TEACHERS AND LEARNERS ATTITUDES' TOWARDS THE USE OF ICTS IN TEACHING AND LEARNING OF WELDING AND FABRICATION AT VOCATIONAL TRAINING CENTERS IN MANDERA COUNTY

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ABSTRACT

The phrase 'half-baked graduates' is often mentioned to refer to graduates who do not match the requirements of the industry in terms of technical competence or skills. Institutions including colleges, universities, and vocational centers trusted to offer solutions to the current challenge of women and youths' unemployment have not yet found the answer to the riddle of matching skills to the industry requirements. Yes, graduates are still leaving universities but they are facing the same challenge of unemployment. Could this be as a result of the kind of training offered in the institutions not being designed on adopting the innovative approaches in teaching and learning of technical courses to offer a solution in the developing economies, Kenya not being an exception. This backdrop offers an opportunity to study the teachers' and learners' attitudes toward the integration of ICTs in the teaching and learning of welding and fabrication in Mandera County. The study was a descriptive one involving learners and instructors in two (2) vocational and training institutions in Mandera county: Mandera vocational center and Takaba vocational center. The population of interest was five (5) technical staff in the institutions, twenty-five (25) instructors, and 133 learners which was a total of 166 staff. A 30% of the population of respondents was desired across the strata and therefore 50 respondents were considered in the study to provide data for the study through questionnaires and interviews. Data for the study was both qualitative and quantitive. The quantitative data was analyzed through frequencies and percentages whereas the qualitative data was analyzed through content analysis. The study results were presented on tables as well as narratives. The study found that the learners were happy to use the technologies in learning new concepts in fabrication and welding. The learners also gave their worries that at times the ICTs facilities were either not functional or available during classwork with also little help on how to use the ICTs by the trainers. On the other hand, the trainers revealed that they were more confident while using the ICTs, the instructors also noted that at times they lacked the know-how on the use of some ICTs facilities. Besides, the trainers revealed that they were happier to use the ICTs in teaching fabrication because it enabled them to do more research before teaching in their classroom. The study concluded that through the use of ICTs learning experience had improved with more happy learners, teachers were also more confident in teaching fabrication and welding. Besides both learners and teachers were enthusiastic about teaching and learning while using ICTs. ICTs enabled the learners and the instructors to understand, research more on some topics as well as making subjects easier to grasp. However, the study concluded that there were not enough ICTs facilities to use in the learning of fabrication and welding. Most of the equipments were outdated and also did not get regular maintenance. Besides some of the instructors could not support the learners whenever there was a hurdle in the use of the ICTs.The study recommended for training of trainers in the use of the ICTs to enable them to offer quality training of welding and fabrication using the latest technologies. The study also recommended for the learners to

utilize technology to understand complex subjects which are often made easier through the use of the ICTs. Finally, the study recommended for the learning institutions to invest in the acquisition of ICTs that would enhance the quality of instruction and learning in vocational and training centers in Mandera County.

INTRODUCTION

As the world set in to have more use of ICTs in almost all areas of our lives the education sector has as well been affected by the use of ICTs tremendously beginning with the use of digital e-libraries, use of ICTs in classrooms to make simulations as well as making a presentation using the ICTs such as Ms -office (Ojo & Adu, 2018). Jita (2018), revealed that more learning institutions are more likely to adopt ICTs in learning because it enhances accessibility, the relevance of learning as well as equality in learning among trainees. Learning through ICTs has provided more opportunities and access to learning because teaching online has brought a customized package for students to access learning even from the comfort of their homes or at work. The use of zoom, google meets that are computerized learning as well as the use of pre-recorded teaching held in memory cards and smart memory cards have facilitated the teaching of technical courses such as welding and fabrication for trainees.

Ameen, Adeniji, and Abdullahi (2019), while studying the utilization of ICTs in Nigerian colleges, revealed that low performance in technical courses would have been as a result of learners not effectively utilizing the ICTs availed to them. Observation made by the scholar was that during classwork the students did not utilize available technology like the use of projectors to make demonstrations despite the school using huge financing to acquire them, lecturers and students preferred to use the traditional ways of reading textbooks as well as taking handwritten notes. The students and the lectures argued that the institution did not provide training on the use of the available ICTs such as computers and projectors, the trainers were also conservatives who preferred the traditional ways of teaching. Another argument given by the teachers and learners was that the internet connection was usually poor in most instances therefore they did not find the need for troubleshooting always during classwork.

Mafuraga and Moremi (2017), revealed that the use of ICTs in education would be a step ahead in ensuring quality education in Botswana. The use of ICTs would greatly contribute to the narrowing of the gaps between the developing and the developed countries by enabling the citizens in the developing countries to study online through the use of platforms provided by the internet such as the use of you-tube to access some skills or knowledge on how to use technical machines. Acquisition of new skills and learning would help in the bridging of

social-economic gaps that would only be a reality if there is an effective integration of learning in the education sector.

Achievement of equal opportunities and access to education is one of the key pillars in Kenya's vision 2030 as one of the key structural development programs. Both the young and the adults have been encouraged and facilitated to learn to enable them to access more job opportunities which as well would enable them to access other social needs including good health, better housing, and also good meals. Kenya's ICTs policy of 2006 was geared toward enhancing a more efficient, accessible, effective, and more reliable ICT to enable the realization of other goals that touch on both social as well as economic aspects of its citizens. To enable the improvement in the quality of teaching and learning in the schools the Kenyan government has the responsibility of coming up with policies that ensure more integration of ICTs in learning institutions. One of the ways to do this is through offering training to the trainers or instructors of the institutions on how to use the available ICTs resources provided by the government. Training would help in the change of behaviors during training when trainers get more inclined in using the available ICTs in teaching, making demonstrations in class as well preparation of notes for the lecture (Kagema, 2018).

To meet the various needs of the society as a strategy given by the vision 2030, the Kenyan government has an uphill task of investing more in training the instructors, investing more in research, and also the acquisition of relevant ICTs equipment that would make the goals more achievable. Kenya Education Sector Support Program (KESSP) of 2005 introduced by the ministry of education had several objectives one of them being the mainstreaming of ICTs in education where learners and teachers harmoniously utilize the ICTs to offer and access more quality learning that enables the learners to acquire skills that build up their capacities. In addition, the policy set out to achieve a learning environment that embraces technology, digital access, and provision of the internet infrastructure, capacity building on the utilization of the ICTs as well as provision of the continuous harnessing of technology use through embracing new technology as well as ensuring continuous maintenance and upgrading of the ICTs facilities. Besides, the policy on ICT by the ministry of education covered the research and development in the integration of ICTs in learning (Masingila, Khatete, Maundu, Foley, Ndethiu & Twoli, 2019).

ICTs integration in the learning environment as noted by van der Spoel, Noroozi, Schuurink, and van Ginkel (2020), presents an ideal environment where there is more equitable access to education by all learners. Ministries of education in the Scandinavian states have embarked on ensuring more access to education and a better learning environment by providing computerized gadgets to all learners joining grade one. It is now a requirement by the ministries of education in the Scandinavian states to have the students access their home assignments in more digital content than the traditional learning approach of ink and paper. Students can perform more and even use ICTs facilities to get instant feedback for hard questions than always waiting for their teachers to answer them therefore the pupils and students can challenge themselves better.

However, the case is not always the same everywhere as the education and learning environment in the developing countries has to grapple with numerous challenges among them lack of ICTs facilities, the inadequacy of capacity to use the already available ICTs resources, or unfortunate attitude by the scholars and the teaches to resist change in the integration of ICTs in the learning environment. Many are the times that electronic gadgets including computers, printers, and projectors catch immense data without the concern or attempt of anyone to use such great resources in offering better teaching. Kaplan, (2019) revealed worrying statistics that only 10% of learners in technical and vocational institutes in Kenya own a laptop. Besides, only 375% of the interviewed scholars know how to use a laptop to write an assignment or even do other basic things like surfing the internet. Out of the 12,025 interviewed only 475 owned a smartphone. These statistics are a major concern especially this being a 21 st century which is an information age where most of the valuable information is kept in the e-library, google, you-tube and other search engines, where with just a click of a button one gets overwhelmed with the information on the topic in question. Teachers and instructors were also facing a few challenges because they had not fully acknowledged the importance of integrating ICTs during learning. Only 18% of the surveyed tutors could use computers and computerized gadgets. The industry is suffering a great deal from the shortage of craftsmen, artisans, and technicians who are skilled as a result of having an institution that cannot offer learners an opportunity to be equipped with relevant skills that enable them to be creative and innovative. The area of fabrication and welding demands a workforce that can criticize substandard works as well as offering solutions to the existing problems instead of creating a new lot of problems and challenges. Graduates from the technical and vocational institutes continue to emerge but the level of unemployment does not slow down at all there is increasing unemployment because the so-called graduate lacks relevant capacity or quality training in the institutions which Conlon, Ladher, and Halterbeck (2017), associates with poor instructional methods, lack of hands-on training, lack of proper simulation mechanisms that would only be solved by integrating ICTs in the education sector. Therefore, many developing countries of which Kenya not being an exception continue to outsource electrical as well as mechanical artisans during infrastructural development such as in the construction of roads, railways, and houses. Despite the government introducing the new policies through the ministry of education on Technical and vocational education and training centers (TVETs), there is still a low enrolment of artisans in these institutes. Even though financial incentives such as free tuition for the entire training and support funds/ upkeep money through higher education loans boards (HELB) being given enrollment is still low (Nyaga, Kitainge & Okinyi, (2021). The challenge of unemployment remains an unresolved riddle by the education sector. No one is aware as to whether the challenge would be the kind of training offered to lack some key ingredients to offer 'fully baked graduates'. This study sought to establish the attitudes of learners and teachers on the integration of ICTs at the technical and vocation centers offering welding and fabrication in Mandera County.

Several studies have been conducted in the area of learning and teaching fabrication in the vocational centers Mwanda, Mwanda, Midigo, and Maundu (2017); Waigera, Mweru, and Ngige (2020) revealed that there has been a continuous disconnect between the skills offered at the vocational centers and the industry demand. Furthermore, the results by the scholars

also revealed that the institutions have continued to use the traditional approaches in teaching and learning in these vocational centers which might be the ones resulting in skills gaps required by the technical industries.

It is against this backdrop that the study sought to establish the teachers' and the learners' attitudes towards the integration of ICTs in the learning in vocational institutions offering fabrication and welding in Mandera county. Specifically, the study sought to establish: What are the attitudes among the teachers and learners on the integration of ICTs in teaching and learning welding and fabrication in Mandera County?

RELATED LITERATURE AND THEORIES

Danner and Pessu (2013) while studying the attitudes and effects of the use of ICTs in learning among students in the Benin University in Nigeria revealed that learning through the use of ICTs increased their liking of the said subjects that used technology. The students noted that they felt it more exciting and fulfilling when using technologies in learning. The results revealed that above 80% of the pupils either strongly agreed or just agreed that their felt more joy when using technology during their classwork or handling various assignments. Besides, 572 of the students agreed that the use of technology was an enabler in understanding various topics better.

The study by Chan (2018) on the attitudes of Chinese construction workers working abroad in English-speaking countries was descriptive and involved 346 learners of English subjects. The study used interviews in data collection. The study results revealed that the learners were happier when ICTs were used in learning, the students indicated to a great extent that they understood how to mention some English words whenever ICTs were used in simulations of sound for some English words. The learners were happier whenever shown through the internet to spell some English words and letter sounds, this enabled more class retention of learners as a result of the use of the internet. The use of the internet also helped them on how to spell some words and know their meaning through their google support.

Al-zboon, Gasaymeh, and Al-Rsa'I (2021) studied the attitudes of science learners in Kuwait through the use of ICTs. The study was descriptive and used questionnaires that were hand-delivered to the respondents on the attitudes of the use of ICTS in learning science subjects. The results indicated that the use of ICTs improved the understanding of the science subjects, also improved the self-confidence of the learners. The students indicated that the use of ICTs enabled the learners to master the science subject faster through the use of graphs during the presentation, simulation of activities such as earthquakes during geography and physics subjects. The overall performance in the science subjects was found to improve drastically as a result of integrating ICTs.

Mwanda et al. (2017) studied the commitment of students to learning biology subjects through the use of ICTs in Rachuonyo South Sub-County, the study used a Likert scale of 1 to 5 whereby 1 was strongly disagreed whereas 5 was strongly agreed on a commitment to

learning through ICTs integration. The results of the study revealed a score of 4 indicating that the learners were more committed to class attendance whenever ICTs were used in teaching biology subjects to the students. Researchers have linked positive attitudes towards ICTs to high usage in teaching and learning, for instance, a study by Waigera et al. (2020), posited a positive relationship between positive attitudes towards ICTs on increased usage in learning. Besides, poor attitudes proofed the low usage of ICTs in learning.

Canals and Al-Rawashdeh (2019) studied the influence of teachers' attitudes on ICTs usage in teaching English in Jordan. 346 teachers were selected randomly for the study, the study revealed through descriptive analysis that teachers to a great extent use technology in preparation administration and management. The study revealed that rarely do the teachers use technology in classwork. The study further revealed that schools that were techno-based had teachers use technology more than their counterparts who did not have ICTs resources.

Eickelmann and Vennemann (2017), studied the influence of teachers' attitudes and beliefs on technology implementation during teaching. The study involved 380 teachers who were purposefully selected in England, Germany, and France, the study was descriptive. T-tests and correlation analysis were used in the data analysis. The study revealed that teachers had positive attitudes towards the implementation of ICTs in schools. The study concluded that positive beliefs on how successful technology would promote teaching had a significant effect on the successful implementation of ICTs during learning. The study recommended on the teachers review their personal beliefs so that they can accommodate the usage of ICTs in schools.

Buabeng-Andoh (2019), studied the factors leading to attitudes of teachers in the usage of technology among public schools in Accra Ghana. The study was descriptive with questionnaires as the main tool for data collection. The study revealed institutional, personal and technological factors among the areas of attitudes affecting the implementation of ICTs in public schools. The study noted that among the barriers in the implementation of ICTs in public schools as low skill levels of ICTs among the teachers, unavailability of ICTs resources, pedagogical training that did not promote the use of ICTs, confidence, and a traditional system that did not promote the use of ICTs in learning and teaching.

The notion that ICT integration motivates learning is a novel concept. However, scanty literature and evidence are available if any on the effect on attitudes of learners and teachers in the northern part of Kenya among young adults in vocational centers pursuing welding and fabrication as a result of the integration of ICTs in learning and teaching. This study, therefore, sought to establish the attitudes among teachers and learners on the integration of ICTs in teaching and learning of fabrication and welding in vocational centers in Mandera County.

DATA AND METHODS

The research design for the study was descriptive, the research design was more appropriate in answering the questions on how? How? When? and how? The population of interest in the study comprised of instructors and learners in two vocational centers in Mandera County: Tabaka vocational center and Mandera technical and vocational center. The respondents' targetted in the study included (5) technical staff in the institutions, twenty-five (25) instructors, and 133 learners which was a total of 166 staff. Sampling for the study was probabilistic across the two strata. Therefore, 30% of the population of respondents was considered across the strata and therefore 50 respondents were considered in the study to provide data for the study.

Questionnaires and interviews guided were used to collect data for the study on the attitudes of the learners and the instructors respectively. Data was collected through in-person dropping of the questionnaires as well as face-to-face interviews. The collected data was analyzed through a descriptive analysis where percentages, frequencies, standard deviation, and mean were used to analyze the quantitative data. Besides, content analysis was used to analyze the qualitative data from the interviews. The presentation of the data was through tables and bar graphs for the quantitative data whereas the qualitative data was presented through narratives.

RESULTS AND DISCUSSIONS

Response Rate

The study had a response rate of 80% (32) on the learners as well as 70% (5) responses on the instructors. There was also a 100% response from the technical staff (2).

Demographic Analysis

The study sought to analyze the demographics of the respondents. The majority of the respondents had between 11 and 15 years of experience in teaching; besides 50% of the respondents had a diploma as their highest level of education which was also the highest level of professional qualification in instructing for welding and fabrication at vocational centers in Mandera County.

Descriptive Analysis

Descriptive statistics on Teachers' Attitudes towards Using Icts in Teaching Welding and Fabrication

Table 1 revealed that the majority of the respondents as shown by 80% revealed that they had an enjoyable experience teaching using the ICTs. The majority also indicated that the use of the ICTs was appropriate for all teachers irrespective of their experience or professional qualification as shown by 60%. 80% also revealed that the rapid and frequent changes in

technology made them more informed; similarly 60% indicated age was not a barrier in the use of technology whereas 60% indicated that they were more enthusiastic about using the technology to teach. Only 40% indicated that the use of new technology was cumbersome during teaching. 80% indicated that they were confident while using technology in front of the class whereas 60% indicated that their colleagues use technology while teaching. 80% indicated that they provide better presentations in class while using technology. Only 20% feared that the technology changed too fast for them to cope with teaching using ICTS. Finally, only 40% feared they would make mistakes while using technology while teaching.

Besides, Technical staff revealed that ICTs had been used in learning through the presentation in class on 3-D using software for architectural designs, also ICTs are used by the technical staff in making the drawing. The technical staff also revealed that there was the need to acquire more up-to-date ICTs equipment such as computers and software components to use in the fabrication and welding specifically in the design by the students as well as for the trainers. The technical staff felt more confident using the software while making demonstrations and believed that the use of the ICTs enabled them to solve difficulties.

Eickelmann and Vennemann (2017), was in agreement that teachers had positive attitudes towards the implementation of ICTs in schools. The study concluded that positive beliefs on how successful technology would promote teaching had a significant effect on the successful implementation of ICTs during learning.

Similarly, Buabeng-Andoh (2019), agreed with the study findings that institutional, personal, and technological factors were among the areas of attitudes affecting the implementation of ICTs in public schools. The study noted that among the barriers in the implementation of ICTs in public schools as low skill levels of ICTs among the teachers, unavailability of ICTs resources, pedagogical training that did not promote the use of ICTs, confidence, and a traditional system that did not promote the use of ICTs in learning and teaching.

Table 1: Attitudes of Teachers Using ICTs in Teaching Fabrication and Welding

Statement	Frequency	Percentage
I enjoy using ICTs while teaching fabrication and welding	4	80%
use of the ICTs was appropriate for all teachers irrespective of their experience or professional qualification	3	60%
rapid and frequent changes in technology made me informed	4	80%
age is not a barrier in the use of technology	3	60
It consumes more time while using technology to teach fabrication	2	40%
Am more enthusiastic about using the technology to teach	3	60%
the use of new technology is cumbersome during teaching	2	40%
am confident while using technology in front of the class	4	80%
Our internet is fully stable while teaching	1	20%
My colleagues use technology while teaching	3	60%
I provide better presentations in class while using technology.	4	80%
I fear that technology change too fast for me to cope with teaching using ICTS.	1	20%

Teachers are fully equipped in teaching fabrication	1	20%
I fear making mistakes during the presentation while using technology	2	40%

Descriptive statistics on Attitudes of the Learners on the use of ICTs during learning

Table 2 shown that 75% of the respondents were happily using the ICTs during learning, 81.25% indicated they enjoyed the use of technology and also got more informed as a result of the use of the ICTs. 75% revealed that learning had improved as a result of technology, similarly 50% revealed that technology was good for all learners. 81.25% of the respondents also agreed that their motivation in learning had increased as a result of using technology, 75% revealed that the use of ICTs had enabled them to understand complex subjects better. Finally, 50% were more enthusiastic to start assignments and topics that required them to integrate ICTs. The respondents however did not get enough technical support from the instructors on how to use the ICTs in teaching as shown by 25%, computers and other ICTs facilities keep often break during class time which affected learning as shown by 81.25%. The computer facilities were also not enough to enable learning of fabrication and welding as shown by 75% of the respondents. Al-zboon, Gasaymeh, and Al-Rsa'I (2021) agreed with the findings when they studied the attitudes of science learners in Kuwait through the use of ICTs. The results indicated that the use of ICTs improved the understanding of the science subjects, also improved the self-confidence of the learners. The students indicated that the use of ICTs enabled the learners to master the science subject faster through the use of graphs during the presentation, simulation of activities such as earthquakes during geography and physics subjects. The overall performance in the science subjects was found to improve drastically as a result of integrating ICTs.

Also in agreement with the findings was (2018) who studied the effect of ICT on learning English among Chinese workers working abroad in English-speaking countries. The study results revealed that the learners were happier when ICTs were used in learning, the students indicated to a great extent that they understood how to mention some English words whenever in class ICTs were used in simulations of sound for some words. The learners were happier whenever shown by the internet on some English words and letter shoulds sound, this enabled more class retention of learners as a result of the use of the internet. The use of the internet also helped them on how to spell some words and know their meaning through their phones.

Table 2: Attitudes of the Learners on the Use of ICTs during Learning

Statement	Frequency	Percentage
am happy while using ICTs to learn fabrication	24	75%
I enjoy while using technology to learn new things	26	81.25%
I get more informed as a result of the use of the ICTs	26	81.25%
learning has improved as a result of technology	24	75%
technology is good for all learners	16	50%
My motivation in learning has increased as a result of using technology	26	81.25%
We have enough computerized facilities during learning	8	25%
use of ICTs had enabled me to understand complex subjects better	24	75%
Our computers and other ICTs facilities keep often break during class time which affects our learning	26	81.25%
We get full technical support from our instructors on the use of ICTs	8	25%
Am more enthusiastic to start assignments and topics that required them to integrate ICTs	16	50%

CONCLUSIONS AND RECOMMENDATIONS

The study concluded that through the use of ICTs learning experience had improved with more happy learners, teachers were also more confident in teaching fabrication and welding. Besides both learners and teachers were enthusiastic about teaching and learning while using ICTs. ICTs enabled the learners and the instructors to understand, research more on some topics as well as making subjects easier to grasp. However, the study concluded that there were not enough ICTs facilities to use in the learning of fabrication and welding. Most of the equipments were outdated, they did not get regular maintenance in case of a breakdown which adversely affected learning. Besides some of the instructors could not support the learners whenever there was a hurdle in the use of the ICTs.

The study recommended for training of trainers in the use of the ICTs to enable them to offer quality training of welding and fabrication using the latest technologies. The study recommended on the teachers review their personal beliefs so that they can accommodate usage of ICTs in schools. The study also recommended for the learners to utilize technology to understand complex subjects which are often made easier through the use of the technology. Finally, the study recommended for the learning institutions to invest in the acquisition of ICTs that would enhance the quality of instruction and learning in vocational and training centers in Mandera County.

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