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Formative Assessment Practices and its Effect on Employability Skills to Vocational Students in Tanzania

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ABSTRACT

The study evaluated the effect of formative assessment practices on employability skills development. Specifically, the study explored students' perceptions on essential employability skills for vocational career; examined formative assessment practices in vocational training centres and assessed the influence of formative assessment practices on employability skills among vocational students in Tanzania. It adopted a pragmatism paradigm which enabled the use of sequential explanatory mixed methods design. Data were collected from 97 vocational students and six vocational tutors sampled from Chang'ombe and Mwanza Vocational training centres. The quantitative and qualitative data were analyzed using regression model and content analysis techniques respectively. The study found that, vocational Students perceive a number of employability skills as essential for their career. The vocational education and training centres employ workshop, industrial projects and field placement as formative assessment practices to enhance such employability skills. However, formative assessment which is essential for employability skills, accounts only for 40%, compared to 60% of its counterpart summative assessment. Therefore, the study recommends for curriculum review to give formative assessment a more weight than summative assessment. Further study may develop measuring scale for employability skills among vocational education graduates in Tanzania.

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

INTRODUCTION

The global education systems are pressurized by the global economy to develop employability skills among graduates towards the labour market demand (Idris, 2012; Voinea, 2018; Scholtz, 2020). Employability skills as a set of skills, knowledge, and personal attributes, is essential for graduates to enable them get employment or retain one's employment position productively (Yorke, 2006). The skills, as established by the Australian employability skills framework, include communication, team work, problem solving, initiatives and enterprising, planning, self-management, resource management, learning and technological skills (Australian Government, 2004). Whereas, employees need them to cope with the working environment, employers need their workers to possess them in order to achieve their organizational objectives in the competitive market (National Council of Educational Research and Training, 2020). Those skills are required by employees not only at entry level of the job, but also in career development and promotion (Robinsons & Garton, 2008).

The need to develop employability skills among vocational students can be traced back to 1950 industrial revolution in Europe, where the change of production technology and globalization processes necessitated skilled workforce to meet the labour market demand (Nourian & Gloddousi, 2015). As the global governments strive to achieve sustainable development goals 2030, employability skills among vocational students are tool to achieve decent works for economic sustainability (ILO, 2021; United Nations, 2019). Consequently, the assessment methods required restructuring to ensure that vocational students develop relevant vocational skills for their career (Carey, 1997). The methods should enhance the development of hands-on skills required by employers in both, public and private sectors (Scholtz, 2020). Such assessment should be conducted in the natural context of work and provides valuable

feedback for improvement of both, students and instructors (Liu, 2012; Budi & Sulisworo, 2018). The assessment should be formative rather than summative to detect faults and skills gaps among learners to be worked out by both, students and tutors (Centre for Educational Research and Innovation, 2008). Formative assessment, also, should provide direct feedback for improvement before vocational students accomplish their study programmes (Vingsle, 2014). It should enable students to judge the quality of the product they are producing and take affirmative actions for improvement (Voinea, 2018). Further, it should enable tutors to identify skills gaps and address them before students to join the world of work (Saedon et al., 2010). It serves as a platform for continuous improvement through valuable feedback interactions among students, tutors, and management (Beard & Bussey, 2007).

Therefore, due to its pivot role in enhancing employability skills, formative assessment is widely used in both, developed and developing countries, such as Malaysia, Indonesia, Australia, Norway, United Kingdom, United States of America, India, Nigeria, and South Africa (Scholtz, 2020; Liu, 2012; Budi & Sulisworo, 2018; Robbins et al., 2018; Lester, 2011; Dahlback et al., 2020; OECD, 2013). The role of formative assessment in VET, cannot be over emphasized due to its power to enhance student learning and effective teaching, hence students develop the desired skills (Yorke 2001). Some scholars argue that formative assessment can contribute to student development and retention (Yorke, 2005), employability skills (Cassidy 2006), and lifelong learning (Boud, 2000). Others describe how formative assessment can facilitate class participation (Dancer & Kamvounias 2005) and improve students' attendance, performance, and presentation (Ghazi & Henshaw 1998). Formative Assessment (FA) should not be reserved for an examination achievement after the teacher has completed instruction, but rather alongside the teaching

and learning processes Ginsburg (2009). In Tanzania, formative assessment gained momentum in 2005, when education system was changed from content to competency-based education (Kadau & Mallya, 2023). The purpose was to track competence development among students before they graduate (NECTA, 2021). The feedback provided during such assessment is essential for detecting default during competence development, hence attract intervention measures for improvements (Poulos & Mahony, 2008; Sadler, 1989) and used to improve their learning (Black & Wiliam, 1998). Vocational education and training (VET) institutions in Tanzania were established under vocational education and training Act, CAP 82, to provide quality vocational skills to students for occupational, industrial or technical works (URT, 2019).

VET adopts formative assessment for developing employability skills to its graduates in 822 vocational centres in all regions of Tanzania (MoEST, 2021). Despite the adoption of formative assessment, most of vocational graduates are not employed in Tanzania (Mihyo et al., 2020). This situation has raised a need for exploring students' perceptions on essential employability skills for vocational career; examining formative assessment practices in vocational training centres and assessing the influence of formative assessment practices on employability skills in vocational students in Tanzania. The formative assessment theory by Sadler (1989) guided the study based on its assumption that assessment should enhance learning, and feedback in assessment is vital to track learning progress (Sadler, 1989; Heritage, 2010).

Methodology

The study employed a pragmatism paradigm and a sequential explanatory mixed methods design to utilize quantitative and qualitative data collection and analysis methods and techniques

(Creswell, 2014). Data were collected through questionnaires from 97 students who were randomly selected from electrical installation department, fitter mechanics department and truck mechanics department in both Dar es Salaam and Mwanza regional vocational training centres. Follow-up face to face Interview was conducted to six vocational tutors and documentary analysis from Chang'ombe and Mwanza vocational training centres in Dar es Salaam and Mwanza regions. Each interview duration ranged between 30 to 45 minutes in the vocational workshop where vocational tutors were supervising practical works for their respective students. The documentary analysis involved vocational curriculum and formative assessment sheets in the workshops. The interest was to see the marks distribution for formative assessments, compared to summative assessment.

The choice of the study area was based on the nature of such centres. The chosen centres are giant in Tanzania, with adequate resources, students and staff compared to the rest. The researcher obtained introduction letter from The Open University of Tanzania, which was presented to Vocational Training Centre authorities whom introduced the researcher to students and vocational tutors from fitter and truck mechanics as well as electronics departments. Students and staff were requested for their consent to participate in the study and their identities were kept anonymous. The quantitative data were coded into themes then subjected into statistical package software for social sciences (SPSS) to generate mean and standard deviation. The qualitative data were analyzed through thematic analysis where transcripts were coded and then categories and themes were generated. The multiple regression model was used to test the hypothesis that, formative assessment practices influence positively and significantly the development of employability skills among vocational students. The model specifications were:

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
$\acute{\varepsilon}$= Error term

Results and Discussions

Students' Perceptions on Essential Employability Skills in Tanzania Vocational Career

The vocational students' perceptions on essential employability skills in Tanzania are presented in table 1.

Table 1: Students' Perceptions on Essential Employability Skills in Tanzania Vocational Career

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

As indicated in table 1, most students perceived team work and collaboration skills as well as resource management skills as the most essential employability skills in Vocational skills as compared to technical and professional skills which are core in their field. Triangulating these results, interviews were conducted to vocational tutors, who argued the following:

> *Key employability skill in technical and vocational career is resource management. This is due to the fact that we use expensive materials like flat bars, plates, steel and round pipes, so an individual who avoid wastage of such materials and who can work friendly with others, observe customer care is preferable (Fitter Mechanics tutors,* Sept 2023).
>
> *The lathe, milling and drilling machines and their versions change frequently. Therefore, a graduate who*

> *is easy to adapt new technology and innovate products for the labour market get employment easily'* (Fitter mechanics tutor, September 2023)'.

The results are in-line with Bano and Vasantha (2019) who categorized employability skills as professional, methodological, interpersonal, personal skills, analytical and digital skills. Furthermore, the findings are in line with Australian study by Gill (2018) who argued that employers require problem solvers, workers' readiness to work, practitioners, networking, and time management skills. Therefore, it can be argued that, there is no single skill which can enable one to get employment, whether wage of self, because employment in a competitive labour market, is a complex phenomenon which entails a lot of abilities from an individual. Therefore, employability skills are a set of knowledge, skills, and behaviours which vocational students are required to possess.

Formative Assessment Practices in Tanzania Vocational Training Centres

The analysis of the vocational training curriculum documents, field assessment forms, and practical workshop schedules indicate that, there are formative assessment methods in vocational training centres. The formative assessment weighs about 40% of the students' assessment while summative assessment accounts for 60% of the total assessment. This formative assessment is expected to enhance employability skills. The interview was conducted for triangulation purposes. One tutor commented:

> *Students are given practical assignment in the workshop or in the garage where tutors observe and assess the quality of student works, and award marks accordingly. The assessment enables students to get immediate feedback and correct the errors for improvement* (Truck mechanics tutor, Sept 2023).

Another tutor said:

> *In their second year, students are placed for field practice in the real world of work where electrical works are performed. We visit them to observe and assess their works then award them marks accordingly, which accounts for 40% marks* (Electrical tutor, September 2023).

The results indicate that vocational training centres conduct different formative assessment, such as workshop assignment, field placement and industrial projects in order to enhance employability skills. The formative assessment has little weight compared to its counterpart summative assessment.

The Influence of Formative Assessment on Employability Skills Development

The regression model was run to predict the influence of formative assessment on employability skills development among vocational students**.**

Table 2: Regression Table

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 + έ

The model is fit for the study because the Prob F-Statistics is below 0.0000 which is not above 0.5 as the rule of the thumb.

Hypothesis Testing Results

The study hypothesized that formative assessment practices influence positively and significantly the development of employability skills among vocational students. The results, as indicated in table 3, reveals positive coefficients and significant influence of formative assessment

on the development of team work and collaboration skills with (β = 0.648, p < .000) social and communication skills with (β = 0.058, p < .013), resource management skills with (β = 0.352, p < .000), as well as technical and professional skills with (β = 0.982, p < .000). However, there is negative coefficients and significance influence of formative assessment practices on creativity and innovation skills with (β = -0.087, p < .003) as well as media and technology skills with (β = -0.072, p < .012). Moreover, there is a negative coefficient and insignificant influence of formative assessment on critical thinking and problem-solving skills with (β = -0.003, p < .856) in vocational training centres. The results suggest that formative assessment practices by themselves cannot develop all the essential employability skills. Some skills rely on other factors. The results differ from previous studies related with assessment for employability skills which established that, formative assessment provides immediate feedback on the quality of learning outcomes. However, the studies did not specify which employability skills can be developed through formative assessment and which cannot (Government of Welsh, 2016; Haris et al., 2017; Yusop at al., 2022; Crystal et al., 2022; Alt et al., 2023).

Conclusion and Recommendations

Students in vocational education and training centres in Tanzania perceive the following as essential employability skills are: team work and collaboration skills, critical thinking and problem solving, creativity and innovation skills, social and communication skills, digital and technological skills, resource management skills, technical and professional skills. Such skills may enable them to secure jobs or retain their job positions and develop their career. Similarly, vocational education and training centres din Tanzania employ workshop, industrial projects and field placement as formative assessment practices to enhance employability skills. Despite the significance and positive relationship between formative assessment and employability

skills in vocational education, the approach is marginalized by accounting only for 40%, while summative assessment weighs 60%. The weighing ration 4:6 between formative and summative assessment practices deviates from Sadler's theory of formative assessment which insists on the 'on sport' correction of errors to enhance employability skills development. Basing on this observation, the study recommends for curriculum review to give formative assessment a more weight than summative assessment, at least 75:25 as the national embarks on competence-based education. Also, vocational education and training centres should be capacitated in material, technical and expertise resources in order to perform technical and vocational projects which enable their students practice their skills in a real world of work. Further study may develop measuring scale for employability skills among vocational education graduates in Tanzania.

Limitation of the Study

There are more than 35 vocational training centres in Tanzania, but the study sampled vocational students and tutors from only two vocational training centres and both owned by the Government; this is a limitation. However, such situation could not affect the results because all vocational training centres in Tanzania follow similar curriculum practice, regardless of their geographical location or type of ownership.

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