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Enhancing Employability Skills through Formative Assessment in Vocational Training Centers

Mariam Omar
University of Dar es Salaam, Tanzania

Abstract: *The research looked at how different formative assessment approaches affected the development of abilities that employers want in potential employees. The study's objectives were to investigate how vocational students in Tanzania view the importance of formative assessment in vocational training centres, how this practice affects students' employability skills, and how students themselves perceive these skills. Because it was based on pragmatism, a sequential explanatory mixed methods design was possible. From four Vocational training institutes, 97 vocational students and 6 vocational teachers were surveyed. We used a regression model to examine the quantitative data, and content analysis to sift through the qualitative information. Among the results of the research, many vocational students consider a variety of employability skills crucial to their future success in the workforce. Workshops, industrial projects, and field placements are some of the formative evaluation approaches used by vocational education and training institutions to improve these employability skills. While summative evaluation makes up 60% of the total, formative assessment, which is crucial for developing employable skills, only makes up 40%. Consequently, the research suggests that curriculum revision should prioritise formative assessment over summative assessment. Research on the employability of Tanzanians with degrees in vocational education might lead to the creation of a new scale.*

Keywords: *Formative assessment, employability skills, labour market, vocational education, global economy.*

Introduction

In an era demanding heightened workforce readiness, harnessing the power of formative assessment within Vocational Training Centers emerges as the cornerstone for cultivating indispensable employability skills. According to research by Idris (2012), Voinea (2018), and Scholtz (2020), the global economy is putting pressure on education institutions throughout the world to ensure that graduates have the skills employers are looking for. For graduates

to be able to find a job or stay in their current position and do a good job, they need employability skills, which are a combination of knowledge, personal qualities, and practical experience (Yorke, 2006). According to the Australian Government (2004), the following abilities are necessary for success in the workforce: the capacity to communicate effectively, work well in a team, solve problems creatively, plan ahead, be responsible for one's own time and resources, be able to learn new things, and use technology. Employers need them to accomplish organisational goals in a competitive market, and employees need them to deal with the working environment (National Council of Educational Research and Training, 2020). Both new hires and those looking to advance in their careers need these abilities (Robinsons & Garton, 2008).

During the European industrial revolution of the 1950s, a trained workforce was required to keep up with the rising demand for workers caused by changes in production technology and globalisation (Nourian & Gloddousi, 2015). This prompted vocational schools to begin teaching students marketable skills. Vocational students' capacity to find gainful employment is a key component of the sustainable development objectives that world governments are aiming to accomplish by 2030 (ILO, 2021; United Nations, 2019). In order to restructure the evaluation systems, it was necessary to guarantee that vocational students acquire career-relevant skills (Carey, 1997). The strategies should help students get the practical experience that is valued by businesses and government agencies alike (Scholtz, 2020). According to Liu (2012) and Budi and Sulisworo (2018), this kind of evaluation is most effective when it takes place in a real-world work setting and offers useful comments for teachers and students to grow. To help students and teachers address misconceptions and gaps in knowledge, assessments should be formative rather than summative (Centre for Educational Research and Innovation, 2008). Additionally, before vocational students complete their study courses, formative evaluation should provide them clear feedback on how they may develop (Vingsle, 2014). Students should be able to evaluate their own work and make deliberate changes based on their findings (Voinea, 2018). In addition, before students enter the workforce, it should help tutors find areas where their pupils are lacking in abilities (Saedon et al., 2010). The platform facilitates ongoing improvement by facilitating interactions between students, instructors, and management that provide useful feedback (Beard & Bussey, 2007).

Formative assessment is utilised extensively in both developed and developing nations, including South Africa, India, Nigeria, Budi & Sulisworo, 2018, Budi & Sulisworo, 2018, Robbins et al., 2018, Lester, 2011, Dahlback et al., 2020, and OECD, 2013. This is because of its crucial role in improving employability skills. Because of its ability to improve student learning and effective teaching, formative assessment plays an essential role in vocational and technical education (VET), ensuring that students acquire the necessary skills (Yorke 2001). Formative evaluation, according to some researchers, may help students grow and stay in school (Yorke, 2005), get marketable skills (Cassidy, 2006), and continue learning throughout their lives (Boud, 2000). Dancer and Kamvounias (2005) and Ghazi and Henshaw (1998) are just two of the many sources that discuss the ways in which formative assessment may boost student engagement, performance, and presentation in the classroom. Rather than waiting until students have mastered material for a test, teachers should include formative assessment (FA) into their lessons all the way through (2009). With the shift from a content-based to a competency-based education system in Tanzania in 2005, formative assessment began to gather steam (Kadau & Mallya, 2023). The goal was to monitor students' progress towards competency levels prior to graduation (NECTA, 2021). Assessment results are crucial for identifying areas of weakness in skill acquisition, which in turn motivates teachers to implement corrective measures (Poulos & Mahony, 2008; Sadler, 1989) and enhances students' educational experiences (Black & Wiliam, 1998). The Tanzanian government's Vocational Education and Training Act (CAP82) mandates the establishment of VET schools with the goal of preparing students for careers in the fields of industry, commerce, and the arts (URT, 2019).

Eight hundred and twenty-two vocational centres spread throughout Tanzania use formative evaluation to help their graduates get jobs (MoEST, 2021). According to Mihyo et al. (2020), the majority of Tanzania's vocational graduates do not have jobs, even if formative evaluation has been implemented. Given this context, research into students' views on the most important transferable skills for a vocational job, as well as an analysis of formative assessment methods used in vocational schools and their effects on students' ability to find work is urgently needed in Tanzania. Based on the premise that assessment should increase learning and feedback in assessment is crucial to monitor learning progress, the research was guided by Sadler's (1989) formative assessment theory (Heritage, 2010).

Methodology

The research used both quantitative and qualitative approaches to gather and analyse data, following a sequential explanatory mixed methods design informed by the pragmatism paradigm (Creswell, 2014). Questions were administered to 97 students drawn at random from the electrical installation, fitter mechanics, and truck mechanics departments at the regional vocational training institutes in Dar es Salaam and Mwanza. Conduct a follow-up meeting. The four vocational training facilities in the Dar es Salaam and Mwanza areas, two each, were the subjects of documentation analysis and six vocational teacher interviews. While the vocational tutors oversaw their students' practical work, the interview time varied from thirty to forty-five minutes. Workshop formative evaluation sheets and occupational curricula were part of the documentary analysis. Comparing the mark distribution for formative and summative evaluations was of particular interest.

The characteristics of these centres informed the selection of the research location. When compared to other centres in Tanzania, the ones that were selected stand out due to their size, number of students, and quality of resources. The researcher was able to meet students and vocational instructors from the electronics, fitter, and truck mechanics departments at the Vocational Training Centre. All participants, including faculty and students, were asked to sign an anonymous permission form before they could take part in the research. After organising the quantitative data into themes, we ran it through SPSS, a statistical application for the social sciences, to get the mean and standard deviation. Thematic analysis was used to code transcripts and then develop themes and categories for the qualitative data. The hypothesis that formative assessment procedures substantially and favourably impact the development of employability abilities among vocational students was tested using a multiple regression model. Here were the details of the model:

Model specifications

$$FA = \beta_0 + \beta_1 TWCs + \beta_2 CTPs + \beta_3 CIs + \beta_4 SCs + \beta_5 DTs + \beta_6 RMs + \beta_7 TPs + \acute{\varepsilon}$$

Whereby:

FA = Formative assessment
TWCs = Team work and collaboration skills
CTPs = Critical thinking and problem-solving skills
CIs = Creativity and innovation skills

SCs = Social and communication skills
DTs= Digital and technological skills
RMs= Resource management skills
TPs = Technical and professional skills
β_0, β_1, β_2, β_3, β_4, β_5, β_6, β_7 = Coefficients of variables used in the study
ε= Error term

Results and Discussions

The Views of Tanzanian Vocational Career Students on Crucial Employability Skills

Table 1: Views of Tanzanian Vocational Career Students on Crucial Employability Skills

Employability skills	Min	Max	Mean	Std Deviation	N
Social and Communication Skills	1	5	3.55	.842	97
Critical Thinking and Problem Solving	1	5	3.39	.953	97
Creativity and Innovation Skills	1	5	3.51	.805	97
Technical and Professional Skills	1	5	3.46	1.001	97
Digital and technological skills	1	5	3.30	1.002	97
Resource management skills	1	5	3.76	.933	97
Team work and Collaboration Skills	1	5	3.82	.866	97

While technical and professional abilities are fundamental to any given occupation, the majority of students ranked the ability to work in a team, collaborate effectively, and manage resources as the most important employability skill in the vocational skills category (table 1). As a means of corroboration, we spoke with vocational instructors, who put forward the following arguments:

Competence in managing resources is essential for technical and vocational jobs. Flat bars, plates, steel, and round pipes are all pricey resources, therefore it's ideal if you can work well with people, pay attention to customer

service, and prevent wasting these things (Fitter Mechanics instructors, January 2024).
There is a lot of variation among the various lathe, milling, and drilling machines. Consequently, graduates who are good at adjusting to changing technologies and coming up with innovative goods have an easier time finding work (Fitter mechanics teacher, January 2024).

The findings are consistent with those of Bano and Vasantha (2019), who classified skills relevant to the job market as analytical, digital, interpersonal, professional, and methodological. The results also corroborate those of an Australian research by Gill (2018) that found that problem solvers, job preparedness, practitioners, networking, and time management abilities are essential for employers. Consequently, it is arguable that, due to the complexity of the phenomena including a wide range of talents, there is no one ability that can guarantee one a job, regardless of one's financial situation. So, a set of competencies that vocational students must have includes information, abilities, and attitudes that are considered employable.

Methods of Formative Evaluation in Tanzanian Vocational Schools

Formative evaluation techniques are present in vocational training centres, according to a review of curriculum materials, field assessment forms, and practical workshop schedules. Students' performance on summative assessments makes for 60% of their overall performance, while formative assessments contribute 40%. Improving employability is the anticipated outcome of this formative evaluation. The goal of the interview was to gather further information. As one instructor put it:

Tutors oversee students as they complete practical assignments in the workshop or garage, and they grade their work based on how well it meets standards. According to the truck mechanics instructor from January 2024, the test gives pupils the chance to obtain instant feedback and work on their weaknesses.
Another instructor stated:
As part of their second year, students may participate in field placements to get hands-on experience in the electrical sector. Our in-person inspections and assessments of their work account for 40% of their final mark (Electrical tutor, January 2024).

Workshop assignments, field internships, and industrial projects are some of the formative assessment strategies used by vocational training institutes, according to the data. The goal is to enhance students' employability. Compared to its relative, the summative assessment, the formative evaluation is less important.

The Impact of Formative Assessment on the Development of Employability Skills

Table 2: Regression Table forecasting the impact of formative assessment on the enhancement of employability skills among vocational students

Variables	**Coefficients**	**t-statistic**	**Sig**	**Decision**
(Constant)	.073	.616	.539	
Social and Communication Skills	.058	1.808	.074	Supported
Critical Thinking and Problem Solving	-.003	-.182	.856	Rejected
Creativity and Innovation Skills	-.085	-2.541	.013	Supported
Media and technological skills	-.072	-2.558	.012	Supported
Resource management skills	.352	9.843	.000	Supported
Technical and Professional Skills	.087	3.098	.003	Supported
Team work and Collaboration Skills	.648	16.636	.000	Supported
Diagnostic tests				
R-Squared	97%			
Adjusted R-squared	97%			
F-statistics	1234.458			
Prob(F-statistics)	0.00000			
Durbin-Watson test	1.561			

Thus, the multiple regression model of this study is;

FA= 0.073 +0.648TWCs – 0.003CTPs -0.085CIs +0.58SCs-0.072DTs +0.352RMs + 0.087Ps + ε

As a general rule, a Prob F-Statistics value below 0.0000 indicates that the model is appropriate for the research.

Hypothesis Testing Results

Researchers in this research set out to test the hypothesis that vocational students' employability skills would benefit greatly from the use of formative assessment strategies. The results show that formative assessment has a positive and significant impact on developing skills in team work and collaboration ($\beta = 0.648$, $p < .000$), social and communication ($\beta = 0.058$, $p < .013$), resource management ($\beta = 0.352$, $p < .000$), and technical and professional ($\beta = 0.982$, $p < .000$). The abilities related to creativity and invention ($\beta = -0.087$, $p < .003$) and media and technology ($\beta = -0.072$, $p < .012$) are significantly impacted by formative assessment procedures in a negative way.

Along with that, in vocational training centres, formative evaluation had a negligible negative impact on critical thinking and problem-solving abilities ($\beta = -0.003$, $p < .856$). The findings imply that formative assessment procedures are insufficient to cultivate all of the necessary employability abilities on their own. Certain abilities depend on external variables. The findings contradict prior research on the topic of employability skills assessments, which found that students get instantaneous feedback on the efficacy of their own learning via formative evaluation. The research conducted by the Government of Wales (2016), Haris et al. (2017), Yusop at al. (2022), Crystal et al. (2022), and Alt et al. (2023) did not, however, define which employability skills may be enhanced by formative assessment and which cannot.

Conclusion and Recommendations

Working together as a team, the ability to think critically and solve problems, being creative and innovative, being able to communicate effectively, being proficient with digital and technological tools, being able to manage resources effectively, and having technical and professional expertise are all skills that students in Tanzania's vocational education and training centres consider essential for finding a job. They may be able to get a job, keep their current one, and advance in their careers if they have these abilities. Similarly, field placement, workshops and industrial projects are used as formative assessment procedures in vocational education and training institutions in Tanzania to improve employability skills.

Even though formative evaluation is important and has a favourable correlation with employability skills in vocational education, it is undervalued

and only accounts for 40% of the total. In contrast, summative assessment accounts for 60%. Formative assessment according to Sadler's idea requires students to fix their mistakes "on the fly" in order to improve their employability skills, which is at odds with the current 4:6 ratio of formative to summative evaluation. In light of this finding, the research suggests that, as the country moves towards competency-based education, curriculum reviews should prioritise formative assessment over summative assessment by a ratio of at least 75:25. Also, centres for vocational education and training should have the financial, human, and material means to carry out technical and vocational projects that provide students hands-on experience in their chosen fields. Research on the employability of Tanzanians with degrees in vocational education might lead to the creation of a new scale.

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