

APPLICATION OF CONSTRUCTIVIST LEARNING THEORY IN THE IMPLEMENTATION OF COMPETENCY-BASED CURRICULUM: A CONCEPTUAL REVIEW

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Abstract

The competency-based education (CBE) trend is one of the biggest changes that have taken place in the education systems across the world, where developing hands-on skills, critical thinking, and life problem-solving abilities are the focuses. Constructivist learning theory offers a good theoretical basis of this change as it encourages active and learner-focused methods of knowledge-building. In this paper, the author of this paper explores the idea of the constructivist learning theory on the implementation of CBE, with specific reference to the empirical findings that have been conducted in Nigeria and other developing nations. The study presents theoretical background, pedagogical practice, conceptual correlations, and implementation issues using a systematic review. Results show that constructivist practices have a great impact on developing competency, academic success and involvement of learners. Nevertheless, the implementation is hampered by issues like the lack of training of teachers, the lack of instructional materials and the complexity of assessments. The paper suggests a conceptual model of association between constructivist practices and competency development and provides policy, research, and practice recommendations.

Keywords: Constructivism, competency-based curriculum, learner-centered learning, Nigeria, education reform.



Introduction

The modern education system in the world is undergoing a radical change due to forces of globalization, high rate of technological change, and dynamism of the modern labor market. These forces have also greatly changed the expectations that people have towards learning institutions with the emphasis on imparting knowledge but instill in them skills that would help them act efficiently in the real world circumstances. Conventional curricula, which mostly focuses on rote memorization and theoretical learning, are being increasingly criticized because of failing to prepare the students with competencies and skills needed to solve their problems, be innovative and adaptable in the 21st century. Consequently, most nations are converting to competency-based education (CBE), a method that emphasizes on the expression of knowledge, skills, values, and attitudes in real life situations (Sanchez & Ruiz, 2008).

Competency-based curriculum is a new paradigm in education in which the focus is shifted on what learners are taught to what they can do with whatever they have learned. It encourages mastery learning, ongoing evaluation, and one-on-one development, so that learners would advance according to their capacity to exhibit particular skills as opposed to the duration of classroom learning. This practice is especially applicable in the current knowledge-based economy when employers are growing more demanding on graduates who do not simply have academic qualifications but also critical thinking, communication, collaboration, and digital skills. As a result, CBE has become acceptable as a world-wide strategy of enhancing the quality and relevance of education.

The correspondence of the constructivist theory and CBE is apparent in a number of aspects. Both stress active learning, the significance of context in the process of knowledge acquisition, and the teacher as a facilitator of the knowledge as opposed to a transmitter of the knowledge. In constructivist classroom, students are motivated to pose questions, discuss thoughts and use knowledge on real-life conditions principles that are core to competency-based education. Project-based, inquiry-based and collaborative group work are among the instructional strategies that are employed to promote deeper learning and acquisition of skills.

Nonetheless, even though the constructivist theory and have a high compatibility rate in theory, the CBE practical application of the strategies is not always consistent, and especially in developing nations like Nigeria. The schools still contribute to the high usage of the traditional lecture approach because of the poor teacher training, poor instructional materials, big classes, and strict evaluation systems in which performance in examinations is valued more than learning. These issues make the implementation of constructivist practices in classroom teaching difficult and thus make the implementation of CBC difficult.

Moreover, the move towards competency-based education needs a major change of thoughts between the teachers, students and policymakers. Education should provide teachers with proper training so that they can use new pedagogical strategies, and the assessment systems should be restructured to measure the competencies and not the content memorization. Also, learning resources in form of technology and teaching materials are needed in facilitating interactive and experiential learning.

Against these challenges and opportunities, the paper at hand attempts to address the issue of constructivist theory implementation in the execution of competency-based curriculum. In particular it analyzes the theoretical basis of constructivism, discusses empirical research on the application of constructivism in CBE, and speculates on the practical implications of the research on enhancing curriculum implementation in Nigeria. In this manner, this paper will add to the current debate on educational reform and present some

insights that can further improve the competency-based education effectiveness within the developing context.

Literature Review

The concept of Competency-Based Education

Competency-Based Curriculum Education (CBE) is a teaching methodology that highlights the process of competency development and competency expression amongst learners that involve knowledge, skills, attitudes, and values that underpin effective performance of a learner in the real life contexts. Such a priority is different to traditional curricula which are more concerned with what the learners will study and performance in examinations hence CBE shifts the emphasis on input-based education to outcome-based one (Thummaphan et al., 2022).

In its essence, CBE is typically created to make learning meaningful, applicable, and aligned to the needs of society and the labour market. It draws its foundation on the philosophy that education should not just enable one to succeed in academics but also to be practically involved within their circles and places of work. Therefore, competency-based education incorporates cognitive, affective and psychomotor aspects of learning, which in turn guarantees the overall development of the learner.

CBE also encourages individualized instruction that aims to support and provide teaching as well as learning activities to suit various interests and abilities of learners. In competency based system education is learner-centered whereby learners become more responsible of their learning. Teachers are facilitators who lead the learners to inquiries, exploration, and discovery. Custom learning tracks also help in making sure that every learner moves at the right pace and is provided with the assistance in order to master. The practice will improve the motivation of learners, their engagement, and retention of knowledge (Rufai, 2021).

The Constructivist Learning Theory.

Constructivist learning theory is based on the idea that learners actively build their own perception and knowledge of the world relying on the experiences and interaction with the surrounding world. Constructivism is a conceptualization of the process of learning as an active, dynamic and interpretive process instead of seeing it as a passive process of receiving information. This theory has the seminal contribution of Jean Piaget and Lev Vygotsky, who insisted on the cognitive development and the social aspect of learning respectively.

Cognitive constructivism as the view presented by Piaget is concerned with internal processes by which learners formulate the knowledge in terms of assimilation and accommodation. He explained that learners go through stages of development, with each stage, they actively construct and reconstruct their knowledge in accordance with new experiences. Vygotsky social constructivism on the other hand emphasises social interaction, language and cultural context in learning. His idea of the Zone of Proximal Development (ZPD) is how students can attain higher comprehension levels with the help of more informed persons which could be teachers or classmates.

Learning has a number of prominent characteristics in accordance with the principles of constructivism:

Learning is practical and experience based: Learners directly interact with tasks, experiments and real life conditions by which they can find concepts as opposed to memorizing them. This practical method increases memory and profound knowledge.

Constructivism does not hold that knowledge is being transmitted, but constructed: Constructivism denies the ancient notions of the teacher as the exclusive origin of knowledge. Rather, learners process information using their previous experience and cognitive system, hence creating meaning in a subjective manner.

A social interaction assists learning: Collaboration, i.e. group discussions, peer teaching, and group problem solving are key features of constructivist classroom. Interaction exposes the learner to different views and this aids in polishing and broadening his/her knowledge.

Previous learning affects new learning: Constructivist theory focuses on the idea that learners are not blank slates when entering the classroom. Their background knowledge, beliefs, and experiences play a key role in influencing them on how they will perceive and absorb new information. Teaching hence necessitates relating new material with what the learners have already known.

Practically, constructivist learning classrooms are structured in such a way that fosters inquiry, exploration and collaboration. Teachers are facilitators or guides that provide a platform on which learners explore and identify problems, inquiries and craft solutions. Problem-based learning, project-based learning, and discovery learning and collaborative group work are some of the instructional strategies that are frequently applied in order to promote active engagement and critical thinking.

Constructivism and Competency-Based Education.

Constructivism and Competency-Based Education (CBE) are two concepts that are rather interrelated because both of them are based on the philosophy of meaningful learning which consists in the active involvement of the learner in the process of knowledge development and practice (Piaget, 1970; Vygotsky, 1978; Jonassen, 2011). Although the ideas of constructivism help to develop the theoretical background of the process of learning, CBE is the practical model that allows structuring the teaching and assessment process according to the acquisition of certain competencies (Thummaphan et al., 2022). Constructivism is a critical pedagogical method that is necessary to effectively apply CBE due to its alignment (Bruner, 1996).

Among the key crossroads between constructivism and CBE, there is learner-centered instruction. These two methods change the direction of learning to the learner (Cornelius-White, 2007; Prince and Felder, 2006). Traditional systems have seen teachers being in control of classroom activities where the lecturer is usually the one delivering the content. Conversely, competency-based and constructivist methods put the learner as an active participant and they become responsible in learning themselves. Teachers are facilitators, who direct, promote, and assist learning in order to enable students to attain intended skills (Ertmer and Newby, 2013). This change not only enhances the motivation of the learner, but it also develops deeper meaning (Hmelo-Silver, 2004).

Active engagement is the other principle in common. Constructivism also focuses on the fact that, learners should be actively engaged in activities like problem-solving, experimentation and critical thinking in order to build up meaningful knowledge (Kolb, 1984; Dewey, 1938). On the same note, CBC necessitates learners to exhibit performance and application-based competencies and not memorized information (Thummaphan et al., 2022). Both methods tend to assume the use of group projects, simulations, case studies, and hands-on experiments as a way to promote activity and skill learning (Jonassen, 2011; Barrows, 1996).

Theoretical Framework

The paper is based on Constructivist Theory that assumes that learning is dynamic and active process whereby a learner develops his/her own knowledge by engaging with the environment (Piaget, 1970; Vygotsky, 1978). The theory underlines the learning as not a teacher to learner transfer of knowledge but a process of learning that develops through experience, reflection and social interaction. In this context, students are considered to be active participants of the learning process and able to interpret and recreate information depending on previous knowledge and experiences in a particular context (Jonassen, 2011).

The major hypotheses of the constructivist theory are as follows.

- i. **What is learned is built, not passed on:** Constructivism does not support the traditional teaching as passing the knowledge of the teacher to the student. As an alternative, learners construct meaning by means of active connecting of the new information to the preexisting cognitive organizations, which makes learning subjective and personalized (Piaget, 1970; Bruner, 1996).
- ii. **Learning is dynamic and practical:** Significant learning is experienced by actively engaging in activities like experimentation, exploration and solving problems. In this process, the essential role is played by such types of experience learning as projects, simulations, and practical exercises (Kolb, 1984; Dewey, 1938).
- iii. **Interaction leads to better learning:** The interaction and communication involved in learning expose the learner to different points of view that sharpen his or her comprehension. The guided learning theory proposed by Vygotsky highlights the importance of social assistance in acquiring a greater competency (Vygotsky, 1978; Dillenbourg, 1999).
- iv. **Teachers are facilitators:** In constructivist classroom, teachers are not only providers of knowledge but facilitators or guides of learning by creating supportive environments, asking thought-provoking questions and scaffolding learning (Cornelius-White, 2007; Prince and Felder, 2006).

Applicability of Constructivist Theory to Competency-Based Curriculum (CBC).

The constructivist theory could be of great use to CBE implementation since the two highlight meaningful learning based on active engagement and practical application (Thummaphan et al., 2022).

- i. **Fostering Active Learning:** CBE presupposes the ability of learners to prove that they have mastered a set of competencies through engagement instead of passive consumption. This is strengthened by the constructivist theory that focuses on learning by doing through inquiries, experimentation, project-based activities, and teamwork (Jonassen, 2011; Hmelo-Silver, 2004).
- ii. **Application Promoting Real-Life:** CBE helps in making a connection between classroom and the real world. Constructivism attends to contextualized learning experiences which may include case-studies, simulation, fieldwork and projects of community participation (Dewey, 1938; Kolb, 1984).
- iii. **Fostering Competency Development:** CBE focuses on cognitive, psychomotor and affective competencies. This is more easily facilitated by constructivist-based strategies, which include problem-solving, group work, and reflecting (Bruner, 1996; Jonassen, 2011).

- iv. **Cultivation of Critical Thinking:** Constructivist classrooms encourage higher order thinking, which involves testing to analyze, evaluate, and build arguments, which meet the goals of CBE (Piaget, 1970; Hmelo-Silver, 2004).

Conceptual Model

The theoretical framework of this paper will present a systematic pattern of explanation of the correlation between constructivist teaching practices and presence of competence in Competency-Based Education (CBE). The model singles out important independent, mediating and dependent variables and depicts the way they interact to drive the learning outcomes.

Independent Variables (Constructivist Practices)

The following are the pedagogical strategies based on the constructivist theory that are the main drivers of competency development:

Inquiry-based learning: This model promotes the idea of question-asking, and investigation of phenomena, and finding any answers either individually or in groups. Inquiry-based learning helps to become aware of knowledge and apply it in practice by encouraging interest and inquiry.

Problem-based learning: Under this approach, learners are introduced to real-life problems and they have to come up with solutions. Problem based learning focuses on critical thinking, critical reasoning and application of theory to practice.

Collaborative learning: Collaborative learning entails the systematic interaction between learners by use of group work, discussions, and peer teaching. This practice upholds the social constructivism because it allows the building of knowledge to be constructed in terms of sharing experiences and different viewpoints.

Experiential learning: Experiential learning involves practice or field-based learning that enables the learner to interact with concepts. It connects theory and practice, strengthening skills acquisition and situational awareness.

Mediating Variables

The following aspects determine the power and success of constructivist practices on learners outcomes:

Teacher competence: The knowledge, skills and pedagogic expertise of the teachers plays an important role in implementing constructivist strategies. To facilitate effective acquisition of competencies, the teachers would have to be competent in guiding, facilitating, and scaffolding learning.

Resources availability: How well constructivist practices can be carried out depends on the availability of teaching and learning resources, technology, and infrastructure to support the practice. Interactive and experiential learning may be impaired by the scarcity of resources.

Evaluation plans: Constant and performance-based assessment plans and authentic assessment help to buttress competency development. Proper evaluation would also see to it that they assess learners based on their skills and practicality instead of only the memorization.

Dependent Variables (Competency Outcomes)

The following are the learning outcomes that can be achieved due to the successful implementation of the constructivist teaching practices:

Skill acquisition: Learners acquire both practical and cognitive skills that are required during the execution of tasks in the real world.

Critical thinking: Learners gain the skills to process information, analyze and assess evidence and make competent decisions.

Problem-solving skills: learners are able to recognize, analyze, and solve intricate issues on their own or in groups.

Competencies: The learners become competent in particular skills, as outlined in the curriculum, such as in knowledge, skills, attitudes, and values.

Model Explanation

The conceptual model assumes that the following teaching practices inquiry-based, problem-based, collaborative, and experiential learning directly influence the development of competency (Jonassen, 2011; Bruner, 1996). The practices are hands-on and allow learners to build knowledge and acquire necessary skills based on the goals of CBE (Thummaphan et al., 2022).

Nevertheless, teacher competence, availability of resources, and assessment strategies also play a mediating role as identified in the model. Even the most powerful constructivist plans might not provide any significant results in case teachers do not possess the required skills to use them, absence of the required learning resources or inappropriate measurement techniques that are not consistent with competency objectives (Ertmer and Newby, 2013).

Constructivist Theory Application in CBC Implementation.

Learner-Centered Teaching

Constructivist pedagogy is fundamentally based on learner-centered teaching and a direct contrast to the conventional teacher-centered instruction (Cornelius-White, 2007). A learner-centered classroom model puts the teacher in a facilitator role where he/she gives guideline to students as they actively build knowledge as opposed to passively relaying information.

Problem-Based Learning

Problem-based learning (PBL) is a constructivist approach which locates learning into a real world problem (Barrows, 1996). They are given real world problems and asked to come up with solutions to the problems, which involves using theoretical knowledge, interpreting information and critical thinking. PBL helps learners to combine various skills at once such as problem solution, decision making and teamwork (Savery, 2006).

Collaborative Learning

Collaborative learning is a mode of learning that entails organized interaction among learners in the form of group activities, discussion and co-operative projects (Dillenbourg, 1999). According to constructivist theory, social interaction is crucial to the knowledge construction process where learners pool their views,

test assumptions and jointly develop meaning (Vygotsky, 1978). Learning in groups promotes peer-to-peer instruction, communication as well as collaboration, which are the key skills in the academic and professional life. Collaborative learning also aids in the social and emotional growth of the learners like empathy, negotiation as well as conflict resolution (Johnson and Johnson, 2009).

Experiential Learning

Experiential learning focuses on learning by use of direct practical experiences, which enables students to use the theoretical knowledge in the real world (Kolb, 1984). Simulations, lab experiments, field trips, internships are some of the activities that allow the learners to test the ideas, analyze the results, and acquire the practical skills. This strategy facilitates better meaning because students relate abstracted concepts with concrete experiences.

Authentic Assessment

Authentic assessment is a constructivist oriented form of assessment which involves learners in the application of knowledge and skills in real life situations (Wiggins, 1990). In contrast to the standard exams which mainly focus on memorization, authentic assessment focuses on performance tasks, including portfolios, presentations, projects, simulations and demonstrations.

Limitations

Insufficient Empirical Nigerian research on CBE: In spite of the implementation of Competency-Based Education (CBE) in Nigeria, there is a lack of empirical studies exploring its application, performance, and difficulties (Eze & Ibrahim, 2024). This is because of scarcity of the local studies, thus generalizing results or coming up with evidence-based strategies which are contextually applicable to the schools in Nigeria becomes challenging.

Conclusion

Constructivist theory offers an effective basis of implementing competency based curriculum. It focuses on active learning, teamwork and practical implication, which are in line with the CBE objectives. Nevertheless, in order to be properly implemented, the challenges, including teacher training, resources availability, and assessment practices, should be solved. Future studies are to work towards having context-specific interventions of helping to better the implementation of CBE in Nigeria and other developing nations.

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