The status and challenges on the use of constructivist instructional methods in the implementation of in Higher Education in Kenya

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Abstract
The constructivist teaching and learning philosophy is centered on active learning with learners' needs and interests in mind. This paper is a report of a study that investigated the status and challenges on the use of constructivist instructional methods in the implementation for Bachelor of Education (B.Ed) programme in Higher Education in Kenya. The research objectives were to find out: The constructivist instructional methods commonly utilized in the implementation of the B.Ed programme in Higher Education in Kenya; and the challenges, that instructors faced in the use of constructivist instructional methods in the implementation of the B.ED programme in Higher Education in Kenya. The research adopted a Mixed Methods research approach and a survey research design. The study was carried out in a public university in Kenya and utilized lecturers in the B.Ed programme as the respondents. A total of thirty two (32) lecturers teaching undergraduate lessons participated in the study. The lecturers were selected through convenience sampling. Questionnaire with both closed ended and open ended questions were used in data collection. Descriptive statistics and thematic analysis methods were used in data analysis. The findings revealed that the B.Ed programme had large classes that inhibited the use of constructivist instructional methods. The lecture method, writing of term papers and use of handouts were the most commonly used instructional and evaluation methods. The study recommended breaking of large classes into smaller manageable numbers; staffing the universities with more lecturers to ease work load; infrastructure development in universities; and staff development for lecturers on the use of constructivist instructional methods. This study sheds light on the status of instruction in Higher Education and forms a good data base for quality assurance on the instructional process in Higher Education both nationally and globally.
Key words: *Effective teaching; constructivist philosophy; instructional methods; Higher Education*

I. Introduction

Higher education refers to education offered in universities and other tertiary institutions. Higher education prepares individuals for the job market. Managing and ensuring educational quality in higher education is a pre-requisite in many nations (Fry, Ketteridge & Marshall, 2009). The fifth objective of university education in Kenya is promotion of high standards and quality of teaching and research (RoK, 2016). The fifth Sustainable Development Goal also focuses on quality education (UN, 2015). Today Kenya's higher education - (university) sector comprises a total of 70 institutions, making it one of the largest higher education systems in Africa. These include 33 public and 37 private institutions. Of the 33 public institutions, 23 are fully-fledged chartered public universities.

There's increasing pressure globally to ensure effective teaching at universities (Devlin & Samarawickrema, 2010). Of importance is the global shift from teacher centered to learner centered instruction. Currently, Kenya has undertaken reforms in its educational system with the mission of nurturing every learner's potential in order to enable every Kenyan to become an engaged, empowered and ethical citizen (KICD, 2017). This is through the implementation of Competency Based Curriculum (CBC) in basic education levels. CBC design is constructivist in nature and permits skills development and deep learning. In favor of constructivist instructional methods, it's observed that effective instruction should be a practical social activity which involves teachers and learners interacting with knowledge and other resources in a learning environment (Syomwene, 2017; Otunga, 2015). Students are the center of effective instruction (Devlin & Samarawickrema, 2010).

Instructional methods can be defined as the strategies utilized to deliver content of a curriculum in the implementation process. They contribute a great deal to the achievement of the programme objectives. Teacher education is primarily concerned with teacher preparation for the teaching profession. Effective implementation

of institutions' programmes relies heavily on the quality of teacher education in every country (Syomwene, 2017).

This paper is a report of a study that investigated the status and challenges on the use of constructivist instructional methods in the implementation of the B.Ed programme in Higher Education in Kenya. The study was carried out in a public university in Kenya and utilized lecturers in the B.Ed programme as the respondents.

Statement of the statement

The constructivist teaching philosophy is centered on active learning with learners' needs and interests in mind. An assumption under constructivist philosophy is that learners actively construct knowledge in creating reality (Fry, Ketteridge & Marshall, 2009; Kadir & Asimiran (2014). Knowledge is a product of the human mind according to the constructivist teaching philosophy (Akpan & Beard, 2016). Constructivist instructional methods inform effective teaching in higher education through learner involvement and motivation for achievement.

It's important to find out the use of constructivist instructional methods in Higher Education in Kenya. As mentioned earlier, the attainment of the goals of University education in Kenya and Sustainable Development Goals is dependent on quality education in Higher Education. Massification of education globally has resulted to large class sizes in universities that could be a hindrance to the use of constructivist instructional methods. Biney (2018), reports a study done in a university in Ghana, in which the lecture method was found to be prominent in the instructional process. In large classes, there can be some restriction on the range of teaching and learning activities making teacher centered methods popular (Biney, 2018).

As mentioned earlier, the CBC design currently being implemented in the basic education levels in Kenya borrows from the constructivist paradigm (KICD, 2017). After their basic education, the graduates of CBC shall be transitioning to the universities in the next six or seven years. It's thus paramount to investigate the use of constructivist instructional methods in higher education in Kenya because this shall go a long way in enhancing a smooth transition of the secondary school graduates in higher education.

Higher education greatly contributes to a country's economy by preparing individuals for the job market. An investigation on the instructional methods commonly utilized in Higher Education is thus timely. As opined by Otunga (2015), for a society to achieve prosperity and be a global competitor in the world economy, its members must be problem solvers, rational decision makers, generators of new ideas, critical and creative thinkers. The sentiments by Otunga (2015) summarize the output in the use of constructivist instructional methods in higher education.

The reported study utilized lecturers in the Bachelor of Education program in a public university in Kenya. Bachelor of Education program is centered on teacher education or teacher training. This being the case, it was found appropriate to assess the instructional methods commonly utilized by the instructors partly for quality assessment and partly because being a teacher training program, it's possible for students to replicate the teaching methods used by their instructors as they practice in their teaching profession. The eventualities would be felt in all levels of education.

Research purpose

The purpose of the study was to find out the status and challenges on the use of constructivist instructional methods in the implementation of the B.ED programme in higher education in Kenya.

Research Objectives

The research objectives were to find out:
1.	the constructivist instructional methods commonly utilized in the implementation of the B.ED programme in Higher Education in Kenya?
2.	the challenges, (if any) that instructors faced in the use of constructivist instructional methods in the implementation of the B.ED programme in Higher Education in Kenya.

## II.	Literature Review

This section is on the literature that was reviewed for the study. It delves on the constructivist teaching and learning philosophy and constructivist instructional methods.

Constructivist teaching and learning philosophy

The origin of constructivist learning can be traced on John Dewey's philosophy that effective teaching involves learning by doing and that education is life. According to Dewey, learners' needs and interests inform effective teaching and learning process (Garrison, Neubert & Reich, 2012). There are various theories that advocate for constructivist teaching and learning philosophy. These include Piaget's theory, Vygotsky's social cultural development theory, social learning theory among others.

According to Piaget, children actively construct knowledge and understanding of their world (Piaget, 1985). Children's interaction with the environment and cognitive organization of experiences results in intelligence (Piaget, 1985). Piaget opined that children progressively go through four stages of cognitive development: Sensory motor stage (birth to two years); Pre-operational stage (two to seven years); Concrete operational stage (seven to twelve years); and formal operational stage (twelve years and above) (Piaget, 1985). Piaget's theory informs higher education instructors on the essence of active learning, discovery learning, consideration of learners' needs and provision of a stimulating environment for effective teaching and learning process. Based on Piaget's theory, interactions and explorations facilitate learning (Syomwene, Nabwire & Musamas, 2015).

Vygotsky opines that social interactions enhance learning (Vygotsky, 1978). In his theory, he proposes that the More Knowledgeable Other (adults, peers, teachers, materials) significantly mediate learning through scaffolding opportunities. He advanced the concept of Zone of Proximal Development (ZPD) which is the difference between what the learner can achieve without assistance and those that the child can perform with assistance. Optimal development of the ZPD is enhanced by the support from the more knowledgeable others (Vygotsky, 1978; Syomwene, Nabwire & Musamas, 2015; Syomwene, 2016).

Albert Bandura's social learning theory is centered on learning through observation and imitation. Children develop new skills from observing those around them (Syomwene, Nabwire & Musamas, 2015). Cognitive development thus results from interactions and experiences within the environment.

The constructivist teaching and learning philosophy is centered on active learning with learners' needs and interests in mind. An assumption under constructivist philosophy is that learners actively construct knowledge in creating reality (Fry, Ketteridge & Marshall, 2009; Kadir & Asimiran (2014). The focus of teaching in a constructivist perspective should be building knowledge and not transferring knowledge (Kadir & Asimiran, 2014). Students' thinking drives the lessons (Akpan & Beard, 2016). Constructivist classrooms focus on real life, problem solving, problem based learning, simulations, discussions, higher order thinking such as analysis, synthesis and application (Akpan & Beard, 2016).

According to constructivist learning philosophy, learning is effective in classes that allow active learners' involvement and participation (Fry, Ketteridge & Marshall, 2009; Obanya, Shabani & Okebukola, 2000; Biney, 2018; Akpan & Beard, 2016; Gabler, Schroeder & Curtis, 2003; Kocchar, 1992). The classroom environment has to be task oriented with hands on and minds on learning experiences for meaningful learning to take place. Teaching is effective when it leads to meaningful learning (Biney, 2018; Akpan & Beard, 2016). An active learning environment motivates students.

Learner centered teaching enhances deep learning (Fry, Ketteridge & Marshall, 2009; Kadir & Asimiran (2014) in which learners are inspired and motivated to learn better. According to Fry, Ketteridge & Marshall (2009, pp10) deep approach to learning is: *'typified by an intention to understand and seek meaning, leading students to attempt to relate concepts to existing understanding and to each other, to distinguish between new ideas and existing knowledge and to critically evaluate and determine key themes and concepts'*

Learning from a constructivist perspective is best promoted through an active process that emphasizes purposeful interaction and the use of knowledge in real situations. Constructivist perspective can be understood through the ancient Chinese proverbs "I hear, I forget; I see, I remember, I do, I understand (Gabler, Schroeder & Curtis, 2003).

Effective teaching requires a stimulating and interactive environment. Learning is enhanced by meaningful and interactive experiences that are in accordance with learners' interests (Kadir & Asimiran, 2014; Akpan & Beard, 2016; Syomwene, 2017). On a similar note, Fry, Ketteridge & Marshall (2009) concur that effective learning requires opportunities for practice and exploration, thinking or reflecting, interaction with others, learning from and with peers and experts. Student - teacher; student - student, student - material interactions are important in effective teaching (Gabler, Schroeder & Curtis, 2003). When learners engage with what they are learning, transformation and internalization takes place (Fry, Ketteridge & Marshall, 2009; Kauchak & Eggen, 2011).

Learning is enhanced when there is collaborative and cooperative effort between the learners. Sharing ones ideas and responding to others improves thinking and deepens understanding (Mwaka, Nabwire & Musamas, 2014; Kocchar, 1992). Through collaborative opportunities students learn from one another and engage in critical thinking.

Learners have varied learning needs and interests. Similarly, learners receive and process information in different ways (Syomwene, 2017; Otunga, 2015). According to Akpan & Beard (2016), some learn by listening and sharing ideas, others by thinking through ideas, testing theories, synthesizing content and context, and by reasoning logically. A variety of teaching methods can cater for students' learning needs and interests (Fry, Ketteridge & Marshall, 2009; Syomwene, 2017).

Learning should be linked to real life situations. Effective teaching requires learners to apply new knowledge to past knowledge and to real life experiences. Real life experiences contribute to understanding

(Akpan & Beard, 2016; Fry, Ketteridge & Marshall, 2009). Students' background and experiences are vital in constructing knowledge and understanding of new concepts (Kadir & Asimiran, 2014; Gabler, Schroeder & Curtis, 2003). New knowledge is based on prior knowledge, or the existing knowledge that learners bring in the lesson (Akpan & Beard, 2016). Teachers should ensure relevance of what is taught through the use of real life examples, relating theory to practice (Devlin & Samarawickrema, 2010).

From a constructivist perspective, teachers are facilitators and guides in the instructional process (Obanya, Shabani & Okebukola, 2000; Kadir & Asimiran, 2014); Gabler, Schroeder & Curtis, 2003). They should give learners the opportunity to construct their own knowledge. Obanya, Shabani & Okebukola (2000) opine that the role of the instructor in Higher Education is to stimulate the learners' curiosity, independent intellectual discovery and the ability to organize and use knowledge. This enhances life-long learning also emphasized in Kenya's Competency Based Curriculum framework (KICD, 2017).

Higher education can be demanding in terms of students' higher levels of thinking, creativity, problem solving, autonomy, responsibility (Fry, Ketteridge & Marshall, 2009; Akpan & Beard (2016). Learner centered methods of teaching enhance these skills in the students. An effective learning environment should thus trigger learning, encourage reflective and creative thinking (Kadir & Asimiran, 2014).

According to Gabler, Schroeder & Curtis (2003), critical thinking can be enhanced by challenging environments that engage students in higher order thinking, opportunities for students to share their thoughts, guidance and support for students, and provision of worthwhile and meaningful thinking content. Quality teaching requires that teachers help students learn how to think critically and creatively (Otunga, 2015). Teachers can facilitate critical thinking by the students through interaction with students e.g. through question and answer sessions, discussions, discovery learning approaches (Akpan & Beard, 2016). Critical and creative thinking abilities enhance independence, democracy and lifelong learning (Otunga, 2015).

Constructivist instructional methods
Effective teaching demands the use of a variety of teaching stimulating approaches that influence, motivate and inspire students to learn (Devlin & Samarawickrema, 2010; Syomwene, 2017; Mukwa & Too, 2002). According to Biney (2018), students in Higher education need empowering teaching and learning methods that will constantly keep them engaging, thinking, reflecting and innovating. Learners need teaching strategies that arouse their interests and curiosity to learn (Akpan & Beard, 2016; Syomwene, 2017; Devlin & Samarawickrema (2010). In this section, a discussion of some constructivist teaching methods is advanced.

Creative and inspirational methods of teaching motivate learners (Mwaka, Nabwire & Musamas, 2014). In most classes in higher education, lecturers commonly adopt the ***lecture method*** because it favors large groups. However, the lecture method permits passive learning as opposed to active learning (Obanya, Shabani & Okebukola, 2000; Biney, 2018). Fry, Ketteridge & Marshall (2009) warns that effective learning is inhibited in the case where instructors do all the work as is the case with lecture method. Lecture method makes learners passive listener thus encouraging boredom (Biney, 2018; Mukwa & Too, 2002).

Use of ***discussions*** allows the learners to share their experiences and ideas. Gabler, Schroeder & Curtis (2003) define a discussion as a conversation with a purpose. Discussions develop in the learners the ability for listening, comprehension, synthesis, critical analysis and constructive thinking (Obanya, Shabani & Okebukola, 2000; Biney, 2018). They encourage interaction with content and with peers and are democratic (Kadir & Asimiran, 2014; Biney, 2018). Biney (2018) in his research on improving the teaching and learning in a university in Ghana, recommended discussion method in higher education and discouraged lecturers from the use of the lecture method.

Peer group learning such as discussions enhance collaboration skills. Collaboration skills are essential in critical thinking and life-long learning. Actually, in Kenya collaboration has been identified as one of the key competency areas in the CBC curriculum framework in Kenya (KICD, 2017). Peer and group work enhance how much and how deeply students learn, how long they remember information and effective use of higher level cognitive reasoning (Gabler, Schroeder & Curtis, 2003; Kauchak & Eggen, 2011).
Discussion method helps students to process information rather than simply receive it. It allows students to learn together, present information, make suggestions, share responsibilities, respect the opinions and ideas of others, evaluate findings and summarize results (Mwaka, Nabwire & Musamas, 2014; Mukwa & Too, 2002; Otunga, Odero & Barasa, 2011).
Another effective teaching method in a constructivist classroom is the ***question and answer method.*** Questioning technique is one the most useful ways to promote critical thinking. Questioning stimulates deep learning. One cannot be an effective teacher without being an effective questioner (Gabler, Schroeder & Curtis, 2003; Kocchar, 1992). According to Kocchar (1992), a teacher who never questions, never teaches. Kauchak & Eggen (2011) postulate that effective classrooms are those in which teachers ask questions and involve learners in discussions; as opposed to a situation of lecturing, passive listening or working alone.

Case method is important in effective teaching in higher education. Use of cases permits active learning. A case study is a written record of a hypothetical or real life problem (Obanya, Shabani & Okebukola, 2000). Case method allows learners to work together to analyze a case about a certain situation to try and find out solutions to it (Otunga, Odero & Barasa, 2011). Case method enables learners to apply new knowledge and skills in trying to solve the problem at hand. It enhances critical thinking.

Constructive classrooms permit ***digital learning.*** Digital learning media have the potential to cater for individual learning needs and styles (Gabler, Schroeder & Curtis, 2003). Digital technologies are captivating and stimulating. Through digital technologies, teachers can utilize learners various senses in the learning process making learning interesting. They permit critical thinking as well. It's for these reasons that digital instruction has been emphasized in Kenya's Competency Based Curriculum (KICD, 2017).

Another teaching method that can be used in constructive classrooms in higher education is the ***project method.*** Project work exposes learners to learning activities that enable them to apply the knowledge acquired and create new knowledge (Mwaka, Nabwire & Musamas, 2014). It allows learners to apply their experiences and gives opportunity for self-expression (Mukwa & Too, 2002; Kocchar 1992). Project method makes learning meaningful and encourages better and deeper understanding of the subject matter (Obanya, Shabani & Okebukola, 2000).

Problem solving method is essential for effective teaching in higher education. According to Kocchar (1992) under the problem solving method, an attempt is made to train the minds of the learners; to confront them with real problems and give them the opportunity and freedom to solve them. Problem solving method leads to the formulation of generalizations that are useful in solving problems in real life (Mukwa & Too, 2002).

Assignment method is common in high education. Assignments give learners opportunity to do literature review, to do self-study and do a write up. Students learn how to source for information and to organize facts by engaging in assignments (Kocchar, 1992; Mwaka, Nabwire & Musamas, 2014).Written assignments help in organization of knowledge, assimilation of facts and better preparation for examinations (Mukwa & Too, 2002).

In most of the Bachelor of Education courses in higher education, ***micro teaching/peer teaching*** is a key teaching method. In this instance, students are put into small groups and they prepare for and teach their peers with the aim of obtaining constructive feedback. Each student in every group teaches being observed by others; in order to identify and correct any faults at the same time encouraging and reinforcing the students potential (Mwaka, Nabwire & Musamas, 2014). Micro teaching enhances collaboration, application, analysis and critical thinking skills.

III.   Methods And Materials

The research adopted a Mixed Methods research approach and a survey research design. The study was carried out in a public university in Kenya and utilized lecturers in the B.ED programme as the respondents. A total of thirty two (32) lecturers participated in the study. The lecturers were selected through convenience sampling. Only those within reach and were willing participated. Questionnaires with both closed ended and open ended questions were used in data collection.

IV.   Results And Discussion

A total of 32 instructors participated in the study. In response on their teaching experience at the university, 18 (56.3%) indicated that they had a teaching experience of between 5and 10 years; 8 (25.0%) had a teaching experience of more than 10 years; while the remaining 6 (18.8)% had a teaching experience of less than 5 years. 28 (87.5%) instructors indicated that they had an approximate number of more than 300 students in their classes; while 4 (12.5%) had an approximate number of less than 300 students in their classes. The implication is that majority of the instructors had a teaching experience of more than 5 years and that majority had large classes to teach.

The instructors were asked to indicate the frequency on use of some constructivist instructional methods in undergraduate students' lessons at the university. Their responses and indicated in Table 1.

Table 1: *Frequency on use of constructivist instructional methods in teaching the B.ED programme at the university*

sr	Method	Often	Rarely	Never	Total-32-100%
1	Lecture method	32(100.0%)	0 (0.0%)	0 (0.0%)	32(100%)
2	Discussion method	6(18.8)%	6(18.8%)	20(62.5%)	32(100%)
3	Oral question and answer method	4(12.5%)	6(18.8%)	22(68.8%)	32(100%)

4	Oral presentations	3(9.4%)	8(25.0%)	21(65.6%)	32(100%)
5	Written term papers	32(100.0%)	0(0.0%)	0(0.0%)	32(100%)
6	Project writing	17(53.1%)	11(34.4%)	4(12.5%)	32(100%)
7	Role play/drama	4(12.5%)	7(21.9%)	21(65.6%)	32(100%)
8	Watching of video clips	4(12.5%)	5(15.6%)	23(71.9%)	32(100%)
9	Use of pictures	3(9.4%)	7(21.9%)	22(68.8%)	32(100%)
10	Experiential method (giving life experiences)	7(21.9%)	11(34.4%)	14(43.8%)	32(100%)
11	Use of cases	6(18.8)%	8(25.0%)	18(56.5%)	32(100%)
12	Use of exculsions/ fieldtrips	6(18.8)%	10(31.3%)	16(50.0%)	32(100%)
13	Peer teaching	19(75.0%)	7(21.9%)	6(18.8%)	32(100%)
14	Use of poems/songs/story telling	4(12.5%)	3(9.4%)	25(78.1%)	32(100%)
15	Problem solving method	4(12.5%)	7(21.9%)	21(65.6%)	32(100%)
16	Guided and independent reading	12(37.5%)	10(31.3%)	10(31.3%)	32(100%)
17	Power point presentations	5(15.6%)	8(25.0%)	19(59.4%)	32(100%)
18	Zoom/skype/video conferencing	0(0.0%)	2(6.3%)	30(93.8%)	32(100%)
19	Google classroom	0(0.0%)	0(0.0%)	32(100.0%)	32(100%)
20	Use of handouts	30(93.8%)	2(6.3%)	0(0.0%)	32(100%)

The most common instructional methods that lecturers often used were lecture method (100.0%), writing term papers (100.0%), and use of handouts (93.8%). Amongst the instructional methods that were not commonly being used included discussion 20(62.5%), oral question and answer (68.8%), oral presentations (65.6%), role play (65.6%), video clips (71.9%), pictures (68.8%), use of poems/songs/story-telling (78.1%), problem solving method (65.6%), zoom/skype/video conferencing (93.8%), and Google classroom (100.0%)
The respondents identified various challenges in the use of constructivist instructional methods in higher education as indicated in Table 2.

Table 2: *Challenges in the use of constructivist instructional methods in teaching the B.ED programme in higher education*

sr	Challenges in the use of constructivist instructional methods in higher education
1	Large class sizes which in most cases forced lecturers to stick to the use of the lecture method
2	Lack of knowledge and skills by the lecturers on the use of digital instructional methods such as google classroom, zoom, skype and tele-conferencing
3	Large work load by lecturers inhibited the time to be spent in planning for instruction on the use of a variety of instructional methods
4	Demotivation of lecturers
5	Poor infrastructure in the university such as lack of internet, power sockets, laptops, projectors and lecturers' tables in the lecture rooms
6	Many students lacked laptops, and smart phones and in most cases the computer rooms could only hold a small group of students

The findings obtained from this study revealed that the B.ED programme at the university had large classes that inhibit the use of constructivist instructional methods. In large classes, there's restriction on the range of teaching and learning activities making teacher centered methods such as the lecture method popular (Biney, 2018). Lecture method allows the teacher to present factional materials in a direct and logical manner (Otunga, Odero & Barasa, 2011) but students remain passive recipients of knowledge in most cases when the lecture method is used. Small classes provide for greater contact between students and lecturer by providing students with greater opportunity for interaction with subject matter and with the instructor (Obanya, Shabani & Okebukola, 2000).

Cooperative learning can address big classes by breaking students into smaller groups on learning tasks (Kauchak & Eggen, 2011). In addition, cooperative learning such as discussion method teaches students social skills (Kauchak & Eggen (2011). It enables students to learn to understand the perspectives and feelings of others as well as how to build on the ideas of others in developing their understanding.

Most instructors never used digital instructional methods such as zoom/skype/video conferencing and Google classroom. Digital instructional methods are quite captivating making learning interesting. Digital learning media have the potential to cater for individual learning needs and styles (Gabler, Schroeder & Curtis, 2003).

V. Conclusions And Recommendations

The study concluded that the constructivist instructional methods were rarely being used in the implementation of the B.ED programme in higher education. The lecture method, writing of term papers and use of handouts were the most commonly used instructional methods. The study recommended breaking of large classes into smaller manageable numbers; staffing the universities with more lecturers to ease work load;

infrastructure development in universities; and staff development for lecturers on the use of constructivist instructional methods.

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