

Instructional Strategies for Training Competent Technical Teachers and Instructors in Uganda

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Abstract

Competent Technical and Vocational Education Teachers are critical in the training of a skilled workforce, which is globally competitive and can effectively contribute to sustainable economic growth and development. For technical teachers and instructors to be globally competitive, their training has to be based on effective instruction. From a qualitative perspective, this paper explores expert views on what is needed to have well-trained and effective technical teachers and instructors in Uganda. Information was collected from 36 respondents who included, senior technical education trainers (n=15), Managers of Technical and Vocational Education and Training (TVET) institutions (n=6), Ministry of Education and Sports officers from Teacher Instructor Education and Training department (n=5), examiners of Technical and Vocational Education and Training trainees from Uganda Business Technical Examinations Board (n=3) and industrialists (n=7). Data was collected using key informant interviews and documentary review and analyzed using Pragmatic Content Analysis. The findings show that strategies that promoted experiential and constructive learning and teaching were more appropriate for the training of effective technical teachers and instructors. These methods were appropriate because they combined scientifically grounded knowledge base, skills and values, needed by technical education instructors with tacit knowledge and competence. These instructional strategies also promoted the ability of trainees to analyze learning needs of students, design and manage learning. The strategies further enhanced technical teachers' and instructors' competence in modelling students who can explore, manipulate, experiment, question, and search for answers by themselves. The results provide important lessons to improve the training of technical teachers and instructors in Uganda. Therefore, experiential and constructive training methods should be infused into Technical and Vocational Education teacher and instructor training in Uganda to improve the quality of Technical and Vocational Education teachers and instructors. Using this mode of training will reduce inefficiencies in the current practices that are largely based on theoretical orientations.

Keywords: Instructional strategy, experiential learning, constructive learning, TVET teacher and instructor training.

INTRODUCTION

Uganda in 2017, through National Curriculum Development Centre (NCDC) rolled out a new Curriculum referred to as Competence-Based Education and Training to be used in Technical and Vocational institutions. This curriculum was meant to equip trainees with skills that could prepare them to do practical jobs, develop expertise in technology and acquire the potential to get immediate employment (Ministry of Education and Sports, 2016). This competence-based training is being run as “Skilling Uganda” by

the department of Business, Technical and Vocational Education and Training (BTJET) of the Ministry of Education and Sports. Skilling is meant to develop employability skills in students. Even the Uganda vision 2040 national development program, one of its key aims is increasing technically competent workforce in the areas of oil and gas, minerals, ICT, water resources and agriculture. The national planning authority (2013) says that the implementation of Vision 2040 will depend partly on having well trained technicians and craftsmen who can efficiently exploit and use the available natural resources for development. Today, there is rapid technological changes taking place globally and the demand for new skills also increases the need for competent technicians and craftsmen. When it comes to Automobile Engineering today, new technology has dominated and almost all vehicle systems are electronically operated. This has made it a requirement to use the On Board Diagnosis (OBD) machine for troubleshooting. This calls for TVET institutions to produce competent technicians and craftsmen. Uganda to-day has a big number of the youth who are unemployed and this is the main reason why the strategic plan 2011 of skilling Ugandans was started (MOES, 2011). The skilling program has two-year courses, a module system, evening hour and weekend trainings. Being open to all, employed and unemployed regardless of education background and age, the program has helped some youth benefit through various employability skills. Trainees learn practical jobs and develop expertise in technology so that they can acquire skills that result into immediate employment (Ministry of Education and Sports, 2016). However, a key issue that is being left in the background is the quality of technical and vocational education teachers. No education is better than the quality of its teachers (Sekamwa, 2000). Therefore, the success of all technical and vocational education programs in Uganda largely lies in the quality of technical teachers and instructors (UNESCO-UNEVOC, 2006). To be effective as an avenue for achieving the country's noble programs, we need to first have competent Technical and Vocational Education Teachers (Akim, 1998). It is only effectively trained technical teachers who can develop and implement strategies and interventions that will increase the usefulness of TVE to the country's economy (Rwendeire, 1993). Unfortunately, evidence shows that this issue has not been put in the forefront (Egau, 2014; Okello, 2005). Altinyelkien (2004) argued that a training strategy for TVE teacher education relevant to the country's development goals was needed to produce competent technical and vocational education teachers. The MOES shows that a large proportion of Uganda's technical education teachers and vocational instructors could not effectively develop practical skills in their students (Egau, 2014). This scenario could be attributed to insufficient training in this area. It is likely that the current curriculum for training technical teachers and instructors in Uganda lacks a specific instructional pedagogy that develops concrete technical skills in these teachers. However, limited empirical information was available on the extent to which the instructional strategy promotes development of practical technical skills in technical teachers and instructors in Uganda.

Statement of the problem

The government of Uganda has made technical and vocation skills training one of its key strategies in achieving her 2040 national development vision. Currently, a number of Ugandan youth are enrolled in the Skilling Uganda and Competence-Based Education and Training (CBET) programs. However, for these programs to succeed, trainers are needed who can develop in learners, skills relevant to the national development goals. Instructors are needed who can effectively develop in learners the ability to construct their own technical knowledge, through experiencing things and

reflecting on those experiences (UNESCO/ILOs, 2002). Recent evidence shows that the majority of technical teachers lack the competence to use creativity and innovativeness, while performing their teaching roles (Egau, 2014). It was not clear whether training institutions had a relevant instruction strategy that guides their training methods and how this influenced the competence of technical teachers and instructors. This study explored whether TVET teacher training institutions use learning theories in their instruction strategies and relevancy of constructivism theory in the training and production of effective trainers.

Purpose

This paper examined strategies that could be used to improve the effectiveness of technical teacher and instructor training in Uganda. The paper provides important information that could be used to develop a more practical and concrete instructional strategy for technical teachers and instructors in Uganda.

Objectives

The objectives of the study were to:

- i. Explore the current instructional strategies used for training technical teachers and instructors in Uganda.
- ii. Determine instructional strategies that were more appropriate for training of quality technical teachers and instructors in Uganda.

LITERATURE REVIEW

Effective training for Technical Teachers and Instructors

Experts argue that effective training for Technical Teachers and Instructors should depend on three major aspects (Akinsanmi, 2008; Vernon & Reynold 2011). The first aspect is enabling learners know and repeat relevant behavioral patterns until they become automatic, the second is to highlight and inculcate in learners thought process behind the behavior (Schmeck, 1988; Kadosa, & Koppony, 2004) and third is to encourage learners to do problem solving in ambiguous situations. Therefore, to train effective Technical Teachers and Instructors, training activities should enable learners to focus on clear goals and respond automatically to the cues of that goal (Wadi, 2000). According to ITEA (1997) learners need lots of practical tasks that they do in the same way to enable consistency. Kolb (1984) adds that learners should be given opportunity to interpret multiple realities and become better able to deal with real life situations. If learners can problem solve, they may better apply their existing knowledge to a novel situation.

Technical Teacher and Instructor Training Strategies based on Behaviorism

Behaviorism concerns the observable change in behavior. Behaviorists believe that learning is provided by a change in actions through an explorative process (Kessels, 1999). It exposes individuals to external stimuli until a desired response is received. Knowledge and skills are transferred by the teacher to the learner using the principles of reinforcement (Harzem, 2004). In using behaviorism, the training is supposed to arrange the learning environment to elicit desired responses through behavioral objectives, competence-based learning and skill development (Greenberg, 1987). The trainer should extensively use “skill and drill “exercises to provide consistent repetition necessary for effective reinforcement of response patterns. Geert (2008) argues that, trainers can use stimulus (question) and response (answer) frameworks to develop good practical skills. Regular reviews are used as guided practice combined with positive

reinforcement such as verbal praises, good grades and prizes to develop appropriate knowledge and skills.

Technical Teacher and Instructor Training Strategies based on Cognitivism

Cognitivist training instructional strategies promote generation of knowledge and meaning through sequential development of an individual's cognitive abilities (Greenberg, 1987). Cognitive abilities such as; recognition, understanding, reflection, application, analysis, creation, and evaluation are used to develop necessary skills. In cognitivism, learning occurs when the learner is an active participant (Gagne, 1984). Vernon and Reynold (2011) argued that, for these strategies to be effective in technical teacher training, the instructor needs to give students opportunity to explore, manipulate, experiment, question, and to search for answers by themselves. Thus, institutions have to create learning environments which stimulate curiosity for exploration (Akisanmi, 2008). Burkhart (1996) says that learning is much more meaningful if the learner is allowed to have places for individual and group study besides social interaction. Cognitivist teaching methods aim at assisting learners in assimilating new information to the existing knowledge and modifying existing intellectual framework to accommodate that information (Daugherty, 1997). Use of skill and drill exercises is encouraged in the memorization of facts, formulae, and lists (Schmeck, 1988). Greater importance is placed on strategies that help learners to actively assimilate and accommodate new material. This is done by asking learners to explain new material in their own way.

Technical Teacher and Instructor Training Strategies based Constructivism

Constructivism instructional strategies are based on the view that learners construct their own reality and interpret it based upon their perceptions of experiences. First developed by Bartlett in 1932 and later refined by Dewey, Jean Piaget, Bruner and Ulrick, Constructivism postulates that when learners are given guidance by their instructors, in well prepared materials rich environments, they can effectively discover their own knowledge and develop relevant skills (VonGlaserfeld, 1995). Dewey in 1938 (in Bruner, 1966) added that education must be conceived as aiding young humans to use the tools of meaning making and reality construction, to better adapt to the world in which they find themselves and to help in the process of changing it as required.

According to the constructivism training approach, an individual's knowledge is a function of one's prior experiences, mental structures, and beliefs that are used to interpret learning experiences. What someone knows is grounded in perception of the physical and social experiences which are comprehended by the mind (Akisanmi, 2008). Turuk (2008) acknowledges the dynamic nature of the interplay between teachers, learners and tasks and provides a view of learning as arising from engaging interactions with the teacher and learning resources. When individuals assimilate, they incorporate the new experiences (skills and competencies) into an already existing framework without changing that framework (Birmingham, 2004). So, when curriculum, instruction and learning environment are aligned with the work and life needs of the person, the individual becomes more able to thrive (Vernon & Reynold, 2011). According to the theory, accommodation is the process of reframing one's mental representation of the external world to fit new experiences. Accommodation can be understood as the mechanism by which failure leads to learning: when we act on the expectation that the world operates in one way and it violates our expectations, we

often fail, but by accommodating this new experience and reframing our model of the way the world works, we learn from the experience of failure, or others' failure.

A key strength of constructivism is emphasis on practical skills development. The theory emphasizes the central role of experience in skills development. Effective learning should be grounded in experience (Kolb, 1984). In the teaching-learning situations, the teacher provides an opportunity for learners to consciously reflect on the thoughts, emotions and behavioral actions and transforming them into work and life skills. Akinsanmi (2008) says that, constructivism promotes active and discovery knowledge and skills building. Learning occurs through experience and therefore learners should be given opportunity to experience learning material through hands-on exercises (Daugherty, 1997). During instruction, instructors focus on making connections between facts and fostering new understanding in students. They encourage learners/students to analyze, interpret, and predict information. Gagne (1984) says, applying this theory, the teacher/instructor encourages Discovery, Hands-on, Experiential, Collaboration, Project-based and Task-based learning. Bauersfeld (1995) adds that principles of constructivism encourage the teacher to be a facilitator, which helps the learner to get his or her own understanding of the content. The learner hence plays an active role in the learning process and becomes the centre of the teaching and learning process (Vernon & Reynold, 2011). Furthermore, it helps them to construct knowledge and skills by working to solve realistic problems (Geert, 2008). Hence, learning becomes something done by the learner instead of being something imposed on him/her from outside. Constructivism is therefore, a student-centered teaching and learning theory that highlights how students should be trained in order to acquire the needed skills. The theory enables trainers to be make students active agents of learning and to effectively use instructional materials to develop the needed skills in students.

METHODOLOGY

The study used a survey design that was rooted in the qualitative paradigm. This paradigm was adopted for this study because of the need to clarify, elaborate and enhance understanding of the key issues that were involved (Ary & Razavieh, 2002). Respondents in this study were selected from, senior technical education trainers (n=15), Managers of Technical and Vocational Education and Training institutions (n=6), Ministry of Education and Sports officers from Teacher Instructor Education and Training (n=5), examiners of Technical and Vocational Education and Training trainees from Uganda Business Technical Examinations Board (n=3) and industrialists (n=7). Purposive sampling was used in order to collect in-depth responses from respondents who were well informed about the research problem. Key informant interviews and documentary review, were used to collect data. Documents were perceived from an Interpretivist perspective. Interpretivists see documents as data, just like interviews and statistics, to be used to construct reality (Creswell, 1998). Hence documents were examined to reveal unstated, implicit meanings, as they referred to some underlying values (Sekeran, 2009). Documentary analysis enabled the researcher to gain deeper insight into the prevailing scenario on the instructional strategies use and reason why they are used. These methods were preferred because they enable collection of reliable, in-depth information. Using appropriate probing, the researcher sought detailed information that was relevant to the research questions.

Data was analyzed using a thematic content analysis approach. Themes were developed in accordance with the objectives of the study and expected outcomes. Data were then grouped according to these themes, as a first step for subsequent interpretations. Pragmatic Content Analysis (PCA) techniques were adopted from Denzin and Lincoln (2000). Concepts were classified according to their probable causes and effects (Creswell, 1998). The intensity with which certain words were used was ascertained. This enabled the researcher to establish why something was said, which subsequently led to understanding respondents' perceptions of issues (Amin, 2005). Key issues in the research problem were identified and then key points in the interviews and written records were coded and summarized. The general view of respondents on each theme was taken as the actual representation of views on the issues that were under investigation. Using Sekeran's (2009) methods, evidence was treated fairly, compelling conclusions were generated, and alternative interpretations were ruled out. The findings were presented in narrative form.

RESULTS AND DISCUSSION

The results and discussion are presented under the themes; current instructional strategies used for training technical teachers and instructors in Uganda and instructional strategies that are more appropriate for training of quality technical teachers and instructors in Uganda.

Instructional strategies currently used for training technical teachers and instructors in Uganda

The study first examined whether technical teacher and instructor training in Uganda have specific instructional strategies. As indicated by UNESCO-UNEVOC (2006) for technical teacher and instructor training to be oriented towards sustainable development, institutions should have a specific way they did things to produce a particular technical teacher or instructor. This should be indicated in their curricula documents and reflected in practice. Interviews revealed that this was not the case. The majority of respondents did not perceive technical teacher and instructor training as needing a guiding instructional strategy. This was especially the case with the instructors who supposed to implement instructional strategies. For example, a veteran instructor from TTT₂ intimated that, "institutions were training learners as a duty and were focusing less on specific instructional strategies that result into high quality and effective teaching and learning". This implies that training was done as duty instead of being a channel to achieve specific objectives. According to UNESCO (2005), practices in effective technical teacher and instructor training should focus on helping trainees "learn to work and inculcate the values of citizenship and sustainability in their students".

A respondent who is a manager from TTT₂ added that "there was a tendency for institutions to think that training technical teachers only needed just imparting of skills" it did not need following a training philosophy. So, institutions mainly placed emphasis on building knowledge and competencies, using any instructional strategy that came their way. This implies that the training of technical teachers and instructors in Uganda had taken a master-artisan trainer mode of training that places little emphasis on organized competence development. Little emphasis was placed on planned and systematic ways of doing things which may require an instructional strategy. Though some trainers admitted using their own skills and experience to reinforce and assess learning, some of which were borrowed from learning theories, it

was not done as a policy. The nature of training TVET teachers used in Ugandan institutions did not support use of a specific training instructional theory. Delannoy (2000) argues that, an instructional theory helps TVET institutions have a mission, such as training technically or pedagogically competent instructors or both. It is also likely that, institutions did not place emphasis on the kind of trainer they want to produce. Radin (2009) says that, it is important for trainers to place emphasis on either giving learners opportunity to construct knowledge in their own understanding, by reflecting on own experiences, effective reinforcement or encouraging using individual mental processes to assimilate and accommodate new knowledge.

Instructional strategies that are more appropriate for training quality technical teachers and instructors in Uganda

The findings show that respondents agreed that, having a specific instructional theory following particular instructional strategies could enhance technical teacher and instructor Training. This agrees with Kadocsa and Koppony (2004) who said that and instructional theory enable instructors to support learners know and repeat relevant behavioral patterns and thought process behind behaviors they are supposed to develop. An officer from TTT₁ responsible for curriculum development and supervision stated that “an instructional strategy enables trainers to shape the aptitude and motivation of individual students and their own approaches to learning”. He added that it also enables institutions to “amplify their visions, missions and the caliber and strategies of the trainers”. This agrees with Wadi (2000) who advised that effective Technical Teachers and Instructors, training activities should enable learners to focus on clear goals and respond automatically to the cues of that goal. Therefore, this means that generally respondents agreed that an instructional strategy is important in training quality- Technical education teachers. But, practice indicated that TVE teacher trainers were still reluctant to have and use a relevant instructional strategy that suit the development needs of Uganda. Observations of Curricula documents showed that they did not have an indication of a specific training strategy for teachers. Some of the administrators interviewed indicted the reason why this was the case. The administrator from TTT₃ said that “technical education in Uganda is mainly characterized by learning by doing’. Therefore, if “learning to do” and having “practical people” is the inherent training philosophy of TVE instructor ad teacher training, and then instructional strategies should emphasize hands-on training. This is probably the reason why institutions took constructive learning as being more important than pedagogical engagement. So it was revealed that TVE instructor ad teacher training institutions are focusing less on vocational pedagogy, high quality and effective teaching and learning in technical education. As indicated by Kolb (1984), training without a specific pedagogical orientation, may make it “difficult for learners to have adequate opportunity to interpret multiple realities and become better” able to deal with real life situations. As indicated by Vernon and Reynold (2011), learners may also not effectively learn how to r apply their existing knowledge to a novel situation.

So, learning theories that clearly articulate and bring out this fact were more relevant and should be promoted. An instructor from TTT₆ affirmed that “vocational teaching and learning in Uganda is underpinned by experiential learning and learning styles theories, and these are most relevant to this field”.

Hence, findings revealed that, instructional strategies that encourage problem-solving and application of procedures were more relevant. As advised by ITEA (1997), cognitivist and constructivist training strategies could be more applicable to the

Ugandan situation . An administrator from institution TTT₅ that employees a number of TVE teachers added that “while it is true that scientifically grounded knowledge base is needed by technical education instructors in order to engage in the kind of problem-solving required by more advanced levels of technology, it has to be combined with tacit knowledge and competence”. These findings were in agreement with Vygotsky (1986) who advises that for TVE teacher training to be effective, more emphasis should be placed on relevant instructional strategies and theory, but not only on having subject knowledge. But evidence from senior TVE instructors showed that his had been put at the periphery by the Ugandan Technical Teacher and Instructor training system.

The first aspect is enabling learners know and repeat relevant behavioral patterns until they become automatic, the second is to highlight and inculcate in learners thought process behind the behavior (Schmeck, 1988; Kadosa, & Koppony, 2004) and third is to encourage learners to do problem solving in ambiguous situations. Therefore, to train effective Technical Teachers and Instructors, training activities should enable learners to focus on clear goals and respond automatically to the cues of that goal (Wadi, 2000). According to ITEA (1997) learners need lots of practical tasks that they do in the same way to enable consistency.

CONCLUSION

Basing on the findings of this study, it can be concluded that the current technical teacher and instructor training lacks a specific instructional strategy based on the type of teacher that is relevant to Uganda’s development needs. MOES officers and Managers of Technical and Vocational Education and Training institutions confirmed that policy, curricula and practices do not clearly show the type of trainee needed and how to produce that person. Interviews with senior instructors revealed that training is more superficial and uninspiring. Training activities still remain in their infancy and relatively little has been done to develop a modern, effective and specific instructional strategy based on theory. Hence as it was indicated by MOES BTNET officers, the key to the delivery of excellent teaching and learning in technical teacher training is knowledge and understanding about the role of training instructional strategies in both pedagogy and training of technical teachers and instructors. It can therefore be concluded that experts of TVE confirm that relevant technical teacher education for Uganda should be an interrelation between three foundational dimensions: Formal subject or technical knowledge, pedagogic expertise and practical workplace experience. There is need to replace educational knowledge as ‘generic’ with a stronger understanding of the relation between a particular form of knowledge and its pedagogy. There is need to move away from ways that separate knowledge from practice in training technical teachers and instructors and adopt instructional strategies that integrate the two. This is due to the fact that different forms of knowledge have a strong effect on what counts as practice. Only then will we be able to have technical teacher education that will meet the current knowledge demands of innovation and creativity in Uganda.

All key stakeholders have to come together and formulate an instructional strategy for Uganda TVET institutions that will produce active participants who can explore, manipulate, experiment, question, and search for answers by themselves. TVE teacher training for the Uganda of today needs a pedagogical philosophy that will create curiosity for exploration and change in actions through an explorative process.

RECOMMENDATIONS

The study recommends the following policy changes to enhance technical teacher and instructor training in Uganda:

Ministry of Education and Sports

The MOES should make initiatives to infuse more of constructivism and cognitivism instructional strategies in all technical, vocational skills training including teacher education. A relevant training philosophy based on learning theories should be developed and infused in all activities of training institutions and this should be taken as priority. The government should motivate TVET teacher training in Uganda to open up to new and effective teaching and learning approaches that are based on the modern learning philosophies and instructional strategies.

TVE Teacher Training Institutions

TVE teacher trainers in Uganda should develop own teaching and learning philosophies based mainly on constructionism as one of the specific instructional strategy. This will subsequently improve the quality of TVE teachers and instructors in Uganda.

National Curriculum and Development Centre

The National Curriculum Development Centre (NCDC) as a body responsible in designing the curriculum for TVET institutions should fund a study to establish the instructional strategies in training technicians and craftsmen and women relevant to Uganda and how it can be effectively implemented.

The training of Technical Teachers and Instructors should move away from separating Theory from Practice. Therefore, there is need to adopt an instructional strategy that can integrate the two. The current Technical Teacher Education should be able to address the demands of innovation and creativity. Therefore, the constructionism instructional strategy should be embraced in the training of technical teachers and instructors as well as in TVET institutions.

The findings of this research point to the need for further research to establish the extent to which the Teacher Training Institutions and National Curriculum Development Centre (NCDC) includes the ideas of constructionism instructional strategies TVET institutions and in the technical and vocational teacher training curricula.

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