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The use of Constructivists' Approach in Teacher Preparation; A case of Primary Teachers Colleges of South Eastern Uganda

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Abstract

Purpose: The purpose of this study was to explore the implementation of constructivists' principles in teacher preparation in colleges and to establish whether the constructivist approaches were being used to teach students.

Methodology: This phenomenological study explored the lived experiences of tutors and students in light of constructivists informed teaching. It involved 3 PTCs and 15 participants who were purposively sampled. The methodology for this study was qualitative with a phenomenological research design where data was gathered using in-depth multiple interviews and observation. The data collection and analysis followed Moustakas (1994) procedure.

Findings: Data analysis and results revealed that tutor's continue to rely on traditional approaches in both instruction and supervision of school practice.

Unique Contribution to Theory, Practice and Policy: This research study adds to the body of knowledge about ways in which constructivists' informed teaching supports teaching effectiveness and promotes students' learning amplifying the need for reflective practice in instruction. The study recommends establishing and setting up Reflective Practice Laboratories in PTCs for tutors and students induction on several constructivists' practices that include reflection, clinical supervision, use and integration of ICT and other interventions in a proper and professional setting.

Key words: *Authenticity, constructivists', phronesis, reflective practice, teacher preparation*

Introduction

Constructivism is derived from the word 'construct' a verb from the Latin '*construere'* which means to organize or form structure. It is a broad term used by philosophers, psychologists, educators, and others to emphasize the active role of the learner in making sense of information through individual and social activity (Woolfolk, 2004). Constructivism is a philosophical stance on human knowledge (Taber, 2011) that defines knowledge as temporary, developmental, non-objective, socially, and culturally mediated. It also views learning as a process in which students actively construct or build new ideas and concepts based on prior knowledge and new information.

The article explores the implementation of constructivist informed teaching in Primary Teachers Colleges in the South Eastern Uganda with specific focus on the principles and practices applied in the teacher preparation process. Teacher preparation encompasses sound pedagogical theory, teaching skills and professional skills. An amalgamation of pedagogical theory, teaching skills and professional skills serves to create the right knowledge, attitude and skills in teachers, thus promoting holistic development. This paper expounds on how students are taught in the classroom to enable a sound pedagogical theory.

There is need to review and to rethink teacher preparation and professional development within a constructivist framework (Pitsoe & Maila, 2012). According to Kim (2005), teacher professional development must shift from a mechanistic world-view (modernist and behaviorist approach) to a holistic world-view (constructivist and situational or contextual approach). Educational reform must start with 'how student learn' and 'how teachers teach', not with 'what students learn' and 'what teachers teach'.

Learning to learn has never been as important as it is today. The knowledge required today is identified through schools, teachers and communities. It is that knowledge used for developing basic language and communication skills; for solving problems, and to develop higher-order skills such as logical thinking, analyzing, synthesizing, inferring, deducting, inducting, and thinking hypothetically. It is that knowledge that elevates the student's ability to access and critically process information (UNESCO, 2015).

One of the primary goals of using constructivist teaching is that students learn how to learn by enabling them to take initiative for their own learning experiences. It is a context where the learners are actively involved, the environment is liberal, the activities are interactive and student-centered, the teacher facilitates a process of learning meanwhile encouraging students to be responsible and autonomous. Dimitris (2007) affirms that constructivist learning can help student teachers to adopt an exploratory and constructivist teaching practice. It is expected that student-teachers can gain personal experiences of exploratory and constructivist learning and would be able to inspire into their future learners the same educational spirit.

The constructivists' theory states that people construct their own understanding and knowledge of the world, through experiencing things and reflecting on those experiences. This means that knowledge can only exist within the human mind, and that it does not have to match any real world reality. Learners will be constantly trying to derive their own personal mental model of the real world from their perceptions of that world. As they perceive each new experience, learners continually update their own mental models that reflect the new information, and therefore,

construct their own interpretation of reality. Constructivism taps into and triggers the student's innate curiosity about the world and how things work. Students do not reinvent the wheel but, rather, attempt to understand how it turns and how it functions (Olusegun, 2015).

The epistemological base of constructivist teaching comes from an epistemological difference between the traditional epistemology of knowledge and the constructivist epistemology of knowledge (Kim, 2005). Traditional epistemology views knowledge as an objective phenomenon while the constructivist views knowledge as a subjective understanding of the person.

Among the earliest recorded proponents of constructivism are Lao Tzu (6th century B. C.), Budha (560-477 B. C.) and Heraclitus (540-475 B. C.). Aspects of constructivist theory can be found among the works of Socrates, Plato and Aristotle (Mahoney, 2004). The Italian philosopher Giambattista Vico (1668-1744) in the 18th century defined knowledge as a cognitive structure of a person so that to know something is to know how to create. Vico also believed that people can only know what they construct for themselves. It is from Vico's writings that the term constructivism has been taken (Agrawal, 2007; Mahoney, 2004).

The German philosopher Immanuel Kant (1724-1804) had a view that the mind is actively involved in the objects it experiences and that all things capable of being experienced are arranged in patterns. William James too explored several constructivist themes and with several colleagues carried the curiosity of constructivism across the transition from the 19th to 20th centuries. Drawing on the dynamic view of learning described by Johann Herbart (1776-1841), Jean Piaget (1896-1980) developed a model of cognitive development (Mahoney, 2004).

The constructivist perspectives are grounded in the works of Jean Piaget, Vygotsky, Bartlett, Bruner and John Dewey (Taber, 2010; Woolfolk, 2004). The other proponents include Plato, Vico, Berkley, Locke, Hegel, Kant, Rousseau, Pestalozzi, Von Glasersfeld, Kuhn, Freud, Foucault, Derrida, Saussure and Ausubel (Savasci & Berlin, 2012; Taber, 2010; Gordon, 2009; Cakir, 2008).

The constructivist theory has several key proponents who made immense contributions to education in general like; Piaget, Vygotsky, Bandura, Freire and Habermas. Despite the immense contributions of all these exponents of the philosophical paradigm, Jerome Bruner is singled out for being a radical constructivist and leading figures of the constructivism philosophical paradigm. Jerome Bruner is one of the leading figures in education. His theory of education in the 1960s and the 1970s directly influenced the programs of education formulated during those decades. Bruner adopted Piaget's ideas about active learning to form the basis of his principles of instruction and discovery learning (Bruner 1960). Bruner believed that learning involves three processes namely: knowledge acquisition, knowledge transformation and knowledge review (Jordan *et al*, (2008). By the research conducted in the 1980s, the works of Dewey and Vygotsky blended with that of Piaget in developmental psychology hatching into a broad approach of constructivism stressing the basic tenet that students learn by doing rather than observing (Taber, 2010; Woolfolk, 2004). This further blended with Bruners constructivist domain that students bring prior knowledge into a learning situation in which they must critique and re-evaluate what they comprehend of it. Bruner (1973) was a central player in the cognitive revolution which movement developed a deeper perspective beyond behaviorist models of mind to explore the mind in use. Bruner ideologies and emphasis began shifting from 'meaning' to 'information,' from the construction of meaning to the processing of information.

For constructivists, knowledge is not simply handed down like a cloth from teachers to students. Rather, students are co-participants in the construction of meaning. This means decentering the role and importance of the teacher, and focusing more on the child as knowledge-builder in context. For Bruner and others, students are shapers of meaning and knowledge through the spirit of experimentation and doing (Kalender, 2007).

The constructivism philosophical paradigm as an approach asserts that people construct their own understanding and knowledge of the world through experiencing things and reflecting on those experiences. It is based on the analogy or basis that people form or construct much of what they learn through experience. This kind of philosophical approach is best described in Confucius (551BC- 479BC), the renowned Chinese philosopher's quote; "I hear and I forget. I see and I remember. I do and I understand." Constructivists believe that reality is varied, multiple and subjective basing on the individual perspectives.

According to Kim (2005), construction of understanding is a core element in the highly complex process of teaching and learning underpinned by constructivist teaching. The constructivist view of learning demands different teaching practices. Students are encouraged to use active techniques (experiments, real-world problem solving) to create more knowledge and then to reflect on and talk about what they are doing and how their understanding is changing (Olusegun, 2015). Any constructivist learning environment must provide the opportunity for active learning. The basic characteristics of constructivist learning environments which must be considered when implementing constructivist instructional strategies include; personal relevance, uncertainty, critical voice, shared control and negotiation(Baviskar, Hartle & Whitney, 2009; Peizhen, 2016).

Constructivists' classrooms offer significant educational benefits in supporting critical thinking and problem solving skills. Learners' code, process, and construct meaning through their own unique understandings based on their previous experiences. There is a gap, however, between what occurs in traditional classroom instruction and what research indicates is effective instruction for all students. Traditional methods typically include lectures, direct instruction, and seatwork, which often do not work for all students and has remained unchanged for decades. Traditional classroom lessons often fail to effectively engage and motivate students. Students are often unable to answer complex questions, solve problems, or explain the underlying reasons or methods they use to reach conclusions ((Darling-Hammond, 2006; Lin, 2013;Wang, 2016; Mbugua, 2011; Kablan &Kaya, 2014).

In order to cause change in instructional practice, there needs to be a paradigm shift in teacher preparation programs to incorporate constructivist approaches in the classroom. Most teachers who received traditional training have had little or no exposure to constructivist approaches. Educators therefore must develop curricula that not only matches students' learning styles and preferences but also challenges their understanding, fostering further growth and development of the mind (Mason, 2010; Leitner, 2010).

Statement of the problem

Constructivist informed teaching has become influential than the traditional transmission instruction because it places the learner at the center of teaching and learning regarding him/her as an active agent with a potential to construct his/her own knowledge (Santoyo, 2016). When

constructivists informed teaching is used in PTCs, the students are likely to emulate and be able to use the same when teaching in primary schools. However, despite the growing attention paid to the advantages of constructivist pedagogy, tutors still use the transmission model of teaching (Dorit, 2016).

Teacher education is confronted by a prevalent gap between theory and practice as students cannot readily translate what they are told into practice. This prevalent gap does not enable students to have the confidence and creativity to handle day to day problems with a theory-guided action. Though the tutors are aware of the constructivists and other modern approaches for the 21st century, implementation is strained due to the fixed mindset and conservative tendencies of the tutors manifested in their failure to interactive methods to teach. According to Maani (2013), many teachers use teaching methods that promote rote learning due to the emphasis put on passing national examinations. The teaching in PTCs is more inclined on theory and passing students in examinations ignoring the practical and effective preparation of students (Kagoda & Ezati, 2013; MOES, 2014) despite the criticism of this by scholars for its many limitations and inadequacies. The fixed mind set has perpetuated the traditional transmission model while hindering the pace of reforms in the sector and consequently leading to low teacher competence and quality of education (Darling-Hammond, 2006; Lin, 2013;Wang, 2016; Mbugua, 2011; Kablan &Kaya, 2014). Even the reforms in teacher education such as review of the PTE curriculum and introduction of BTE seems not to have changed the mindsets and traditions of the system. This implies that poor pedagogical methods in PTCs lead to poor pedagogical methods in primary schools a situation that should be corrected.

It is necessary to break the circle of traditionally trained teachers by implementing new and effective approaches to prepare students where theory and practice are linked effectively (Korthagen, Loughran &Russell, 2006). Unless constructivist informed teaching is conceptualized and implemented in primary teachers colleges, low teacher competence and performance will be perpetuated.

Literature review

Constructivist informed teaching is an approach of teaching that is typically learner centered within a constructivists learning environment characterized by; shared knowledge among teachers and students, shared authority and responsibility among teachers and students, and where the teacher's assume a new role as guides and facilitators in instruction (Palmer, 2005). The mechanistic approach views education as a transaction between teacher and pupil where all the advantages are on one side and all the shortcomings on the other. In such context, the teacher is an authority, a repository of knowledge and an expert. The transaction takes the form of the teacher handing over to the pupil the knowledge and the skills he needs.

The constructivists' view teaching as that it is an interactive process between the student and the teaching sources, which is essential for the guidance, progress, and development of students. It is an engagement with learners to enable their understanding and application of knowledge, concepts and processes. It includes design, content selection, delivery, assessment and reflection. To teach is to engage students in learning; thus teaching consists of getting students involved in the active construction of knowledge.

The term "teacher training" is deliberately avoided and replaced with "teacher preparation" because the study has a constructivists' philosophical orientation aware that the term training dehumanizes an individual and attributed to an animal or simple object to be manipulated. Teacher training demarcates limits that express and emphasize on behaviors where students are treated as thinking, critical beings that have their own unique beliefs, desires, and goals for the educational situation. The teacher's background experiences, personal knowledge, and feelings within education have less meaning on their preparation for teaching. On the contrary, teacher preparation is a broader concept with a series of practices intended to humanize education as well as a compound term that involves both classroom and non-based classroom activities planned in the making of an accomplished, competent, professional and holistic teacher.

UNESCO (2014) states that the tutors need to know about how others learn and how to teach, and they need to integrate a growing body of knowledge on learning into their teaching practice. In Uganda, tackling PTC efficiency requires a comprehensive approach, starting with tutors' own practices. Teacher education programs need to include frequent opportunities of constructivist teaching experiences for pre-service teachers in order for them to gain content and pedagogical skills (Zeynel Kablan, 2014). Constructivists' approaches to training may promote epistemological change among teachers aware that the current education system requires a new kind of teacher with skills not previously commonly taught in teacher education. One of such pedagogical skills that is not adequately handled in Ugandan education system is the Reflective Practice (MoES, 2007; Moon, 1999; Okonye, 2007).

The current teacher training programs are found to be insufficient because they do not provide the student teachers with opportunities to reflect on their own experiences, nor do they give them support in modifying teaching practice (Ezati & Kagoda, 2013). Micro teaching, team teaching and child study too have waned sometimes treated as mere formalities regardless of their benefit during teacher preparation. Even the pedagogy related to continuous professional development (CPD) that would invigorate tutors is minimal.

Constructivist teacher preparation programs are intentionally designed to be transformational so that students are constantly given opportunities to make new connections in a setting focusing on personal empowerment and critical reflection. When the Certificate in Teacher Education Proficiency (C-TEP) Certificate in Teacher Education Proficiency (C-TEP) was introduced, it was a unique need-based course that was designed as an intervention measure to bridge existing gaps in PTE practices (MOES, 2010). The Teacher Education Proficiency course was based on the constructivist thinking where the learner is taught how to learn. The course emphasized reflective practice to enable teacher professionals to examine their level of performance and take action to move to a higher level. The purpose of C-TEP was to provide newly appointed Teacher Educators with the tools for continuous learning from practice. C- TEP was also used to retool experienced teachers crossing to teacher education sub-sector.

As much as (CTEP) emphasized several constructivists' practices, less than half of the 900 tutors who took the course passed the examinations (Buckler *et al*, 2019; Kyeyune 2011). It was unfortunate that CTEP did not support pedagogic change or model the pedagogy that was promoted (Buckler et al, 2019; O'Sullivan, 2010). The anticipated benefits; quality, reflective practice and the lifelong learning have not been realized.

Of recent, the National Teacher Policy (NTP) has taken form with an aim to provide a framework to professionalize and standardize the teaching profession and enhance the development and management of teachers. However, there are a number of policies and policy guidelines that have been initiated and are expected to be implemented in education institutions in Uganda. The policy tracking studies conducted by the Ministry of Education in 2008 and 2009, reveal that Education Managers are not fully aware of and do not properly understand all the policies and policy guidelines to be implemented. This casts doubt on realizing the aspirations of the recent NTP because preparation and quality issues could as well lack correlation with the desired degrees and projected certification.

Theoretical framework

This study's theoretical groundwork operates within a postmodern paradigm rooted within the constructivists' epistemology. This paradigm recognizes the significance of prior knowledge among other facets on learning, and emphasizes the understanding that what individuals know has a profound influence on the way they learn.

Bruner's constructivist learning theory (Bruner, 1961) was relevant to this study to establish instructional patterns of tutors and students in colleges in light of constructivist principles and practices. The focus was on tutors roles, instructional methods and use of constructivists' strategies to ensure both students intellectual, practical and professional growth. The study observed students level of engagement and nature of activities with specific interest on how they elicit creativity and knowledge construction.

Aware that education is a process of negotiation between the individual and culture (Takaya, 2008), Education as an institution presents useful knowledge and visions of worthwhile life. In that context, Brunner emphasized understanding rather than performance meaning that it is not sufficient to have information to enable one to answer questions. In constructivists' informed teaching, Information or knowledge has to be structured so that the individual can expand and deepen his or her knowledge more efficiently, as well as to go beyond what is simply given.

The constructivist approach to teacher preparation and teacher education fosters practical wisdom and reasoning (phronesis) at its center. Emphasizing practical wisdom and reasoning in teacher preparation fulfills and enhances the important tenets of a constructivist approach to teacher education. The constructivist perspective is appropriate in teacher education because there is no absolute truth to know in teacher education. Rather, there is understanding of possibilities that are appropriate in the teaching situation. The constructivist perspective on learning can be useful in understanding how students learn and in providing them with a new ways that foster meaning making and self- knowledge construction.

Methodology

Phenomenology was the appropriate method for this particular study because it enables scholars to have a humanistic outlook towards man and the world. Phenomenology is based on constructivist philosophy on the premise that the phenomenon is constructed by a cognitive subject who is a human being. The constructivist view is that the subject constructs what it knows while the phenomenological view is that the subject knows what it construct (Rockmore, 2011). The aim of phenomenological research is to reach the essence of the individuals' lived experience of the

phenomenon while ascertaining and defining the phenomenon (Yuksel &Yildirim, 2015). The researcher utilized a qualitative research design for undertaking this review. In- depth multiple interviews and observation were largely used for reviewing literature on the subject while highlighting the relevance of the qualitative research approach.

Data Collection and Instruments

The study was conducted in 3 purposely selected Primary Teachers Colleges located in the south eastern region of Uganda and involved 15 respondents. The target population consisted of school practice coordinators, tutors and year two PTC students as the main respondents. For this study, in depth unstructured interviews were used because of their flexibility and freedom to both the interviewer and interviewee. A total of 54 one on-one in-depth interviews were conducted.

Data analysis

Phenomenological research does not prescribe specific techniques in data analysis since imposing a method on analyzing a phenomenon stifles its integrity (Groenewald, 2004). Data was analyzed following all data collection and transcription, using the framework as described by Padilla-Diaz (2015) and Moustakas (1994). The themes generated were; Prior knowledge, cognitive dissonance, application, feedback, reflection, personal relevance, uncertainty, shared control, critical voice and negotiation.

Prior Knowledge

The observation was to ascertain as to whether the tutors teaching in primary teachers colleges can set an instructional context that offers students the opportunities to; access, reorganize/reconstruct, discuss, elicit and correct misconceptions and resolve lesson problem based on prior knowledge. The study also attempted to establish if the tutors' activities could emotionally and cognitively engage students in that session at hand.

The tutors say they consider students prior knowledge in every lesson and on observation realized that this is limited to review of the previous lesson. The reviews demand retrieval of the tutors previous sessions. The lessons observed rarely touched real life situation neither probing students experience related to the content. However some tutors explain that any teaching starts with knowledge base of the teacher. TB2 firmly believes that it very hard to teach what they do not know therefore teachers dwell on what they know best and stated that;

We cannot teach what we don't know.

The participants concur that students' prior knowledge is important when teaching to enable its reorganization or reconstruction.

TB2 and CB1 believe in discussing prior knowledge, eliciting and correcting misconceptions as well resolving problems basing on what students know. They mentioned that;

Prior knowledge is needed where we touch real life experiences. We must always build on what they know. When we (tutors) give activities, we begin with what students know then we build on it.

According to TC1 on the relevance of prior knowledge, she was contrary with an assumption that students do not have prior knowledge of the content she teaches. TC1 mentioned that;

I teach them like they have not known this subject. I know they have not touched these things before therefore, I have to tell them.

Cognitive dissonance

In a constructivist classroom, the teacher fosters imagination and inquiry while stimulating engagement and active involvement rather than providing knowledge. The study attempted to identify if students could distinguish between prior and new knowledge while pointing out misconceptions.

The students were searching for information from books in the library and basing on those facts with the assumption that knowledge is found in books. Brain storming was too minimal and for the sessions observed this domain if any, was to faint that both tutors and students rarely give it attention and yet cognitive dissonance marks the beginning of new learning.

Application

The study established how students demonstrate the use their current and previous knowledge to answer questions or solve problems. This domain of application incorporates both formative and summative assessment. The tutors would assign tasks and students would refer to their lecture notes and information gathered from the libraries. Students believe in using past papers to guide their reading and research with an assumption that questions items recur. Besides application of knowledge and its transfer to manage emerging problems the tutors and students focus is on how to pass examinations.

Application of knowledge would be an impetus for practical work, inventions and creativity which focus was lacking. The emphasis is more on theory and how to attain good grades than practice.

Feedback

The observation focused on the nature, quality and flow of feedback in the classroom especially to an individual student or group of students. The study also ascertained as to whether feedback was reciprocal with opportunity for students to provide feedback to each other.

The tutors in some instance get feedback on their presentation from the students just like SB2 asserted that;

Tutors give us an evaluation checklist to track feedback on their presentation.

However during presentations tutors rarely observe the questioning process of, ask, pause, choose, listen, and then give feedback. TC1 observes that many tutors do things hurriedly and simply treat some practices as mere formalities without knowing that it has counter modeling effects. TC1 reported that;

Tutors don't have time for students. In most cases they don't have time and rarely give any feedback. Tutors come, teach and go.

The researcher further explored the setting and ongoing activities to ascertain if it exhibited a constructivists' learning environment. The observation was focused on opportunities to; discuss learning in groups, discuss learning as a whole class, share learning through dialogue and to

ascertain that tutors provide continuous formative assessment as well as providing scaffolding through comments, questions, and activities.

The researcher witnessed that almost every tutor uses discussion which gives students an opportunity to discuss learning in groups. This manifested dialogue, shared voice and consensus. TB2 affirms that group work and discussions are common in most instruction. TB2 states that;

> *We create contexts where they question and search. Teachers prepare tasks for the groups.*

The students are given opportunity to discuss learning as a whole class especially when the groups convene to share what each small has through plenaries. The tutors use the opportunity to supplement and make additional contributions to fill in what each group might have omitted. CC1 mentions that;

> *On students' discussion and presentations, tutors see what they have and help to fill in so that students own their learning.*

SB1 affirms that in groups of 25, tutors give students questions and to handle. However TC1 observes that many tutors use this approach to relax and let students do things at discretion without making or giving any technical input. "Unfortunately many students do not like reading and searching for information" TC1 expresses her concern that;

> *Tutors just tell students to read on their own they leave everything to students and just give them questions. The students are negative on reading as they have a poor reading culture.*

The tutor provides continuous formative assessment in various forms including assessing students input and presentation in discussions. The tutors observe the nature of dialogue and presentation of ideas and arguments. Tutors believe that this arrangement contributes to a student's knowledge base and general presentation. TB2 and TA1 states as follows;

> *We allow them (students) so they can explain to one another. We give group work to develop students' communication and collaboration. When students working together, enables is good as it creates knowledge, promotes interaction and enables peer learning.*

Students too see the relevance and like this approach. According to SA1 he admits that;

> *Tutors encourage us to get involved in discussions with fellow students.*

On the contrary, as much as group work is beneficial, TC1 was not happy with the way some tutors handle students especially as they present. Instead of support and encouraging them, they undermine students' effort through making demeaning comments. TC1 comments that;

> *Tutors keep refuting and undermining students responses like "is this what you read and found out?" "I expect good answers, is that what you searched?"*

The researcher observed the learning activities to ascertain if they embedded any problem-based component and if at all the sessions had a discussion on real-life situations, relevant, engaging, and motivating.

The practical bit was too limited as the teaching was focused on helping students to perform well in the examinations. TA1 admits that practical work is limited and he advanced excuses stating that;

> *The practical part of it is limited. If it requires a lot of practical or hands-on- skills, you find that somehow they are limited.*

The learning activities rarely could stimulate reality and apart from students searching for information from books in the libraries to enable them answer set questions in the different subjects, tasks that require problem solving were minimal. Although students were given the opportunity to obtain, record, and organize information through self-determination and regulation; less effort was being put in helping students to be creative and to imagine beyond content in books. TA1 who believes that available resource and modules can give the necessary knowledge stating that that;

> *The tutors have been struggling a lot to look for the information. The tutor is a facilitator and the modules have the information. These modules tap real life experience. I told them (students) that the books are in the library. I told them I want to see notes for each person. I told them that is part of the course of coursework. So they make their own notes. Then when we meet we discuss and go through the notes, so each group presents like that.*

Contrary to what TA1 believes, SB1 takes the modules to be mere guides and like any piece of work she thinks there omissions that need to be filled in by further research. SB1 states that;

> *Not all knowledge is in the books. There are some things we know.*

However, the students have the opportunity for cooperation and collaboration as they discuss in groups and can access variety of resources and perspectives during the plenary sessions. There is need to help students to develop arguments based on evidence rather than merely seeking the right answers.

Personal relevance

The study established whether students‘ personal experiences and background or prior knowledge are taken into account as part of instructional materials in classrooms as well as probing what the nature of instructional environment that the participants were experiencing.

The interview was focused on constructivists’ expectations on setting, student autonomy, authenticity, engagement, cooperative activities, motivation and prior knowledge utility. The respondents expressed what they experience when learning within and outside the college.

In the first interview, TA1 explained how the tutors were strict with the curriculum and focused on content coverage and said that;

> *We actually allow them to learn strictly what is in the curriculum because in most cases they examine on that.*

TA1 later clarified that the tutors put in effort to relate to real life situations and allow the students to obtain first-hand information from resource persons in the community. TA1 expressed that;

There is a chance for them to learn from things outside the college. We take them out, especially to agriculture shows. We take them for the whole week and they see things there that are displayed. They share with the farmers. So I feel that is information which is good from outside. And which relates very well with what they learn from here.

SB1 in support said that

We learn things outside college like in Agriculture they take us to the farm.

On relating instruction to what students know, SB1 admits stating that;

When tutors introduce lessons they try to find out what we know.

TA1 believes that the instructional materials in the college particularly the modules, have been designed adapted to real life situation and in response affirms that;

The way modules have been designed, they bring real life experience especially in agriculture. They bring real life experience because, for example, there is where we discuss issues pertaining to the teaching of agriculture in both colleges and primary schools, and we discuss problems affecting farmers in Uganda and other such things.

According to SC1, the tutors try to discuss and expose them to the life to be experienced when they leave college. She admits that occasionally, tutors share with students their professional experience and advise them on how to conduct themselves. SC1 voiced that:

Tutors usually tell us how others live out there.

Uncertainty

The study attempted to establish the knowledge of different subject areas that can be questioned and doubted. The interviews checked for students' opportunities to understand that any truth can be doubted and that knowledge is evolving and changing due to social and cultural development

A section of students experience tutors superiority and take them to be source of knowledge. SB2 places the tutors as authorities acquainted with the curriculum and able to solve any problem. SB2 believes that;

Tutors concentrate on the syllabus and can solve most problems.

According to TA1, the traditional mentality of taking teachers as superior and fountains of wisdom among students continues even when there are changes in approach. TA1 mentions that;

Our students have in mind that everything should come from the teacher. So the teacher is the source of knowledge and this issue of a tutor being a facilitator is something we are trying to bring in.

CB1 observes that the modes of teaching and roles of a teacher are changing and that any modern teacher has to erode the traditional perspectives of teaching. She states that;

In the current century we are running away from telling students to facilitating.

According to TB2 the tutor assumes the role of a facilitator because knowledge is synonymous and spread all over in a world of multiple realities that not even books contain all knowledge and therefore believes in knowledge construction or creation. TB2 affirms that;

> *There is knowledge everywhere. We can find and keep creating knowledge in our own contexts.*

On the contrary, TC1 assumes that students who join the colleges are generally weak and do not have prior knowledge on most aspects of the PTE course and therefore prefers to tell them using lecture. TC1 said that;

> *I teach them like they have not known this subject. I know they have not touched these things therefore I have to tell them.*

TC1further explains that several tutors pretend that they are employing modern ways of teaching and yet they dictate notes to students, use lectures as some simply give the course outlines. She expressed that;

> *I think many tutors are still traditional. I don't think they fully understand how to adapt constructivists' teaching or constructivism so they're still lecturing and drilling students, not really allowing students to learn themselves by discovery but more they feel that they need to have to teach in order for students to actually get information.*
>
> *They are teaching in a traditional way and they are not even willing to try and teach in a new way.*

According to TB2, there is need to explore situations to derive concepts aware that we live in a world of multiple realities. That knowledge changes and people comprehend apply the same knowledge in diverse ways to solve emerging problems. TB2 affirms that;

> *Days are gone when we assume that knowledge is in books.*

SB2 concurs and affirms that;

> *Knowledge cannot remain the same, it changes.*

However, CA1 insist that without books students cannot get things right. CA1 believes in students personal study and research in the library that it makes syllabus coverage faster as students go over what they can comprehend and only refer topics that seem difficult to their tutors for guidance. She says that;

> *Often students do research. Mm hmm. So in other words, they share with tutors. And the students do share the subjects. There are specific topics for the tutors and specific topics for the students.*

Students accept that discussion and dialogue is necessary for them to understand well. Peer learning is liberal, indirect without any tensions unlike the formal learning sessions. The students get opportunity to learn from one another, to make productive arguments and understanding consensus. SA1 concurs that;

> *You get information from each person that has information and any other source and we combine them, we get the final submission. It has helped me because sometimes if you*

are, if you are you are doing something individually; you can get a limit of what could be such an important role. As a person contributes, we get to know different and different perspectives.

The tutors believe in setting tasks and assigning tasks to different groups for research, discussion and presentation. The assumption here is that when they assign work in groups and students are searching and getting information on their own, then that makes the teaching learner centered. TB2 says that;

We create contexts where they question and search. Teachers prepare tasks for the groups.

Students admit that tutors set tasks to enable them make inquiry. SA1 affirms that;

Sometimes tutors ask questions that will make you think much harder to make you use your brain.

Shared control

For constructivists, students are co-participants in the construction of meaning similarly, the constructivist teachers are constructivist learners themselves. The study probed participants sense of autonomy and how tutors activates student‘s intrinsic motivation. This included opportunities to share control of the learning environment including making decisions on classroom rules, design of learning activities, assessment and application.

Students interpreted this question in the context of school practice but not the day to day learning sessions. According to SB1, tutors plan with her and said;

Tutors do plan with us.

SB2 recalled one event when he was involved in preparations for a seminar he states that;

Tutors involved me one time when they were preparing for a seminar.

Planning for instruction with students is a new concept that tutors take as not being necessary.

Negotiation

The study probed the nature of negotiation amongst students along with their opportunities to express self to peers. The focus was on student’s exchange of ideas and opportunities to articulate and reason in any given situation. This theme projects both engagement and collaborative learning as students get to work together to solve a problem, create a presentation, or derive meaning from a given lesson. The study established if students can talk and explain to one another. Dialogue and discussion is common in colleges as many tutors opt for group work. SC2 on explaining to others states that;

The friends help to correct me when I have made mistakes.

Critical voice

The study attempted to establish participants’ self-determination and expression in class, such as questioning tutors’ instructional content and methods or asking questions about what they study or anything relevant in appropriate and beneficial ways. The study assessed the instructional

climate or rapport. The students expressed that many of their tutors can listen to them as they talk or when they ask questions. According to SB2, the tutors are friendly and help to show them what to do through demonstrations. SB2 states that;

> *Tutors give us ample time to express ourselves. Tutors use discussion method and demonstration. They have tried to teach methods which have made our learning easy through demonstration.*

The tutors to state that they interact well and they are free with students. According to TA1 some students ask questions but because of the traditional orientation, he observes that;

> *They are free to ask though sometimes they are timid; even we encourage them to ask. I think they need encouragement to open up.*

SC1 affirms that tutors have good relationship with students and when they make errors they accept their mistakes and continue with amended work. SC1 states that;

> *When tutors make errors, they allow us to correct them and they even thank us.*

The study sought tutors feelings towards students questions at the same time students too had to express what they feel when they ask questions. According to SB1, she is comfortable with consulting tutors when she experiences any difficulty. SB1 voiced that;

> *When I come across difficult questions, I go to tutors.*

Students affirm that tutors are friendly and welcome students' questions and demands for clarification. SA1 states that;

> *They allow us during lectures to ask any question. We understood there was a clarification waiting for more clarification, you can ask.*

The students can comment on the tutors' presentation particularly how they comprehend. In some colleges, students are given a feedback form so that tutors get to know where to improve. According to SB2 he affirms that;

> *Tutors give us an evaluation checklist to track feedback on their presentation.*

SB1 concurs with Isaac that tutors give her support whenever she is need and similarly fellow students also get in to assist. SB1 states that;

> *I get help or support only when I request them sometimes the friends help me.*

Reflection

Constructivism allows for metacognitive reflection, which is critical to foster new knowledge. When learners reflect and think about their thinking, they are internalizing the learning process. The study attempted to establish as to whether students have the privilege to act and think about their actions. The researcher further sought tutors perception and practice of reflection.

The researcher observed that reflection as an activity is not a common practice in colleges. Neither the tutors nor the students have any form of structure to follow when reflecting on sessions. The experience of this practice is limited to the component of self-evaluation on lesson plans while not

aware that reflective practice is structured formal and a routine activity in modern teaching. In an informal way, SC1 who attempts to carry out reflection states that;

> *When I am on bed my memories run back and recall the good moments. Sometimes when I am in the wrong, I meditate and ask myself why I did it.*

Individual, group, and whole-class reflection was not evident as tutors and students focus more on what to present assuming that there is little to reap from what has already been done. There are excuses of lack of time. TC1 kept expressing her concern stating that;

> *Tutors don't have time for students as they simply come, teach and go.*

Constructivists' teaching is purely learner centered and demands several indirect approaches that involve or engage students in the teaching learning process. The experience of the participants on constructivists' teaching is limited to group work. TA1 assumes that once students are put in groups, and then one is demonstrating constructivists' teaching stating that;

> *Students have been grouped and they have discussion groups. So I think, through discussion they share information.*

TA2 too concurs with TA1 and assumes that when you let students to search for information in groups and they present with minimal tutors interruption, then one is practicing constructivists' teaching. TA2 mentioned that;

> *We ask students to search for information in groups, they present then we guide them. When they present and see things are not getting on well, we come in.*

Methods

The observation explored the methods employed in the teaching learning situation in colleges. The researcher interacted with the participants to ascertain their lived experience on methods.

SC2 acknowledged the work of the tutors and gave compliment that;

> *They (tutors) teach us very well.*

According to TB1, both learner and teacher centered methods should be employed in colleges to prepare students well since they need both theory and practice. TB1 argues that;

> *Training must be both theoretical and practical. We use role play, debate and micro teaching.*

When SC1 was asked to mention the methods that tutors use when in the classroom she mentioned;

> *The common method used here is guide discovery, we search for information and when we present them to the tutors, and our ideas are usually the same with what they tell us.*

SB1 affirms and mentions that;

> *Tutors use demonstration which makes us to remember. Inquiry makes me to remember.*

SB2 mentioned that;

> *Tutors use discussion method and demonstration.*

SA1 described how tutors handle their sessions and responds that;

> *Sometimes they ask questions that will make you think much harder to make you use your brain.*

TC1 believes that students should be prepared using methods that they will use when the field. She suggests when the tutors demonstrate using such methods, and then it will be easy for students to emulate what they see. TC1 states that;

> *We prepare them (students) to go and teach primary children using methods they will use in schools.*

TA1 believes that demonstration is meaningful to students because they get to know what to do in particular situations.

> *We encourage use of the demonstration and all of those child- centered methods as far as agriculture is concerned.*

Group discussion and demonstration are favorable to students and that's what CA1 suggests that these methods shift the tutors' role to facilitator. CA1 states that;

> *They come in to help them where they have difficulties. The students find it very good. They like it. Yeah, they like it. Actually, it is better than their previous methods.*

However, TA1 expresses concern that as much as the tutors would wish to use practical methods, it is rather difficult because of lack of resources and facilities.

> *Demonstration is very limited; especially where maybe it requires facilitation facilities. The practical part of it is limited. If it requires a lot of practical or hands-on- skills, you find that somehow they are limited.*

On the contrary, TB2 observes that tutors talk about learner centered methods and even emphasize the same to students but do not "walk the talk". TB2 reports that;

> *Tutors are reluctant to shift from the traditional art.*

TA2 concurs and affirms that;

> *Sincerely we have been using the lecture method but we were advised to engage the learners.*

CB1 too expresses disgust and mentions that;

> *We have tutors who assume that students have to be told. They do lecture and keep on talking, talking…*

Assessment

The researcher established the different ways students are assessed during the course. The researcher observed that colleges are focused on helping students to score well in the final examination. Tests and school practice grades are used for assessment. Tutors are not familiar with assessment using; anecdotal, peer assessment, oral presentations and portfolios.

The tutors are focused on what is entailed in the curriculum and examined. TA1 is specific on this matter and states that;

> *We actually allow them to learn strictly what is in the curriculum because in most cases they examine on that.*

The students too are happy when they are helped to pass their examination. The assumption is that when familiar examination items are set and happen to appear in the final examination, then tutors have done a good job. Students' competence and professionalism is gauged by the scores they attain in examination and school practice. SA1 who happens to be scoring well in the previous tests is happy and states that;

> *Tutors have contributed to my success. They do this by giving us continuous assessments and encouraging us to get involved in discussions with fellow students.*

Integration of ICT

On integration of ICT in instruction, tutors expressed that mildly it's evolving as both tutors and students see its relevance. TB2 reveals that in case of uncertainties and misconceptions, with the internet all required information can be availed. TB2 states that;

> *A clique on Google will give robust information.*

TA1 and TC1 reported that the internet in colleges and permitting students to have phones in colleges has enhanced there research and sharing of information. They asserted that;

> *Especially now with the digital age, we realize they are also now making research, using the system. Students apply some technology like they have started using phones.*

SC2 concurs and affirms that;

> *We can use the phone to research things that we cannot find in textbooks. We can use that smart phones.*

Role of Tutors.

Tutors are aware of the instructional shift and changes in the teachers' role especially in a constructivists setting or environment. CB1 affirms that;

> *In the current century we are running away from telling students to facilitating.*

Challenges that affect Tutors Application of the Constructivists Principles.

The tutors revealed inadequate awareness of constructivists' informed teaching, knowledge construction and applicability of constructivism on many of the concepts. Many tutors have experienced a traditional instruction orientation and background which strains their adaptation to emerging shifts in teaching. This has been manifested in the difficulty in assuming new roles (facilitator), ICT integration in Instruction and taking on reflective practice.

There are challenges in translating constructivism as a theory of learning into viable instructional strategies that can illuminate this epistemology for student teachers. There is difficulty in translating a theory of learning into a theory or practice of teaching, a conversion that has always been difficult. The usual assumption the theory is applicable to learning an impression that many

do not realize that learning cannot exist on its own without the component of teaching aware that these are reciprocal processes. There is a challenge facing tutors of lacking the opportunity to learn from colleagues, particularly in a setting where there is a structure and protocol for revealing excellent teaching practices and having a group of professionals discuss as they learn from them. Reflective practice is haphazard and many tutors have not realized its benefits.

Findings

The tutor's acceptance and practice of constructivist principles has been limited despite the evident benefits. There is difficulty in translating a theory of learning into a theory or practice of teaching, a conversion that has always been difficult. There is need for more acquaintance presented to tutors and students on constructivist teaching.

The tutors revealed inadequate awareness of constructivists' informed teaching, knowledge construction and applicability of constructivism on many of the concepts. Many tutors have experienced a traditional instruction orientation and background which strains their adaptation to emerging shifts in teaching. This has been manifested in the difficulty in assuming new roles (facilitator), ICT integration in Instruction and taking on reflective practice.

Tutors reliance on teacher-centered methods was observed in the lessons that the researcher and his co researchers attended. Tutors defended their use of teacher-centered methods during the post observation conference that they save time and enable students to get good grades in the final examinations. The tutors claimed to be using learner-centered methods of teaching such as demonstration, group work, conducting practicals and use of instructional materials. The tutors theoretically justified the use of such methods and instructional materials. However, this claim could not be confirmed from the lessons observed. The post-lesson conferences held and observations made did not provide any evidence of the use of learner-centered methods. Tutors largely lectured and dictated notes to students and indeed rarely used instructional materials.

The respondents expressed views that although the PTCs entry qualification was raised, several students depict uncertainties with shallow knowledge that does not represent their O-level results. This was justification for not considering students prior knowledge.

It has been a challenging task for tutors to conduct inquiry teaching effectively and efficiently in classroom situations due to tutors' frustration and confusion in inquiry instruction, misconceptions in students' understanding, lack of resources, and a misalignment between curriculum and assessment.

The student teachers too, spend most of their time learning theory while at college rather than learning how to teach by spending time in schools observing experienced teachers or being observed and assisted by mentors before returning to college to write exams based on real teaching experience. The tutors have a task to transform students' engagement in content from rote recall and comprehension to more meaningful analysis, synthesis, application, and evaluation via constructivist teaching models and methods.

The study reveals that tutors rarely get feedback on their teaching performance and of all constructivists' practices, reflection does not feature and yet in modern teaching it vividly improves both individual and group performance. The tutors rarely reflect on their work neither get any form of feedback to improve on their practices. Reflective practice is a strange

phenomenon to both tutors and students. The study therefore suggests that tutors should integrate reflective practice, action research, portfolio development, mentorship, micro-teaching and peer supervision in the development of teachers for primary schools.

Discussion

Constructivists' approaches to training may promote epistemological change among teachers. The education systems should include frequent opportunities of constructivist teaching experiences for pre-service teachers in order for them to gain content and pedagogical skills (Zeynel Kablan, 2014). Indeed, the constructivist approach to teacher education is needed in colleges so that tutors inspiration can develop problem-solving and critical-thinking skills. In order to promote constructivism in schools, student teachers must engage in constructivist processes throughout their education. Classes should probably be conducted in a constructivist manner for ethical reasons, to increase the legitimacy of the theory among students, and to help them develop deep understandings of the teaching process and habits of mind that would aid in their continuing learning (Wang, 2016).

Current teacher training on the whole is found to be insufficient because they do not provide the student teachers with opportunities to reflect on their own experiences nor to modify their teaching practice. The training hardly acknowledges the participants' existing knowledge, beliefs and experience thus continuing to be traditional. Constructivists agree on the fundamental principle that people create knowledge from the interaction between their existing knowledge or beliefs and the new ideas, information, or situations they encounter (Kim, 2005).

There is a good deal of evidence that learning is enhanced when tutors pay attention to the knowledge and beliefs that students bring to a learning task, use this knowledge as a starting point for new instruction, and monitor students' changing conceptions as instruction proceeds. This is supported that in such instruction the students construct their own reality, interpret it, based upon their perceptions of experiences, so an individual is a function of one's prior experiences, mental structures and beliefs that are used to interpret objects or events.

Bakaira (2018) asserts that "to develop a competent- based teacher emphasizes the importance of teacher trainees deconstructing their own prior knowledge". However, the tutors in the PTCs believe in the prior knowledge that despite the emphasized entry requirements, students tend to have a shallow content base that trust in their having sufficient prior knowledge becomes rather difficult. Besides the many excuses that relate to time, large numbers and lack of resources; tutors opt for the transmission model.

Constructivists also consequently agree on the need to foster interactions between students' existing knowledge and new knowledge and experiences (Kim, 2005). Cognitive dissonance appears to be created when students expose their own misconceptions rather than having teachers expose those misconceptions for them. In order to create cognitive dissonance, teachers magnify the differences between prior and new knowledge (Rogers, 1995) by exposing misconceptions (Hartle et al., 2012). However, this was not common due to the traditional orientation where tutors assume a superior and repository state.

Reflective practice enhances an individual's ability to ask the right questions, set tasks that challenge learners to integrate new learning into the previous learning and apply new learning to

everyday situation (Otaala et al). This is in agreement with MoES (2007), Moon (1999) and Okonye (2007) who affirmed that one of such pedagogical skills that is not adequately handled in Ugandan education system is the Reflective Practice. It is unfortunate that all the tutors in this study did not think reflection was an important practice of an effective teacher and were not familiar with the practice.

Teaching based on constructivist principles is demanding and requires a great deal of expertise. It opens new approaches as well as challenges for teachers trying to implement it. The different constructivist approaches recommend that educators: embed learning in complex, realistic and relevant learning environments, provide for social negotiation and shared responsibility as a part of learning, support multiple perspectives and use multiple representations of content, nurture self-awareness and an understanding that knowledge is constructed and encourage ownership in learning. The learning environment should be so designed so as to support and challenge the learner's thinking. It is advocated to give the learner ownership of the problem and solution process.

Tutors' should model constructivist approaches and a learning setting that combine lectures with seminars, tutorials, demonstrations, exhibitions and individualized guidance so as to make the process of training as effective as possible. The different methods involved should entail dynamic interaction between task, tutor and student. These could be in the form of reciprocal teaching (peer teaching), critical explorations, tutoring, cognitively guided instruction, anchored instruction, problem-based instruction, web quests, and similar approaches that involve learning with others. Constructivist approaches include ICT and can also be used in online learning. For example, tools such as discussion forums, wikis and blogs can enable learners to actively construct knowledge.

With constructivists' informed teaching, lessons should be developed and executed to create the greatest opportunity for learning, irrespective of the strategies used (Santoyo, 2016; Baviskar, Hartle & Whitney, 2009). Constructivist lessons combine external processes such as peer tutoring, scaffolding, and collaboration with internal processes (Bruning, Schraw, & Norby, 2011) such as memory strategies, reflection, and self-motivation. Constructivists' instruction has various forms of assessment which include use of; anecdotes, oral presentations, peer assessment, portfolios, projects, simulation and student designed assessment. Constructivists advocate for multiple and authentic measures of assessment because these provide a richer insight into the learner's construction of knowledge (Hollin, 2011).

The central purpose of assessment is to provide information on learners' achievement and progress and set the direction for an on-going improvement in the teaching/learning process (MoES 2010). The most valued assessments of student's knowledge are found in their work rather than in tests. In traditional teacher education programs, teachers have been prepared almost solely for the purpose of improving student achievement. Assessment as one of the major challenges teachers and tutors face during the process of curriculum implementation (Bakaira, 2018; MoES, 2010). Indeed most tutors and teachers know about assessment and the different assessment tools but find a challenge in using them.

The colleges are in a nascent stage in the integration of ICT in education because many are accustomed with traditional learning practices and lack of motivation and knowledge among tutors to adopt ICT in teaching. To many tutors and students in Uganda, the computer and the Internet

are still a mystery. This situation is even worse in the rural areas, where the majority of Ugandans (about 80 per cent) live without electricity and connectivity to the global information network.

ICT is instrumental in shifting emphasis for learning environments from teacher centered to learner centered. Where teachers move from being the key source information and transmitter of knowledge to students so, the role of students changes from passivity to activity. ICT changes the concept of learning within the four walls as the introduction of technology learning breaks the boundaries of colleges and offers the students an opportunity to learn irrespective of place and time. The emergence of ICTs as learning technologies has coincided with a growing awareness and recognition of alternative theories for learning of which the greatest sway today are those based on constructivist principles. However, Implementation of ICT in colleges is a big challenge due to high cost incurred for acquiring, installing and replacement of latest software and addition to that; various opportunity costs to colleges for infrastructure development. Besides the lack infrastructure to accommodate the technology, problems of electricity, network availability, lack of awareness towards technology and utilization technology with improper knowledge add complexities for the successful implementation of ICT in colleges.

Theoretical implications

Becoming a constructivist teacher may prove a difficult transformation since most tutors were prepared for teaching in the traditional, objectivist manner. It ‘requires a paradigm shift’ and requires the willing abandonment of familiar perspectives and practices and the adoption of new ones. Cognitive constructivism theories of Brunner and Piaget argue that the learner is not ‘tabula rasa’, and so the learner’s knowledge and understanding need to be taken into account. The focus in these learning theories is on how knowledge is constructed rather than how it is acquired, because noteworthy teacher growth can never be based on transmission or delivery of facts and information, but on active learner participation.

Constructivist theories are seen to play a critical role in the processes of learning and cognition. Contemporary learning theory is based on the notion that learning is an active process of constructing knowledge rather than acquiring knowledge and that instruction is the process by which this knowledge construction is supported rather than a process of knowledge transmission. The strengths of constructivism lie in its emphasis on learning as a process of personal understanding and the development of meaning in ways which are active and interpretative. In this domain learning is viewed as the construction of meaning rather than as the memorization of facts. Knowledge is created beyond the level of individual human participants, and is constantly shifting and changing.

There is need for tutors to employ realistic approaches to solving real-world problems; The teacher must create learning situations, environments, skills, content and tasks that are relevant, realistic, authentic and represent the natural complexities of the 'real world'. Thus in this way the teacher sets up problems and monitors students‟ exploration, guides the direction of student enquiry and promotes new patterns of thinking by inquiring about students understanding of concepts before sharing their own understanding of those concepts.

Nullifying misconceptions

Students do not reinvent the wheel but instead attempt to understand how it turns and how it functions. The students become engaged by applying their existing knowledge and real-world experience to enable them hypothesize, test their theories, and ultimately draw conclusions from their findings.

Conclusion

Education plays a vital role in the shaping of any nation and it is an indicator of human progress and development therefore, continues to be a natural component of all societies. There is need to craft means that transform society to cope with the demands of this very fast, changing and dynamic world. Aware that he 21st century appeals for humanization through the process of education. The constructivists theory is firm on constructing knowledge through own experience and reflecting on that experience. Therefore, the current aspirations and instructional shifts in education must strongly align to constructivists' ideologies where reflective practice has to be a more pronounced strategy through which the desired practices can be effectively addressed to realize the aspirations of the 21st century.

It is critical to the success of constructivist approaches that college principals support and guide both tutors and students in constructivist practices. College administrators must be knowledgeable about constructivist practices in order to provide tutors and students with effective strategies and to support their practice.

The study exposes that reflective practices are not common in the colleges and yet vital in the constructivists informed teaching which also is relevant in the 21st century. The researcher devises a reflective practice laboratory for all colleges as a strategy to hasten instructional shift and adaptation to the demands of lifelong learning of our current times as well as realizing future aspirations.

Implementation and effective use of the proposed reflective practice laboratories (RPL) will continue to emphasize the value that can enable tutors as well as the students to learn from each other through observing lessons, feedback, coaching and mentoring which many teachers find the most effective way to improve their practice. The proposed reflective practice laboratories in colleges will not only become a strategy to enhance constructivists' informed teaching in the education system but will also enable both tutors and students to work in virtual collaborative environments with adequate experiential and authentic preparation tailored to the demands of the 21st century.

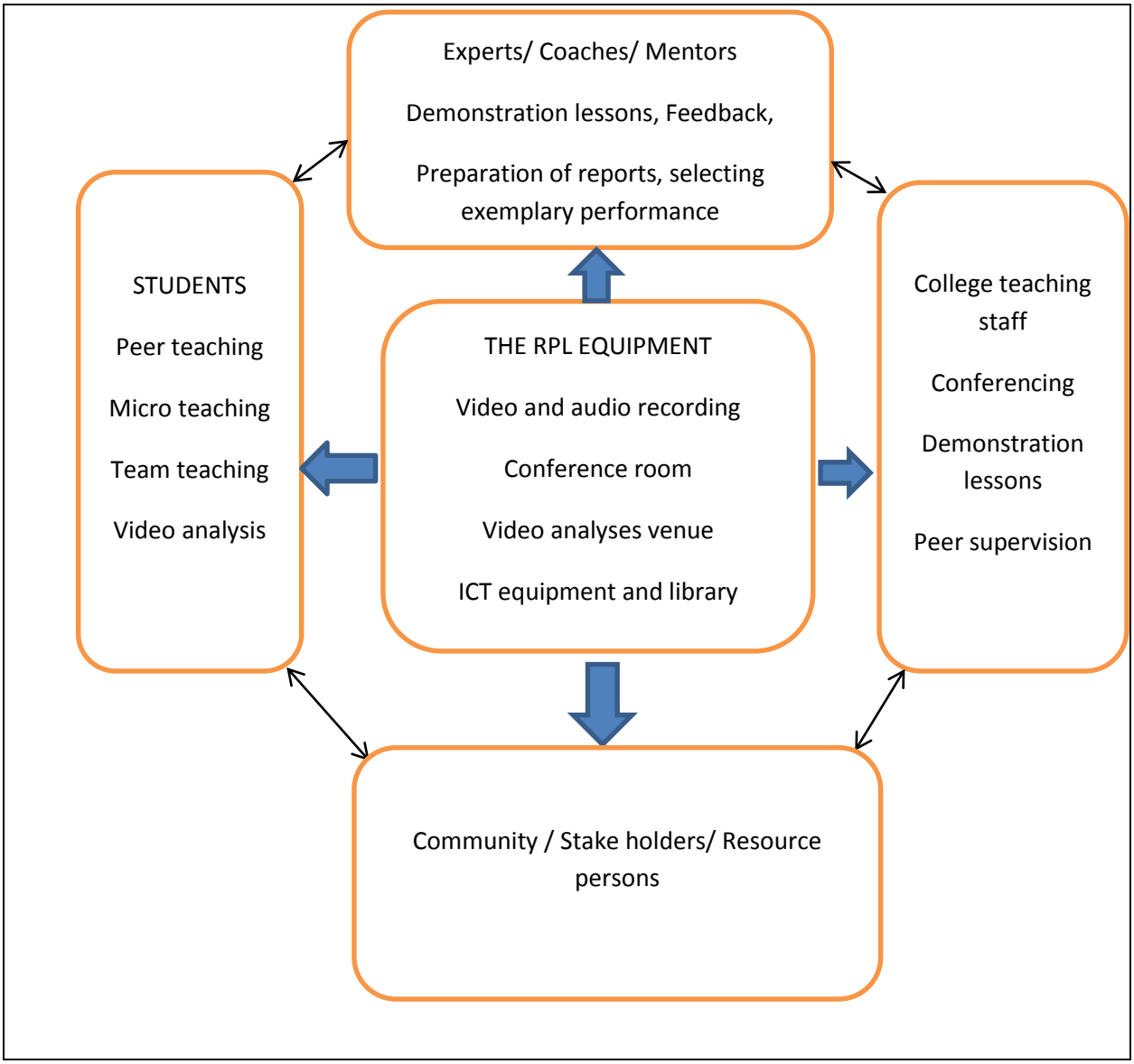

Figure 1: The proposed Reflective practice Laboratory.

Relevant ICT skills to acquire through the Reflective Practice Laboratory.

The 21st century teacher who is evenly grounded in constructivists informed teaching must possess several skills that the reflective practice laboratory is likely to offer which include; word processing skills, spread sheet skill, data base skill, electronic presentation, Web navigation, web site design, skill of audio recording and using digital camera, e-mail management, computer Network knowledge applicable to teacher education system, file management &windows explorer skills, downloading software from the web(knowledge including e Books, Installing computer software onto a computer system, web ICT or blackboard teaching skills, video conferencing skills,

computer-related storage devices, scanner knowledge, knowledge of PDAs, deep web knowledge, educational copy right knowledge, computer security knowledge.

The study proposes a video analysis seven stage protocol to be implemented in the suggested reflective practice laboratory. It would be a requirement for each student in a college to capture one of their presentations during school practice on video so that the recording is subjected to several forms of analysis. This can help the students to improve on their teaching and to focus colleges on the practical preparation of students.

The experts in the Reflective practice laboratory will not only demonstrate to students but also coach students to refine their instructional practices. Research affirms that coaching works in conjunction with other aspects of professional development (De monte, 2013) and that if teachers collaborate around what they learn from coaching, if they get to observe instruction and then talk about the observation with a coach, then it is more likely to be effective. This feature hinges on the expertise of the coach to do this work. Experienced and specialized practicing tutors should be empowered to use the clinical supervision model in providing support supervision.

Recommendations

Becoming a constructivist teacher may prove a difficult transformation since most instructors were prepared for teaching in the traditional, objectivist manner. It 'requires a paradigm shift' and requires the willing abandonment of familiar perspectives and practices and the adoption of new ones. The study suggests that tutors should integrate reflective practice, action research, portfolio development, mentorship, micro-teaching and peer supervision in the development of teachers for primary schools. Increased and regular induction needs to be provided to Principals as well as subject heads and the rest of the tutors on how to conduct classroom observations and portfolio supervision in schools.

Based on the findings and discussions the study recommends establishing and setting up reflective practice laboratory in PTCs so that tutors get inducted on several constructivists' practices that include reflection, clinical supervision, use and integration of ICT and other interventions in a proper and professional setting where tutors can effectively help to improve student teachers performance. Reflective practice will serve as a learning strategy whereby professionals become aware of their implicit knowledge base. The reflective practice laboratory will be a scientific approach to improve the art of teaching not only in colleges but primary schools as well. The tutors will get expertise feedback on their own work at the same time have ample time to carry out demonstrations lessons and to use clinical supervision effectively to help improve student teachers performance.

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