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Competency-Based Assessment in Entrepreneurship Education in Kenya's Tertiary Institutions

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Abstract

Education systems worldwide are shifting to knowledge-based curricula with emphasis on the learners' acquisition of relevant competencies. Entrepreneurship education was introduced in tertiary institutions in Kenya in 1999 to produce entrepreneurs, including preparing graduates for the world of work. However, limited studies have focused on the assessment of acquisition of such competencies, especially in entrepreneurship education. This study was designed to examine the effectiveness of assessment modes used in entrepreneurship education in imparting requisite competencies among students in tertiary institutions in the country. The study adopted a cross-sectional research design. A total of 412 students selected from three tertiary institutions were involved in the study. Data were collected using questionnaires and analysed quantitatively using descriptive and inferential statistics. The study showed that written examinations were the most commonly used mode of assessment of entrepreneurship education, followed by projects and attachment. The study revealed that there is no significant difference in the influence of the mode of assessment as adopted in the different tertiary institutions in fostering the acquisition of competencies (F Ratio<F Critical) (0.835<3.02). However, when the requisite competencies were compared, the study showed that the mode of assessment adopted enhanced acquisition of ideas and opportunities (0.313 units) and resources (0.364 units) competencies more compared to the into-action competencies (0.249 units). To enhance the acquisition of relevant competencies, the study recommends adoption of different appropriate modes of assessment in entrepreneurship education.

Keywords: Assessment, competence, entrepreneurship education, tertiary institution

Introduction

To produce graduates with the requisite competencies in their areas of specialization and world of work, the world's education systems have been shifting from the traditional lecture-based

curriculum to a knowledge-based one (Hassanein, 2021). Since tertiary institutions have a crucial role in supplying to the labour market competent workforce (Chukwurah & Akpo, 2019), there is need to provide a kind of curriculum that imparts to their students the required competencies. According to Hassanein (2021) and Chukwurah and Akpo, (2019), the crucial evidence of the relationship between tertiary education and development manifests in the institutions' teaching and learning function. Assessment of the learning outcomes is an important function in the teaching and learning process (Lile & Bran, 2014, Bhatti, Doghan, Saat, Johari & Alshagawi, 2021). It is on this backdrop that the current study sought to assess the effectiveness of the modes of assessment adopted in tertiary institutions in assessing entrepreneurial competencies in one of Kenya's counties.

Entrepreneurship education is taught to students in both universities as well as technical institutions as a means of enhancing graduate self-employment (Mshenga, Okello, Ayua, Mwangi, Jabu & Mungai, 2020; Ngigi, Gichunge & Orero, 2020). However, a study by Yusoff, Zainol, and Ibrahim (2015), on the effectiveness of entrepreneurship education in Malaysian public institutions of higher learning showed that universities produced many graduate entrepreneurs, but did not attract them to being entrepreneurs, compared to those from the technical and vocational education training (TVET) institutions. This implies that TVET centres in Malaysia have been able to inculcate students with entrepreneurial competencies better in comparison to the universities. The success of entrepreneurship programmes in Malaysia, according to Rahim, Kadir, Abidin, Junid, Kamaruddin, Lajin, Buyong, and Bakri (2015), was attributed to the fact that in addition to the compulsory entrepreneurship education course, the students are exposed to many entrepreneurial activities such as seminars, short courses, conferences, and related events within the duration of the study which enable them to link course content with entrepreneurship. While these studies observed the students' activities within the duration of the study, they did not consider the effectiveness of the modes of assessment that were adopted to assess entrepreneurship education in these institutions.

Studies have shown that entrepreneurship education can build on entrepreneurial competencies (Bacigalupo, Kampylis, Punie & Van den Brande, 2016; European Union, 2017; McCallum, Weicht, McMullan, & Price, 2018; Chukwurah & Akpo, 2019). However, the challenge is how effective tertiary institutions are in assessing entrepreneurial competencies. For instance, the study by Masemola (2013) on the assessment of competencies acquired by alumni students in the University of South Africa showed that 41.4% of them were not equipped with entrepreneurial skills, 54% needed practical knowledge of how to start a

business, and 15.3% who were already self-employed lacked the necessary skills in running their enterprises. This study indicated that there was a deficit in the orientation of students to being entrepreneurs. On the other hand, Gibb (2005) observed that learners are expected to write down their own objectives in a bid to reflect and do a self-assessment at the end of the learning process. While assessment could be done at any point of the learning process, this would be an integral aspect of gauging whether learning took place (Bhatti, Doghan, Saat, Johari & Alshagawi, 2021; Shirandula, 2021). Limited studies have focused on the assessing students acquired competencies.

Literature Review

Kenya introduced the Competence Based Curriculum (CBC) as a new system of education in 2016. Its 6-6-3 structure replaced the 8-4-4 system (Kenya Institute of Curriculum Development (KICD, 2016). In the CBC, competencies have to be assessed by use of questionnaires, rubrics, portfolio, rubrics, projects, journals, anecdotes, records, oral questioning, rating scale, learners profile, written tests and observation schedules (KICD, 2016). The KICD observed that these modes of assessment present to the learner conducive environments for learning. These assessment modes are aligned with Kenya's Vision 2030 development blueprint which calls for a curriculum that develops learner's entrepreneurial competencies in addition to the identification and nurturing of talents (Republic of Kenya, 2014). Whilst the KICD has recommended these modes of assessment as being ideal in enabling students to acquire competencies, there is need to assess their effectiveness in tertiary institutions, a focus of this study.

Assessment of students in entrepreneurship education has often posed a challenge (Mwasalwiba, 2010; Lokoko, Rankhumise, & Ras, 2012). For instance, the analysis of different journals that was conducted by Mwasalwiba (2010) on the assessment of entrepreneurship education revealed that little attention had been dedicated to how to measure the overall effectiveness of this unit by individuals and society. On the other hand, Lokoko, Rankhumise and Ras (2012) observed that the lack of generally accepted measures was due to the different factors characterising entrepreneurship education such as the target group. Entrepreneurship education, for instance, is not only taught to students in formal education alone but also to persons in the non-formal education or in business. This study sought to compare the effectiveness of the formal type of entrepreneurship education that is taught to diploma students in selected tertiary institutions in Kenya.

Studies in Kenya have shown that entrepreneurial competency is measured by assessment of entrepreneurship education which is largely theoretical (Calhoun, Davidson, Sinioris, Vincent & Griffith, 2002; Republic of Kenya, 2019). However, Etzkowitz and Viale (2010) observed that there is need to link what is taught in school with what is happening in the industry as in a triple helix society. The Kenyan government introduced the Competence-Based Education and Training (CBET) as a means of testing a variety of student's competencies, especially during industrial attachment (Republic of Kenya 2018; Republic of Kenya, 2019). In this mode of assessment, students in TVETs are assessed by both internal and external verifiers who are trained to national standards by the TVET Curriculum Development Assessment and Certification Council (CDACC) (Republic of Kenya, 2018). Thus, students in an institution would be assessed together at an appropriate time. Accordingly, each student is assessed when they feel that they are ready to minimise re-seats (Republic of Kenya, 2018).

The current study focused on third-year students at Kisii University (KSU) and two TVET institutions; Kisii National Polytechnic (KNP) and Keroka Technical Institute (KTI). For both KNP and KTI, students had been exposed to the industrial attachment at the end of both their first and second years of study and this placed them in a position to identify the competencies required in the industry. On the other hand, students in the universities are assessed by their lecturers who are the internal verifiers as universities are autonomous. A comparative analysis of the modes of assessment adopted in the TVET institutions as well as the universities would provide useful information regarding entrepreneurial competency acquisition.

Kenya has a centralised system of education. The epistemological reason for a centralised education system is to reinforce national strength (Bray & Kai, 2014). This consequently produces products that have similar qualifications. However, education at the post-secondary level is mixed as the TVET institutions are controlled by the national government through semi-autonomous agencies such as the KICD and Kenya National Examination Council (KNEC), while universities are autonomous, including the control over their own examinations (Republic of Kenya, 2012b; Kaane, 2014; Republic of Kenya, 2016).

The Entrepreneurship education curriculum in the country was introduced in the tertiary institutions in late 1999 and developed within the framework of the International Labour Organisation (ILO) and United Nations Development Programme (UNDP) in a bid to create persons with entrepreneurial competencies (Republic of Kenya, 1988; UNDP, 2009; Farstad, 2002). Diploma examinations in universities are a combination of continuous assessments

whose marks are combined with an internal terminal examination for each unit at the end of the semester (Republic of Kenya, 2012b). On the other hand, national examinations are conducted at the end of each module or academic year through a final external examination conducted by the KNEC in both national polytechnics and technical training institutes (Republic of Kenya, 2012b). This difference in assessment has been observed to create disparity in the qualification of diploma graduates (Republic of Kenya 2012a; Republic of Kenya, 2005). A comparative analysis of the model of assessment of entrepreneurship education would provide information on the effective mode of assessment of competencies to be adopted by tertiary institutions.

Statement of the Problem

Entrepreneurship education is considered as a precursor to the industrial development of any country. This explains why this unit has been incorporated in diploma courses in different tertiary institutions (Bacigalupo., Kampylis, Punie, Van den Brande, 2016; Wang, Yueh & Wen, 2019; Hassanein, 2021). Effective acquisition of competencies is integral to providing a competent labour force for the country (Hassanein, 2021). In a bid to assess competences, different modes of assessment have been adopted by different institutions (Republic of Kenya, 2014; Shirandula 2021). This study sought to determine the effectiveness of modes of assessment of entrepreneurship education in enabling students to acquire the required competencies.

Study Objectives

1. To determine the influence of the modes of assessment of entrepreneurship education on acquisition of requisite competencies.
2. To compare the modes of assessment of entrepreneurship education adopted in the different tertiary institutions in fostering students' acquisition of requisite competencies.

Hypotheses

Ho1. There is no significant difference in the influence of modes of assessment of entrepreneurship education in fostering students' acquisition of the requisite competencies.

Ho2. There is no significant difference in the modes of assessment of entrepreneurship education adopted in the different tertiary institutions in fostering students' acquisition of the requisite competencies.

Theoretical framework

The study adopted the Entrepreneurship Competence Framework (EntreComp framework) (Bacigalupo, Kampylis, Punie, Van den Brande, 2016). The EntreComp framework builds a bridge between the worlds of work and education and encourages active participation in all economic and societal areas, allowing citizens to turn ideas into actions, creating value, not just for oneself (Teneva, 2018). The framework has three competence areas (ideas and opportunities, resources, and into-action); with each competence area having five competencies (see Figure 1).

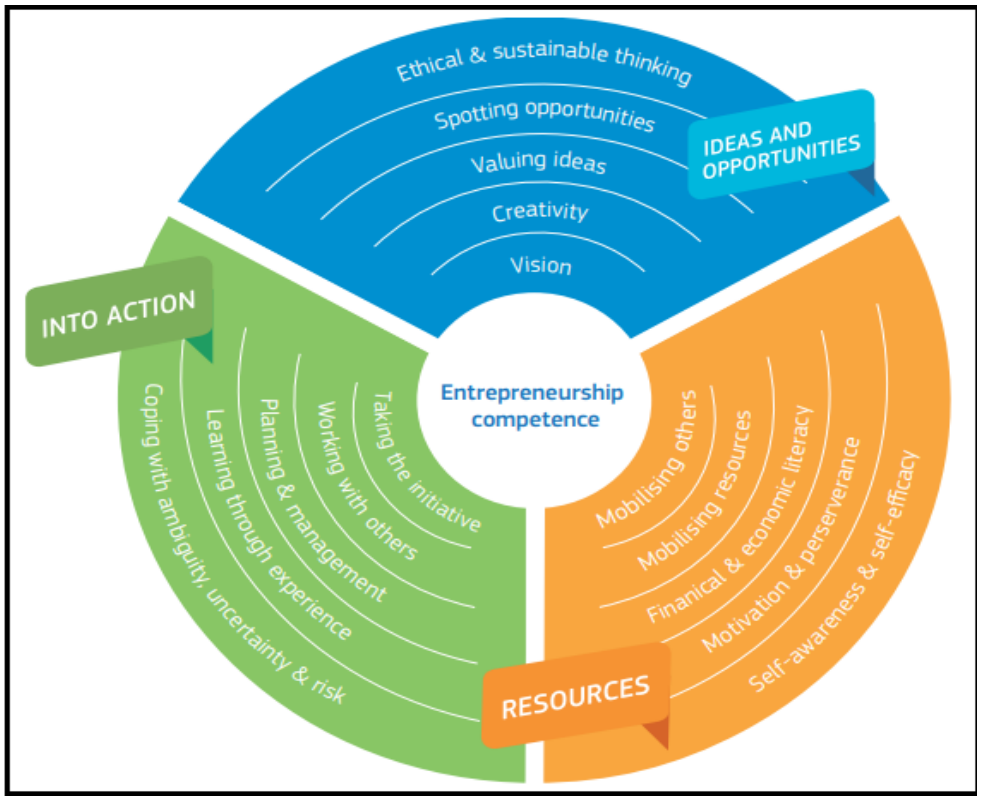

Figure 1. EntreComp Wheel

(Source: Bacigalupo, Kampylis, Punie, Van den Brande, 2016)

Each competence has associated learning outcomes. According to Bacigalupo, Kampylis, Punie, Van den Brande, (2016), the learning outcomes are statements of what a learner knows, understands, and can do after learning. These statements can be used for educational planning and curriculum development. This is because the learning outcomes help to design the mode of assessment (Proitz, 2010). The EntreComp framework sets out a set of expected learning outcomes in each competency (McCallum, Weicht, McMullan, & Price, 2018). This study adopted the framework and used the associated learning outcomes to

compare the effectiveness of entrepreneurship education in respect to the mode of assessment as adapted in three tertiary institutions in Kisii County, Kenya.

Methodology

The study adopted a cross sectional research design. According to Kesmodel (2018) and Maninder (2016), this design is ideal in obtaining a holistic understanding of the phenomenon under investigation. The research design was appropriate in assessing the experiences of respondents with similar exposure at a given point in time. The assessed students had been exposed to entrepreneurship education while undertaking their diploma course. In the process of undertaking their course, different modes of assessment were adopted. The research design was appropriate in establishing the effectiveness of the modes of assessment of entrepreneurship education in enabling trainees to acquire competencies.

This research design was considered to be appropriate in determining the effectiveness of entrepreneurship education in imparting the requisite competencies among third-year students in the 2019/2020 academic year in the three selected tertiary institutions in this study.

Population

This study targeted all third-year diploma students in selected public tertiary institutions (KSU, KNP and KTI) in Kisii County. The three institutions were a national university, a national polytechnic, and an institute of technology, respectively. These institutions offered similar diploma courses to students where entrepreneurship education was taught. According to Bray and Kai (2014), an 'intranational' system of education is a situation where different systems of education are observed in the same country. They further observed that when comparing systems of education, researchers would be able to identify elements which converge and diverge despite having common overreaching frameworks.

Purposive sampling was used to identify diploma courses (personnel /human resource management, supply chain/stores and supplies management, business management/business administration, and Information Communication Technology/Information Technology) since they are offered in the selected institutions in the 2019/2020 academic year. This study sought to assess the effectiveness of the mode of assessment of entrepreneurship education that were adopted in these institutions.

The study targeted 180 students at KSU, KNP (220) and KTI (230) in the 2019/2020 academic year. The sample size for students in each target population or tertiary institution was determined using Glenn's (2012) sample size determination formula which is presented below.

$$n = \frac{N}{1 + N(e)^2}$$

In the equation, *N* is the total population of students in an institution, *n* is the sample size for each institution and, *e* is the level of precision which was 0.05. Using this formula, the sample size for students in the three institutions was calculated as follows: 124, 142 and 146 students in KSU, KNP and KTI, respectively.

Selection of participants

Proportionate sampling, which involves dividing a population into sub-populations and then applying the random sampling technique for each of them (Deshpande & Grime, 2019) was used. Since this study constitutes three target populations (KSU, KNP and KTI), each was divided into sub-populations, comprising four courses (IT/ICT, human/personnel resource management, supply-chain/store management, and business management/administration). Proportionate sampling was adopted in the process of selecting the final subjects proportionately from the different sub-populations or courses.

Instruments

To determine the prevalence of a particular trait among respondents, Kesmodel (2018) has recommended the use of questionnaires. The student's questionnaires comprised of five-point Likert scale items. According to Jamli and Salim (2019), the Likert scale would be appropriate in the process of collecting data from a large group of respondents. In this study, a total of 412 questionnaires were distributed by the researcher to three institutions (124 in KSU, 142 in KNP, and 146 in KTI).

The student's questionnaire was divided into two sections. The first section sought to identify the modes of assessment adopted in the institutions, as well as the persons responsible for the setting and marking of the examinations. The second section of the questionnaire comprised of five-point Likert scale items regarding the related competencies. The Likert scale items were adopted from the EntreComp model (Bacigalupo, Kampylis, Punie, & Van den Brande, 2016).

Analytical framework

Inferential statistics were used to form a database from which to infer characteristics concerning the population (Kothari, 2014). Inferential statistics involved the use of regression analysis and ANOVA. In this study, simple regression equation was used to find the relationship between each independent variable and the dependent variable (Saunders, Lewis & Thornhill, 2007).

Regression analysis allowed an examination of the relationship between several individual independent variables on one dependent variable. To assess the extent to which the modes of assessment adopted in the different tertiary institutions were effective in fostering students acquire the requisite competencies, a regression equation was developed.

$$C_{MoE} = \beta_1 MoE_1 + \beta_2 MoE_2 + \beta_3 MoE_3$$

Where:

C_{MoE} – required competencies linked to the mode of assessment.

MoE_1 - denotes aspects of modes of assessment to ideas and opportunities component of entrepreneurship competency

MoE_2 - denotes aspects of modes of assessment associated with the resources component of entrepreneurship competency

MoE_3 - denotes aspects of modes of assessment associated with the into-action component of entrepreneurship competency

β_1, β_2, and β_3 are coefficients of MoE_1, MoE_2, and MoE_3 variables denoting the number of times competency will change if any variable is changed by 1 unit.

To establish the effectiveness of modes of assessment on required competencies, a regression analysis of C_{MoE} on MoE_1, MoE_2 and MoE_3 was conducted.

Data Collection Procedures

The reliability condition was met by use of test-retest which was separated with a three weeks' time interval from 17th September to 8th October 2019. According to Christodoulou, Kalokairinou, Koukia, Intas, Apostolara, Dalas, and Zyga (2015), the three-week period was long enough to prevent learning or recall.

Criterion validity ensures that the method of measurement matches the criterion the researcher intends to measure (Rahim, Mohamed, Masrom & Amrin, 2018). To achieve this, they have recommended that items in the questionnaire be based on the existing knowledge.

Rowley (2014) suggested the adoption of items from published work since they have already been validated. Thus in this study, the items in the Likert scale were adapted from the EntreComp model developed by Bacigalupo, Punie, and Brande (2016) as well as McCallum, Weicht, McMullan, and Price (2018).

In Kenya, the National Commission for Science, Technology and Innovation (NACOSTI) was put in place following the enactment of the Science Technology and Innovation Act, 2013 (Republic of Kenya, 2013) to oversee the overall code of conduct that governs the way research is carried out. This study adhered to the NACOSTI requirements that include observing such ethical considerations as confidentiality of the data collected as well as anonymity of the study respondents.

The questionnaires were administered to the respondents at both the pilot stage and the main study. Administering of the questionnaires was conducted during the official working days (Monday to Friday) and hours (8:00 am to 4:00 pm) at the convenience of the respondents in their respective institutions. The questionnaires were then collected once the respondents had filled them.

Findings

Modes of Assessment of Entrepreneurship Education adopted

The study sought to identify the modes of assessment of entrepreneurship education adopted in different tertiary institutions. An analysis of the student's responses is presented in Figure 2.

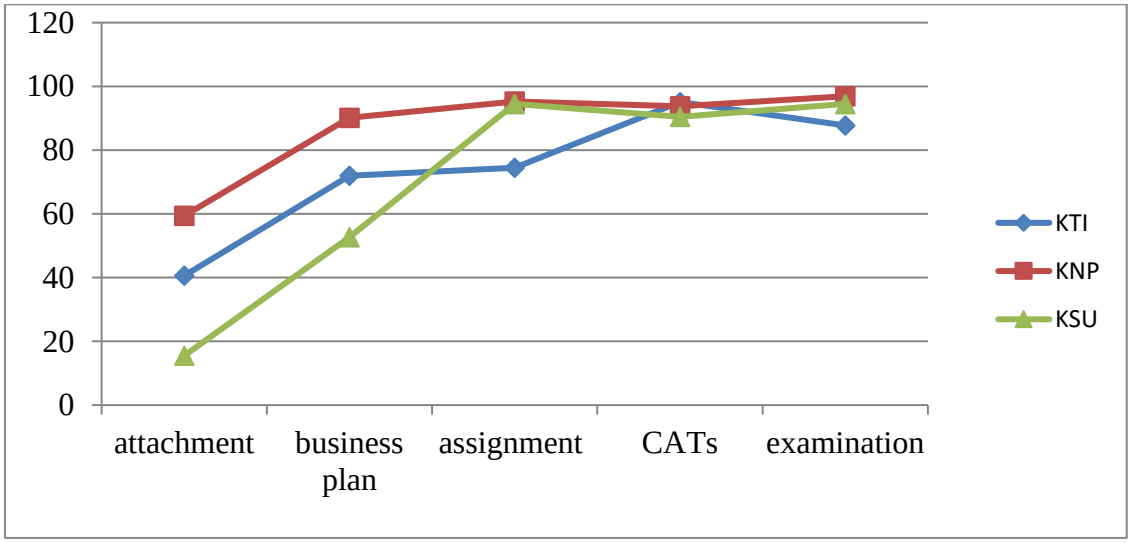

Figure 2: Modes of Assessment Adopted in Tertiary Institutions

Source: Current Study

Figure 2 shows that cognitive (Continuous Assessment Tests (CATs), assignments, and examinations) as well as operational structures (attachment and business plans), were adopted in the assessment of students in the three tertiary institutions. The majority of students observed that they were exposed to assignments and CATs which are categorized as cognitive structures (Calhoun, Davidson, Sinioris, Vincent & Griffith, 2002; Zimmerman, 2012).

According to Sessional Paper Number 1 of 2019, students in the TVET institutions (in this case KNP and KTI) are required to go for a compulsory attachment every academic year to expose them to the industry experience (Republic of Kenya, 2019). This could have contributed to more students in KNP (59%) and KTI (41%) stating that attachment was a mode of assessment compared to the students in KSU (15%).

Effectiveness of Mode of Assessment in Competency Areas

In this study, students were asked to indicate the extent to which the mode of assessment that was adopted in their institution fostered their acquisition of entrepreneurial competencies. These statements were grouped into three competency areas: ideas and opportunities, resources, and into-action. Competencies in ideas and opportunities were spotting opportunities, and creativity, while those in the resource competence area were mobilized resources and financial and economic literacy. Finally, competencies in the into-action competence area were to do with working with others.

Table 1 shows the summary of the regression equation output.

Table 1 Mode of Assessment effect on acquired Competencies

	Coefficients	Standard Error	t Stat	P-value	Regression statisctic
MoE1	0.313	0.041	7.664	0.000	
MoE2	0.364	0.044	8.192	0.000	
MoE3	0.249	0.043	5.826	0.000	
Multiple R					0.96
R Square					0.927

Source: Current Study

From the above model, the required competencies associated with modes of assessment can be estimated using the following equation.

$C_{MoE} = 0.313MoE_1 + 0.364MoE_2 + 0.249MoE_3$ $(R^2 = 92.7\%, R = 0.96)$

In Table 1, the coefficients column shows that all aspects of modes of assessment associated with ideas and opportunities, resources, and into-action competency areas positively affect the acquired competencies. This implies that any positive change in MoE_1, MoE_2, and MoE_3 brings about a positive change in the acquisition of the required entrepreneurship competencies. For instance, a unit change in aspects of modes of assessment associated with ideas and opportunity while other factors are held constant will change the acquired competencies by 0.313 units. Similarly, a unit change in aspects of modes of assessment associated with resources while other factors are held constant will change the acquired competencies by 0.364 units. Similarly, a unit change in aspects of modes of assessment associated with into-action competencies while other factors are held constant would change acquired competencies by 0.249. Thus, the modes of assessment adopted in the three institutions effectively influenced the acquisition of resources and ideas, and opportunities competencies more than the into-action ones. This result is similar to the study that was conducted by Rahayu, Wijijayanti, and Agustina (2019) which showed that the mode of assessment adopted in evaluating entrepreneurship education lacked aspects measuring change of attitude but rather focused on the subject matter. This could be attributed to the fact that the modes of assessment adopted required students to recall what was taught in class.

The P-values of 0.00 > 0.05 suggest that MoE_1, MoE_2, and MoE_3 (ideas and opportunities, resources, and into-action) are significant in explaining the effect of mode of assessment on the acquisition of the requisite competencies. The R^2 value of 92.7% change in C_{MoE} (mode of assessment) can be explained by changes in ideas and opportunities, resources, and into-action (MoE_1, MoE_2, and MoE_3). This means that 92.7% of changes in the mode of assessment can be explained by MoE_1, MoE_2, and MoE_3 (changes associated with ideas and opportunities, resources, and into-action).

The regression analysis results show a very strong positive relationship (R = 0.96) between the mode of assessment and fostering entrepreneurial competencies (MoE_1, MoE_2, and MoE_3). This indicates that an improvement in the mode of assessment will positively foster the student's entrepreneurial competencies.

Ho1. There is no significant difference in the influence of modes of assessment of entrepreneurship education in fostering students' acquisition of the requisite competencies.

To assess the first hypothesis, an ANOVA was carried out to determine the extent to which the mode of assessment fosters the acquisition of the acquired competencies. The results of this analysis are presented in Table 2.

Table 2 Mode of Assessment in fostering Competency areas

	df	SS	MS	F	F crit
Regression	3	1379.86	459.95	1622.74	0.00
Residual	378	107.14	0.28		
Total	381	1487			

Source: Current Study

From the results in Table 2 above, (F ratio > F critical) [F 3, 378) =1622.95 > 0.00]. This shows that there is a significant difference in the extent to which mode of assessment of entrepreneurship education was effective in fostering the acquisition of the requisite competencies (ideas and opportunities, resources, and into-action competencies). This suggests that the modes of assessment adopted fostered the acquisition of competencies differently.

Ho2. There is no significant difference in the modes of assessment of entrepreneurship education adopted in the different tertiary institutions in fostering students' acquisition of the requisite competencies.

To examine effectiveness of assessment modes among the three institutions, an ANOVA for the average responses was carried out. The results that were obtained from the respondents are presented in Table 3.

Table 3 Effectiveness of Mode of Assessment per Institution

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	1.244	2	0.622	0.835	0.435	3.02
Within Groups	281.439	378	0.745			
Total	282.682	380				

Source: Current Study

From the results in Table 3, the F value is less than F critical (0.835 < 3.02) implying that there is no significant difference in the mode of assessment in the three institutions. This means that although students were exposed to different modes of examinations, CATs, assignments, attachment, and project writing, there was no significant difference in the extent

to which these modes of assessment adopted in the three institutions fostered the acquisition of competencies.

The P-Value (0.435 > 0.05) was greater than 0.05, hence it can be concluded that the modes of assessment in the three institutions (KSU, KNP, and KTI) are not statistically significantly different at 5% significance level (P < 0.05). Therefore, despite the fact that different modes of assessment adopted in the three institutions, there was no significant difference in their influence in fostering acquisition of competencies.

Discussion

The modes of assessment adopted in the three institutions ranged from the use of Continuous Assessment Tests (CATs), assignments, examinations, and attachment to project writing. While CATs and assignments were adopted as formative modes of assessment in KNP and KTI, in KSU, CATs and assignments were used for both formative as well as summative assessment. This is because in KNP and KTI, assignments and CATs were used to measure how much the students had learned so that they could be assisted to improve their learning, a situation that was described as an "assessment for learning" (Bhatti, Doghan, Saat, Johari & Alshagawi, 2021; Shirandula, 2021) In KSU, the CATs and assignment marks were not only used to improve the student's learning but were also included in the final score for grading purposes. This inferred that in KSU, formative assessment or "assessment of learning" was adopted right from the beginning of the unit.

Regression analysis of the second objective showed that the modes of assessment adopted in the three institutions played a significant role in assessing entrepreneurial competencies R^2=92.7% and an R-value of 0.96. This implies that 92.7% of the aspects of assessment of entrepreneurship education influence the acquisition of entrepreneurial competencies. However, analysis of the three competence areas as described in the EntreComp model (McCallum, Weicht, McMullan, & Price, 2018) showed that the modes of assessment adopted influenced the acquisition of competencies on ideas and opportunities (0.313 units) and resources (0.364units) competencies more compared to into-action competencies (0.249 units). This implies that the modes of analysis favoured assessment of recall aspects of learning which comprised of ideas and opportunities as well as resources compared to the manipulative aspects (into-action). This would affect acquisition of into-action set of competencies which is important in creating a competent entrepreneur to the job market (Boldureanu, Ionescu, Bercu, Bedrule-Grigorut,ă & Boldureanu, 2020; McCallum, Weicht, McMullan, & Price, 2018).

In KNP and KTI, the final examination comprised of marks from project writing and from industrial assessment in addition to the last examination that was conducted by KNEC. Thus, while in KSU CATs and examination marks provided a final score in entrepreneurship education, sit-in examination, industrial attachment and project writing scores provided the final tally in entrepreneurship education assessment in both KTI and KNP. This difference in the modes of assessment adopted showed a significant difference in the acquisition of entrepreneurial competencies in the three institutions (ideas and opportunities, resources and into action) {(F value > F critical) (1622.74>0.00)} in these institutions.

ANOVA of student responses showed that the P-Value was {(P-value > 0.05), (0.435>0.05)}. This suggests that despite the students being exposed to different examinations by KNEC and the respective universities, the extent to which these modes of assessment fostered acquisition of competencies in the three institutions were similar. This is because there was no significant difference in the extent to which the modes of assessment influenced the acquisition of competencies. This implies that there is a need to not only include more aspects of assessment, but also improve on the current modes used to enable the students view assessment as a learning process. More often than not, students consider passing examinations as the ultimate purpose of assessment (Kadir, Abidin, Junid, Kamaruddin, Lajin, Buyong, & Bakri, 2015). There was need to adopt exhibitions as a mode of assessment to enable students to showcase their unique competencies in entrepreneurship education.

Limitations and Recommendations of the Study

In this study, data was collected by use of questionnaires. However, whilst questionnaires are appropriate in drawing information from a large number of respondents, individualised information from the respondents cannot be obtained (Creswell, 2014). Additionally, the scope of the study was confined to students in the business and ICT departments in three tertiary institutions in a county in Kenya. Furthermore, the study was limited to the influence of the modes of assessment of entrepreneurship education in fostering acquisition of competencies in three competence areas.

To foster acquisition of the requisite competencies among students, the study recommends that different appropriate modes of assessment in entrepreneurship education be used. The following recommendations for further studies are made:

1. Assess the effectiveness of the modes of assessment of entrepreneurship education adopted in fostering acquisition of competencies not covered in this study.

2. Assess the effectiveness of modes of assessment as adopted in other courses which were not included in this study.
3. Conduct a similar study to a broader geographical area, population as well as using a combination of instruments.

Author contribution

- **Dr Rose Moindi** was responsible for writing the literature review component of the study as well as the collection of the data from the study respondents. She was also involved in the analysis and reporting of the data.
- **Dr Bernard Nyatuka** was responsible for ensuring that the study complied with the relevant study ethical considerations and/or policies as well as regulations. He was also responsible for ensuring the validity and reliability of the research instruments as well as data collected.

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