerian educational system, with a focus on Owerri zone.

Activity-based {Involvement in Practical and Experiential Learning}: Students develop new insights for themselves. According to constructivist theorists, students actively engage in practical activities (such as experiments, role-plays, projects, etc.) and work with materials, tools, or digital resources to create knowledge. Students exhibit eagerness and curiosity when investigating ideas. Students use practical projects to apply principles (e.g., making models, creating artwork, designing solutions). By participating in self-directed activities, students take charge of their education. Students assist in determining their own objectives and methods of evaluation.

Reflectivity (Metacognition and Self-Assessment in Learning): By thinking back on their experiences, students take charge of their education. They become experts in their own learning as a result of this process. The instructor assists in creating an environment where students feel comfortable asking questions and thinking back on their own work in private or in a group setting. Constructivist thinkers demand that educators establish an atmosphere in which: Students ask themselves questions regarding their comprehension and learning development. Students explain how they think (e.g., why they choose a specific solution). In order to enhance learning outcomes, students recognize errors and modify their methodology. To get a deeper understanding, students make connections between new and existing material. Students participate in thoughtful conversations (such as "What worked well? "What can I do differently?"

Collaboration (Social Engagement and Peer Knowledge Creation): Because constructivist theory places a strong emphasis on student participation, it promotes: Students participate actively in cooperative learning activities and group discussions. During group projects, students appreciate and take into account other points of view. Students take on shared tasks and make significant contributions to group projects. Students embrace recommendations to enhance learning and offer constructive criticism to classmates. Students explain ideas to their peers as part of peer teaching.

Questioning, problem-solving, and idea exploration are all components of inquiry-based learning. The primary task here is for students to solve problems by posing queries, researching a subject, and utilizing a range of resources to discover solutions. The student investigates subjects, makes conclusions, and then revisits those findings as the investigation progresses. The constructivist theorist advises educators to make space for: Students should pose challenging questions that direct their education. Students use observation, experimentation, and research to explore and test their theories. Students use critical analysis to draw their own conclusions. Instead of settling on a single option, students look for others. Students show perseverance and flexibility when tackling challenging assignments.

Evolving Learning: Constructivist theorists, places a strong emphasis on how knowledge and learning are dynamic. Before visiting an evergreen forest, for example, a student may think that all trees lose their leaves during the dry season. Constructivists advise educators to make sure that students have concepts that may alter in the future. Based on fresh perspectives, students hone their concepts and modify their education. Students apply their knowledge to a variety of topics and real-world scenarios.

By combining new and prior information, students solve problems creatively. Over time, students show growth in their knowledge and abilities. Students take the initiative to extend their education outside of the classroom through projects, independent study, and community involvement.

The Nigerian educational system incorporates constructivist theories to some extent, but their use is uneven and frequently constrained by structural issues. Some constructivist ideas based on the five fundamental traits are promoted by educational policies and curricula. Student-centered learning in policies is evidence of constructivism in the Nigerian educational system. The National Policy on Education (NPE) encourages critical thinking, problem-solving, and learner-centered instruction. Particularly in elementary and junior secondary school, the Universal Basic school (UBE) program promotes interactive learning. Civic education and basic science are examples of inquiry-based and experiential learning courses that place a strong emphasis on problem-solving and practical applications. The use of ICT and e-learning platforms are ample examples of constructivism in theory and policy. The overall goal of this work is to evaluate the application of constructivism principles in middle basic education in Owerri Senatorial Zone as to unravel the actual state of implementation of the concept in our middle basic education system.

Research Questions

1. How much do middle basic education classrooms use learner-centered teaching strategies?

2. How much do middle basic education classrooms use peer-interaction and collaborative learning strategies?

3. How much do middle basic schools use inquiry-based learning and problem-solving techniques?

4. How much do teachers help students in middle basic classes construct their knowledge?

5. How much do middle basic education classrooms use instructional materials and real-world experiences?

METHOD

In order to determine the degree to which constructivist learning theories are being applied in middle basic education in the Owerri senatorial zone of Imo State, this study used an evaluation research design. Investigating the efficacy, faithfulness, and results of educational policies, interventions, and pedagogical approaches, evaluation research design is appropriate. It facilitated the methodical gathering and examination of information about the design, implementation, and perceived effects of constructivist teaching methods.

The population of the study comprised all public middle basic schools in the nine local government areas (LGAs) that make up the Owerri senatorial Zone with 491,507 pupils in the middle basic classes of the 500 Public Basic Education schools. A sample size of 492 (0.1%) was used based on the suggestions of Nwana (1981), which states that: "if the population is a few hundreds, a sample of 40% sample will do, if many hundreds, a sample of 20% will do, if a few thousand, a sample of 10% will do, for several thousands, 5% sample, if hundreds of thousands or more, 0.5 or 0.25 can do, it can be fewer considering the circumstances surrounding the research and the nature of the research population". The 492 pupils were drawn from 5 percent random sample of the 500 schools that is 25 schools using Simple random sampling techniques.

The Principles of Constructivism Application Rating Scale (PCARS) is a self-made, four-point Likert scale consisting of twenty-five items organized into five clusters. Two specialists in educational evaluation and two experts in educational psychology reviewed and verified the instrument. A reliability coefficient of 0.91 was obtained by administering PCARS to 40 students in a single experiment utilizing the Crombach-α technique. With the prior permission of the classroom teachers, PCARS were administered to participants under the guidance of the research assistants. In other words, the Direct Delivery and Retrieval Techniques (DDRT) were adopted.

Research questions were addressed using mean scores and standard deviations.

RESULTS

Table 1: Mean Ratings and Standard Deviations of Students on the Application of Constructivist Principles in Middle Basic Education Schools in Owerri Senatorial Zone (N = 492)

Cluster	Constructivist Principle Measured	No. of Items	Mean ($\bar{X}$)	Standard Deviation (SD)	Decision
1	Learner-centred instructional practices	5	2.84	0.68	Agree
2	Collaborative learning and peer interaction	5	2.76	0.71	Agree
3	Use of problem-solving and inquiry-based learning	5	2.61	0.73	Agree

4	Teachers' facilitation of knowledge construction	5	2.89	0.65	Agree
5	Use of real-life experiences and instructional materials	5	2.54	0.77	Agree
Grand Mean		**25**	**2.73**	**0.71**	**Agree**

While the standard deviation value of 0.71 suggests substantial heterogeneity in students' responses across clusters, the grand mean of 2.73 indicates that students generally believe that constructivist concepts are employed in intermediate basic education institutions in the research area.

First Research Question

How much are learner-centered teaching strategies used in Owerri Senatorial Zone middle basic education schools?

Students evaluated the use of learner-centered instructional approaches with a mean score of 2.84 and a standard deviation of 0.68, according to Table 1's results. The fact that the mean score is higher than the criterion mean of 2.50 suggests that middle basic education institutions in the research area use learner-centered teaching approaches extensively.

Second Research Question

How much peer interaction and collaborative learning are used in Owerri Senatorial Zone middle basic education schools?

According to Table 1, peer interaction and collaborative learning had a mean rating of 2.76 with a standard deviation of 0.71. The mean score is higher than the standard of 2.50, suggesting that peer interaction and collaborative learning are heavily utilized in the schools under investigation.

Third Research Question

How much do middle basic education schools in the Owerri Senatorial Zone use inquiry-based learning and problem-solving techniques?

Problem-solving and inquiry-based learning techniques have a mean score of 2.61 and a standard deviation of 0.73, as shown in Table 1. Although relatively lower than other clusters, the mean score above the criterion mean indicates that these constructivist tactics are used extensively.

Question 4 for Research

How much do teachers in Owerri Senatorial Zone middle basic education schools help students construct their knowledge?

According to the data in Table 1, the mean rating for instructors' assistance with knowledge construction is 2.89, with a standard deviation of 0.65. This cluster's highest mean, which is higher than the criterion mean of 2.50, indicates that teachers have a significant role in knowledge production.

Research Question No. 5

How much do middle basic education schools in the Owerri Senatorial Zone employ instructional materials and real-world experiences?

Table 1's results indicate that the usage of educational resources and real-world experiences had a mean score of 2.54 with a standard deviation of 0.77. The fact that the mean score is somewhat higher than the criterion

mean suggests that instructional materials and real-world experiences are used extensively, but less so than other constructivist principles.

DISCUSSION

This study established that students' engagement on enquiry-based activities in middle basic education is high. This trend, have a very postive effect on the academic achievement of students as opined by Okebukola (2002) constructivist methods improved students motivation and conceptual understanding in science and mathematics. Adesina & Akinbobola stated that undergraduate students developed stronger critical thinking skills and scientific attitudes when taught using inquiry-based methods. This assertion is also applicable in the middle basic education.

This study also reviewed that teacher's facilitation of pupil's construction of knowledge rather than direct transmission is also applied. This is an indication that teachers do engage in facilitation of pupil construction of knowledge rather they actively promoting direct transmission.

This study also review that teachers were consistent in incorporating of pupils prior knowledge and experience in teaching new concepts. New concepts or topics were introduced based on relationship that exists with what pupil actually has known. There was strong linkage to facilitate learning. Which indicate implementation of this principle of constructivism by teachers. The extent of application of the collaborative and peer-learning strategies was also adopted by the teachers. This positively affected the learning as corroborated by Ibe, E (2016). ''When Students actively participated in science projects, modeled real-life problems, and collaborated in groups—key features of constructivism, students taught with constructivist approaches performed better and retained knowledge longer than those taught with traditional Methods''. Based on study, teachers do relate classroom activities to real life experience which is another key factor of the constructivist theory.

CONCLUSION

Constructivism offers a compelling framework for rethinking education in the 21st century. While it presents challenges, its emphasis on active, contextual, and social learning resonates with modern understandings of how people learn. By addressing implementation barriers and investing in educator support, constructivist pedagogy can transform educational outcomes.

The general outcry about the quality of Nigerian Educational system is a source of concern to all stakeholders and improving the methods of transferring knowledge is very pertinent, therefore, the application of the principles of constructivism in middle basic education schools in Owerri Senatorial Zone Imo State – Nigeria is very sacrosanct as this study reviewed that the five major characteristics of the constructivism theory - Activity-Based, Reflectivity, Collaborativity, Inquiry-Based, and Evolving Learning and other alternative learning strategies were adopted in the public schools within the scope covered by this work.

RECOMMENDATION

The following suggestions were put forth:

1. Teacher Training Programs: In-service training programs and other teacher training initiatives should be supported by the government.

2. Incorporate constructivist theory and practice into NCE and bachelor's degree teacher education.

3. Enhance the curriculum design by incorporating project-based and inquiry-based activities.

4. Policy Support: Support educational policies that advance learner-centered approaches.

5. Community Engagement: Encourage practical learning through collaborations with local communities and enhance public school infrastructure, particularly ICT infrastructure, as constructivism thrives in such settings.

REFERENCES

1. Agulanna, G.G & Onukogu, C.J.(2004). Owerri: Joe Mankpa Publishers, Introduction to Psychology, Second Edition.
2. Agulanna, G.G & Nwachukwu F.J..(2014). Owerri: Career Publishers, Psychology of Learning, Fourth Edition.
3. Anusiem, A.U. (1994). Fundamentals of Human Learning, Owerri: Katzns Publishers
4. Bernard, H.W. (1972). Learning and teaching psychology. McGrans-Hill, New York
5. Bruner, J. (1966). In the direction of an instructional theory. Harvard University Press.
6. Hmelo-Silver, C. E. (2004). What and how do students learn through problem-based learning? Review of Educational Psychology, 16(3), 235-266.
7. L;k-Instructional-design theories and models: A novel approach to instructional theory (Vol. II, pp. 215–239). Erlbaum, Lawrence.
8. Kirschner, P. A., Sweller, J., & Clark, R. E. (2006). Why education with little supervision is ineffective. 41(2), 75–86; Educational Psychologist.
9. Nworgu, B.G. (1998). A recent development in the teaching of primary science is constructivism. TOT workshop on teaching fundamental elementary school subjects by UNICEF and the Imo State Primary Education Board.
10. Piaget, J. (1952). The causes of children's intellect. Press of International Universities.
11. Thomas, J. W. (2000). An analysis of project-based learning research. The Foundation for Autodesk.
12. Vygotsky, L. S. (1978). The evolution of higher psychological processes in society. Harvard University Press.