

# Concurrent Vocational Education Through Microlearning Approaches at Higher Education, Assessing the Capacity, Awareness and the Will of Universities in Garowe, Somalia

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## Abstract

**Purpose:** The study investigated the possibility of establishing concurrent vocational education and training through microlearning platforms by assessing whether universities in Garowe had the minimum basic facilities to establish such programmes, whether academic staff were aware of the state of vocational education, its importance, the rate of unemployment in Garowe and Puntland in general, and whether university professionals were willing to establish these training programmes as concurrent options.

**Method:** It was a survey study of a qualitative approach and data was collected using an inventory checklist of institutions capacity, a close ended questionnaire to academic staff on their general perception of vocational education and training, and detailed interviews of both academic and administrative staff purposively selected at higher education institutions in Garowe to find out their willingness as stakeholders to adopt vocational training at higher education using microlearning approaches.

**Findings:** Universities in Garowe Puntland have the basic minimum facilities to establish microlearning oriented platforms although respondents emphasise that it should be supplemented with some physical practical sessions and modules. It is evident that introducing

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vocational education at higher education is one of the solutions to the unending graduate unemployment. However just like some respondents recommend, micro-learning for vocational education should be supplemented with some physical practical sessions and modules, hence a kind of blended approach. The study also found that there is hardly any career guidance done at the secondary school level and this affects choice of professional careers as students transition from secondary to tertiary education.

**Conclusions:** It is evident from findings that the attitude towards vocational education in Puntland has not been good, although with awareness and given the increased rate of graduate unemployment, the attitude can also be changed gradually. The study recommends a needs assessment before establishing certain training programmes to avoid the recurring challenges of mismatch between training programmes and the labour needs plus a need to intensify their international and regional collaborations with more experienced organisations and institutions. There is need for a curriculum review process of the existing university curriculum to accommodate the vocational concurrent programmes.

**Keywords:** Vocational Education and Training, VET, Microlearning, Higher Education, Somalia

## 1 Introduction

Although the emerging technological trends remain a mystery to all sectors around the globe, it is nonetheless becoming a key resonate of research in academia. Proceeding from the immediate post Covid19 era, our generation will no doubt be dominated and influenced by the digital revolution that is penetrating every aspect of human life. Therefore, the way they respond to this exciting but threatening trend, must be strategically planned for the benefit of society, thus include all key players both in the public and private sector (Schwab, 2016). One key player that should be given priority is education and training and especially higher education. An education system that embraces and manipulates this skyrocketing though geographically inclined sporadic evolution that is regularly testing the change management systems around the world, is unknown but discernible. For a very long time in many societies around the world, vocational education has sometimes played the role of a backup plan for students who hardly qualify for direct university and tertiary education. Through this career path candidates easily transit into the world of employment with skills to fit in the blue-collar jobs (Drager & Wicht, 2021), although it is seldom granted priority. Over the time in some parts of the world vocational education is also attracting very good candidates who would qualify for direct university education, just due to the fact that it enhances one's employment potential. In very many parts of the world vocational and technical education is now more appreciated and studied more than it was a few decades back (Ertl, 2020). It is however still not devoid of rudimentary cultural and biased nuances of stigma, that many continue to

adore the traditional university education system (Chipfakacha, 2019; Lopez & Rodriguez, 2020; Michaelis & Busse, 2021).

The Somali civil war weakened the political and social structures in the country and inclusive was the education system. The current state of affairs presents a generation with low levels of education and very high levels of youth unemployment at 67%. Vocational and technical education is highly fragmented and the conditional requirement for a labour market driven vocational and technical system is not in place, capitalised by the lack of qualified teaching staff (Ahmed & Abshir 2022; Steger, 2023; Wolf & Rudner, 2021). This is coupled with the very old and sometimes outdated curriculums and the exclusion of the private sector which is in most cases not interested in vocational and technical education. Hence just as (Steger, 2023) concludes, the labour market demand for skilled workers cannot be met. For a long time, the Somali education and specifically higher education system has put more emphasis on producing graduates without due consideration of the impact they will have on society. This owing to the fact that the education system turns out to be unproductive and hence resulting into resource depletion and causing unending frustrations to the young people (Eno et al., 2015; Seife, 2020). The problem questions of this study were, whether universities in Garowe have the minimum fundamental facilities to start vocational education using microlearning approaches. Whether the academic staff are aware of the state of vocational education, its importance, the rate of unemployment in Garowe and Puntland in general, and are university professionals willing to establish concurrent TVET through microlearning approaches? To establish the willingness of universities to introduce vocational microlearning at universities as a concurrent training, in depth interviews were held from February to July 2022. Using the typical case technique of purposive sampling, interview subjects were sampled from both academic and administration taking into consideration humanities and sciences, junior and senior, parents and nonparents, and experience or training in any vocational skill and a total of 12 staff from three universities were interviewed.

## **2 Higher Education and TVET in Somalia (Description of Context)**

Although there is hardly a general official government source on national education data (Eno et al., 2015), it has not deterred the Somali community from reconstructing their education system, better of all higher education. The history of higher education in Somalia is not so different from other African countries and it germinates around 1954 accruing from the United Nations (UN) Trusteeship mandating the Italian colonial administration to educate and prepare southern Somalis within 10 years as they prepared for self-rule (Bloom, 2006; Eno et al., 2015). This was followed by numerous developments of higher education after the 1969 coup by Siad Barre when another campus on the outskirts of Mogadishu was built

with all necessary facilities for learning at higher education. The Somali National University (SNU) was established in 1972 and prior to the civil war in 1991, the university had over 700 teaching staff with over 5000 students (Bloom et al., 2006; Eno et al., 2015).

Eno et al. (2015) notes that before the war, Somalia had a few higher education institutions which were public in nature. After the war the number increased tremendously across the country but these were privately owned institutions. These post-war universities are greatly contributing to the development and growth of the country economically, socially and politically, although there is still a lot to be done if the higher education platform in Somalia shall play an appropriate role that is globally acceptable (Cassanelli & Abdikadir, 2008). Abdinoor (2008) observes that the absence of education regulatory authorities due the civil crisis later on motivated the intervention of Somali intellectuals and members of the wider community to revive education as stakeholders. Indeed, the civil war was a blessing in disguise, since it attracted heavy investment in the education sector especially higher education through the private investors (Heritage Institute for Policy Studies, 2013). Vocational and technical training in Somalia is currently managed and funded by non-governmental organisations, and this has rendered it short term. It is through short-term funding phases to locals by international donor agencies and most donors are keen on producing high numbers of graduates. This is in most cases at very low costs, plus trainees attaining lower skill levels that do not require expensive equipment. Being short term, these projects have ruined sustainability effects and systems building therefore resulting into numerous piecemeal, sporadic and low-quality number of trainings going on with less economic after effect (Wolf & Rudner, 2021) on the communities they are conducted. Wolf and Rudner (2021) add that this is aggravated by the mismatch of educational outcomes and the type of knowledge and skills that are needed in a competitive labour market whether they are constituted as informal or formal markets of the country. Many vulnerable groups like youths have undergone these trainings but they have ended up unemployed because they are still skills needy. Eno et al. (2015) recommends further studies on the needs of the youths in Somalia in relation to skills' development. This justifies the possibility of incorporating concurrent vocational training through micro-learning pedagogies at higher education in Somalia, specifically Garowe, Puntland.

### **3 Theoretical Framework**

This theoretical framework explores various scholarly underpinnings of microlearning that justify the concept, microlearning. Academics and scholars in education now appreciate that splitting content into micro pieces or steps improves knowledge retention if they are recalled differently over time. Microlearning is a component of instructional technology that focuses on the design of learning modules compressed into micro steps in digital media settings.

### 3.1 Micro-Learning

According to (Figueroa, 2020), Microlearning is a means that can be applied in small deliveries of pills, and this is whether permanently or almost permanently, which is all dependent on what one wants to reinforce or teach. He adds that these must be accessible to users at their convenience and that they cannot last more than 15 minutes. Much as it can be used in a larger context, (Figueroa, 2020) emphasises that it is very strong in the first levels of knowledge according to Bloom's Taxonomy. The 21st century has excelled in the advances in technology which is compounded by people learning throughout their lives hence Life Long Learning (LLL). Therefore, the use of microlearning in promoting the acquisition of knowledge is inevitable and therefore suitable, and can be used in different environments. This is not limited to any levels be it primary and secondary schools, in vocational and technical education, higher education, in-company training and development, informal learning and so on (Buchem & Hamelmann, 2010; Cornish, 2004; Figueroa, 2020; Gobet, 2005).

With Microlearning short activities can be easily integrated into everyday activities and this facilitates self-directed lifelong learning. To ease the use and application of microlearning, units should be designed as small formats and therefore enabling immediate perception, they should have a clear focus and express a particular topic, an idea in the sense of a proposition therefore, expressing what the message is about. This is on addition to having a distinguishable topical entity, which can be expressed in one sentence, a text or a stretch of discourse. Units should be self-contained whereby the information is comprehensible that they don't have to search for additional external information. The units should thus be structured to comprise key elements like title, topic, author, date, tag, URL and this is inclusive of designing them as a single Internet resource with possibilities of direct references by a URL (Buchem & Hamelmann, 2010; Cornish, 2004; Figueroa, 2020; Gobet, 2005)

### 3.2 Dual or Concurrent Education

Although the idea of dual study programmes proposed in this paper maybe some how different, dual qualifications are commonly known in the international programmes of transnational education ventures where countries or universities sign collaboration agreements to run joint or dual degrees among their students. Students who enrol for the dual degrees for instance, will receive academic credentials from the two partnering institutions (Chan, 2021; Hou, 2020). The second known category of dual studies is the Germany system of dual vocational training which sometime intertwines with higher education at a later stage. These programmes according to Euler (2013) are designed to allow the trainee acquire both on job training at a company and theoretical training at a vocational institute.

Although not through microlearning platforms, Germany implements dual education programmes whose approach combines work-based learning and schooling part time, which has achieved very good employment rates in the country (Federal Institute for Vocational Education and Training [BIBB], 2013). A system like this, offers an opportunity for reformation through retooling, enhancing and improving trainees' knowledge, skills and competences in Puntland. Although in this case, it would take the dimension of concurrent higher education training through additional vocational microlearning programmes and this could bridge the unemployment gap. As an important tool for a country's social and economic prosperity, Vocational Education and Training (VET) usually offers an alternative educational path for youths and those adults who wish to grow professionally, acquire reasonable occupations since it provides qualified manpower that is direly needed in all sectors (Kabaklarli & Yağmur, 2013). According to (Chipfakacha, 2019; Lopez & Rodriguez, 2020), an investment in the skills development through vocational training is a crucial component of human capital development of any economy. Although their study findings revealed that communities undermine technical and vocational training due to the social acclaim given to university education graduates, association between vocational training and academic failure and the poor infrastructure in vocational training institutions. All these have grossly affected the whole acceptance of vocational education especially in the under developed world. However, the study by (Chipfakacha, 2019) recommends an investment in vocational training institutions by the various stakeholders especially government and the private sector. This therefore implies mainstreaming technical and vocational training in the education curriculum, which is vital for advancing the development agenda on human capital development in many underdeveloped economies.

#### **4 The Need (Problem Statement and Hypotheses)**

According to (Wolf & Rudner, 2021), the civil war in Somalia is no doubt still impacting on the economy and society, with the destruction of social and economic infrastructure, the collapse of technical and vocational institutions, plus contributing to the massive internal and external migration. The country's economy is still very much shaped by the primary sector which is dominated by agriculture, thus export of crude products. There is wide spread unemployment among the youth, women and other marginalised groups. The youth in Somalia comprise of about 60% of the population and these are living mainly in urban areas, and are aged between of 15 – 29 years. This is on addition to the wide spread skills' mismatch which are not limited to the rural population as the prevalence in skill deficits among unemployed rural residents would suggest, but are also among the urban population (Karamba, 2021). Karamba (2021) adds that Somalia's economy remains highly informal. The country has a very slim private and public sector with a very small private.

Karamba (2021) concludes that most Somalis find vocational training, business start-up training and financing more important to securing employment than completing education. According to the same report by Karamba (2021) 56% of unemployed Somalis indicated that they needed training to develop either technical skills or any other skills to start a business. Recent employment surveys indicate that Somalia has a labour force participation rate of 66 per 100 population and this is higher than other countries which have experienced civil wars. This is worsened by the fact that female labour force participation is almost half that of men. Although this is largely due to the patriarchal nature of society and customs, which restricts the participation of women in various occupations (Borino & Saget, 2019; International Labour Organisation [ILO], 2014; United Nations Development Programme [UNDP], 2014). This compounds the need for a well-planned, reliable and sustainable vocational and technical training programme, and that is main proposition of this study.

World Bank estimates according to Wolf and Rudner (2021) that by 2030 half of the people living in poverty will be exposed to fragile and unstable environments, and they recommend that Technical and Vocational Education and Training can be part of the solution if such societies are to stabilise and economically develop. Wolf and Rudner, (2021) wrote that the current vocational training situation in Somalia was dominated by short term training measures which sometimes are a combination of humanitarian aid and training. According to CARE Somalia/Somaliland (2017, 2020) survey there was no establishment and operationalization of TVET vocational qualification frameworks in the states of Puntland and Somaliland even when they were available. A report by the Danish Refugee Council in 2012 recommends that in order to improve on vocational training in Somalia, training should at least last nine months, trainers should be facilitated and develop a national vocational qualification framework. Most of these recommendations are only possible if there is a reliable government system which is not the cases in Somalia. Considering the success of private higher education institutions of learning in the country for the last over twenty years (Abdi, 1998; Ahmed & Bradford, 2011; Ainebyona, 2016; Eno et al., 2015), it is prudent to conclude that vocational education and training can be incorporated under higher education institutions as departments, schools, colleges or faculties and hence this study.

The emergence of contemporary learning approaches and pedagogies like microlearning, mobile learning and many more like cooperative learning have come as a blessing in disguise for the long endured traditional learning approaches (Allela, 2021; De Witt, 2013). Microlearning is particularly taking a centre stage in various flexible training and teaching around the world owing to its convenience and efficiency. According to (Allela, 2021) microlearning is procedurally planned through bite-sized, short-term and well-planned modules that match the brain's working memory limitations. With this strategy, disengagement, boredom and poor retention due to mental overload accruing from traditional long

didactic teaching is evaded. The internet is becoming an indispensable element of communication and information, to an extent that it is simplifying every human aspect from home to workplace and even outside these two environments. There is a global connection through affordable internet coupled with cost effective mobile gadgets like mobile phones, laptops and tablets which has catalysed the information and communication technology (De Witt, 2013), microlearning as a learning approach is one way in which the internet has simplified communication and information. Therefore, blending micro-learning into vocational and technical training pedagogies through higher education in Puntland Somalia, will enhance human capital development of any economy in that part of the World.

## **5 Materials and Methods**

This was a survey study of a qualitative approach and data was collected using an inventory checklist of institutions capacity, a close ended questionnaire to academic staff on their general perception of vocational education and training, and detailed interviews of both academic and administrative staff purposively selected at higher education institutions in Garowe to find out their willingness as stakeholders to adopt vocational training at higher education using microlearning approaches. Assessment of the universities' capacity to adopt vocational training through microlearning approaches was done partly using an inventory checklist and some additional data was got from interview responses. The inventory checklist considered capacity in terms of existing facilities that can be developed or modified to establish the training and some of these included equipment. A close ended questionnaire was sent out to 50 respondents online from among the academic staff of the three universities, 36 submitted their responses and Questionnaire test items focused on three areas of whether respondents believed that vocational training can be a contributing factor to socioeconomic development in various dimensions, whether it can be an alternative choice for regular academic's studies of degrees and diplomas and whether they think that it is intellectually oriented.

To establish the willingness of universities to introduce vocational microlearning at universities as a concurrent training, in depth interviews were held from February to July 2022. Using the typical case technique of purposive sampling, interview subjects were sampled from both academic and administration taking into consideration humanities and sciences, junior and senior, parents and nonparents, and experience or training in any vocational skill and a total of 12 staff from three universities were interviewed (see table 1). According to (Hennink & Kaiser, 2021), most popular sample sizes where data reached saturation were (9-17) for interviews and (4-8) for focus group discussions especially in homogeneous study populations. Interviews were transcribed verbatim and transcripts were used for data analysis. Subjects were informed in advance about the



interview and their permission was sought and all of them confirmed participation. The thematic analysis method was used to analyse the data which was processed for analysis by transcribing the audios into write-ups, these were thematically coded, validated and presented.

This study was commissioned and funded by the University of Bosaso Garowe through its Centre for Research and Development.

*Table 1: Details of Interview Respondents' Professional Profiles*

Respondent	Career Specialisation	Vocational Orientation	Sex	Qualification
HAC1	Accounting	Non	F	Bachelors
HAC2	Business Administration	Electrical Installation	F	Masters
HAD3	Community Development	Non	F	Masters
HAC4	Business Administration	Electrical installation	M	Masters
HAD5	Accounting	Non	M	Bachelors
HAC6	Business Administration	Non	M	Masters
SAD1	Public Health	Cosmetology	F	Bachelors
SAD2	Medicine	Non	F	Bachelors
SAC3	Medicine	Non	F	Bachelors
SAD4	Nutrition and Food Science	Computer repair and maintenance	M	Bachelors
SAC5	Information Communication Technology	Photography	M	Bachelors
SAD6	Nutrition and Food Science	Non	M	Bachelors

*Note.* Details of interview respondents' professional profiles and inclusive is their career specialisation and qualification. Science professionals are represented by S and Humanities by H and AC and AD for academic and administration respectively.

## 6 Results

Generally, results indicate that academic professionals would support the introduction of microlearning approaches for vocational and technical training with a few modifications like allowing some physical online sessions. In their study, (Wang et al., 2020) conclude that microlearning in Hong Kong's TVET was seemingly a promising direction, although the current implementation could face challenges.

Table 2: Inventory Checklist of Institutions Capacity

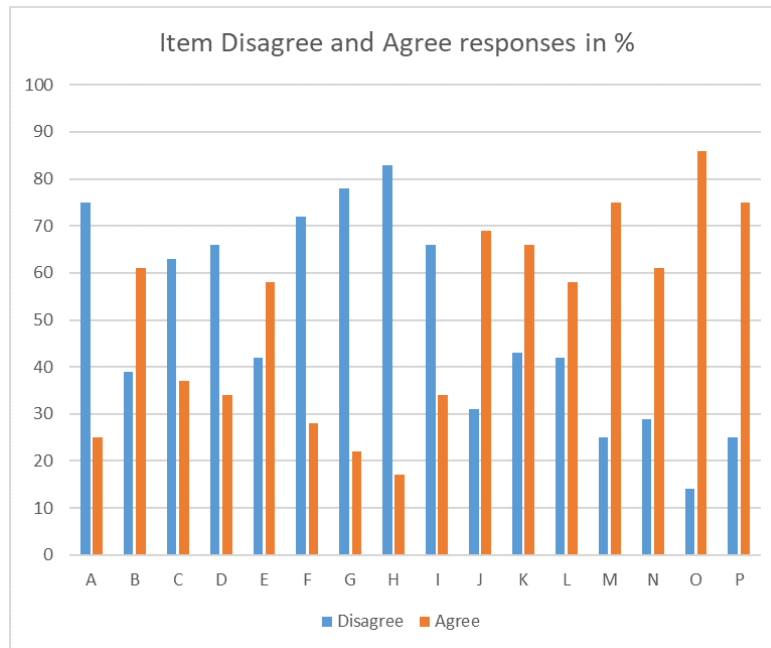
Item	University 1	University 2	University3
Computer Labs	1	3	2
Cameras	2	3	2
Internet Connectivity	Available	Available	Available
Social Media followers (FB)	33,440	39,840	34,310
Gamification Apps	Not Available	Not Available	Not Available
Video Editing Apps	Basic Apps	Basic Apps	Basic Apps
Potential Practical Space	Available	Available	Available

*Note.* Details of the inventory checklist of institutions' capacity of the three universities ranging from computer labs, cameras, internet connectivity, social media followers, gamification apps, video editing apps and potential practical space.

Institutions' capacity shows that each university has the basic required facilities and equipment required to run microlearning oriented programmes. With cameras, internet, a big number of social media followers, basic video editing apps and potential space for setting up practical labs (see table 2), then the institutions just need some more additional input to launch the programmes. Kituyi and Tsubira (2013) argues that in order to integrate e-learning into higher education institutions, projection equipment, incorporation of 3D pictures, use of videos and audio tapes to play lectures and others were key possessions. It is possible that popular social media platforms like Facebook, Telegram, Instagram, WhatsApp and so on could attract more usage when implementing microlearning programmes. Allela et al. (2019) in their study conclude that there is strong preference for the use of WhatsApp as the main platform of communication during microlearning lectures among communities of practice.

## 6.1 Questionnaire

There was no demographic, gender and age differences considered in the study because data was collected purely online. However according to the captured emails of respondents, majority were male. This is of course inclining to the fact that majority university staff in Puntland universities are male. The questionnaire was close ended 5-point Likert scale with 1. Disagree, 2. Fairly Disagree, 3. Strongly Disagree, 4. Agree and 5. Strongly Agree. Responses have been summarised into disagreeableness and agreeableness (see figure 1).



Note. A graph showing the general attitude of university academic professionals towards vocational education.

Figure 1: Graph on Attitude and Vocational Education

Generally, results indicate that university professionals endorse vocational education although 75% disagree that the current institutes offering this education are practical oriented in their training. They agree that it requires high intellectual effort but disagree that it requires a minimum academic qualification. Percentage mean of those who think vocational education is worthy joining is 66% against 34%. Respondents generally agree that there is value in vocational education in terms of promoting economic development, reducing rate of importation, increasing investment and solving the unemployment problem, all with a percentage mean of 71% against 27% who disagree.

39% disagree that vocational education requires high intellectual effort while 66% disagree that one should be intelligent to master the knowledge, skills and competencies. A slightly higher % of 58 believe that vocational education graduates can become successful in life, 66% still prefer elite degree qualifications. However, 88% disagree that it can only be a second option implying that choices can be weighed between mainstream educational career paths and vocational. Only 58% believe that graduates from vocational educational can do their work professionally and 58% believe that they can be successful in their life. 75% agree that it can lead to economic development. 75% can solve the employment problem.

## 6.2 Interview Results

Additional data was collected through information in-depth interviews of academic and administrative staff, the results are hereby presented and analysed. Results are presented according to order of appearance during interview sessions.



Figure 2: Interview Thematic Data Presentation

Figure 2 presents thematic data presentation on the general willingness of academic staff to adopt vocational education microlearning approaches.

*The first part of the interview was about the current profession of respondents and the nucleus theme was whether it was their dream.* Results indicate that majority of the respondents were not currently practising their dream professions, although majority of these are from

professionals from humanities. They however felt comfortable with their current professional careers and could only supplement them with additional skills or upgrading. The fact that people end up in professions that weren't of their dream could imply an upper hand in parents making decisions for their children as they plan on joining higher education.

*The second theme was about the state and causes of unemployment in Puntland;* apart from two, the rest of the respondents concur that there is a serious problem of unemployment in Puntland. The main causes for unemployment cited were mismatch between higher educational training goals and the labour or human resource needs in the state. Another dominating factor is the inadequate job opportunities in the state accruing from a thin private sector.

Negative attitude by both graduates and parents, nepotism especially in public service plus some cases in the private sector, the wanting quality of university education were other factors given as causes of unemployment. The negative attitude towards mainly vocational skills'-based jobs was a factor echoed by a good number of respondents and this is both among science and humanity-based disciplines. On the contrary subject SAC5 and SAD6 argue that there is no unemployment in Puntland, they attribute the lack of jobs among some people to laziness and lack of skills respectively.

It is evident that the existence of unemployment is tied so much to lack of skills and mismatch between training and labour needs in the state. The solution to such a challenge lies in basically introduction of skills in a more acceptable way by the society given their perception.

*The third theme was about advice to fresh jobless graduates by respondents was job creation.* The message respondent would give to fresh graduates alluded to job creation and especially through entrepreneurship and skilling. Respondents generally gave emphasis to commitment, competence, job creation and change attitude towards available jobs. Some respondents especially with science orientation talked about having and seeking for multiple skills to supplement on their main careers.

*The fourth theme was about what respondents know about vocational education and its state in Puntland.* According to Subject HAC2: "Vocational training involves hands on skills' training and also indicated that in Garowe this is not organised although people are aware of its values."

Being professionals operating at higher education, respondents have adequate knowledge about vocational education/training and they were also in agreement that the discipline in Garowe and Puntland at large is underdeveloped. Although they attribute the underdevelopment to the poor attitude of the both parents and prospective students, they argue that there has been inadequate awareness about the same which is preceded by a history of negativity towards vocational training and education.

*The fifth theme was about respondents' willingness to take their child for vocational education or training;* Respondents expressed mixed feelings, although majority were hesitant on considering vocational education or training as first choice of career for their children. Much as some of the respondents would have no problem their children attending a vocational institute, they

are sceptical about the rest of the family and believe this would stigmatise the child; According to Subject HAD3: "I cannot take them for vocational training or education but I would advise them to study it as an additional skill. Even concurrent training with their main career profession pursuance is ok. Family wouldn't welcome idea of vocational training."

Subject HAD5 said: "Yes, I would take my child. Family would accept since the mindset of the people is changing". Indeed, there are mixed feeling on the perception of vocational training or education among the people in Puntland.

*The sixth theme was about views on vocational training using micro-learning approaches and its creation of employment;* There was general agreeableness that introduction of vocational training at higher education through micro-learning approaches if well planned is possible. Respondents also agree that this can be a fundamental step in combating unemployment. Some of the facilitating factors given were the easy access to mobile communication gadgets, advancement in information communication technology and affordable internet around the urban centres of Puntland. About the attitude of the community towards the vocational training and education, most respondents recommended a general community awareness emphasising parents and clan chiefs. Some respondents argued that micro-learning should be supplemented with self-study and physical practical lectures to strengthen the skills and therefore universities or institutions adopting it will need to set up facilities with equipment for practical lectures.

## 7 Conclusion and Recommendations

The 4<sup>th</sup> Industrial Revolution generation in Africa is in need of workable and applicable means to life sustenance and therefore requires a combination of valid strategic solutions that target effective domestic utilisation of existing resources, and, that is inclusive of human resources. Of which, the current status quo indicates that these resources cannot be fully utilised given the pervading gaps in training and development of human capital. It should be taken into account that technologies are changing constantly and this implies continuous learning, hence a requirement for stakeholders to keep up to speed with new information and knowledge. If education stakeholders like students are to complete knowledge gaps and retain learning materials in this highly dynamic tech-world, then microlearning platforms are compliant with the specific needs of the modern learner and it can therefore fill these gaps of evolving technologies (Buhu & Buhu, 2019).

It is evident that introducing vocational education at higher education is one of the solutions to the unending graduate unemployment. This shall be eased by the fact that in the post Covid19 era, the education sector all over the world, glides around advanced state of the art ICT digital solutions. Education institutions in Puntland adopted online learning approaches and are not about to rescind from the same anytime soon. However just like some

respondents recommend, micro-learning for vocational education should be supplemented with some physical practical sessions and modules, hence a kind of blended approach. Finding of this study indicate that universities in Garowe Puntland have the basic minimum facilities to establish microlearning oriented platforms.

The attitude towards vocational education in Puntland has not been good, although with awareness and the increased rate of graduate unemployment, the attitude can also be changed gradually. Findings of this study also indicate that micro-learning for vocational educational education can also be introduced at higher education institutions and will indeed counter the unemployment challenge. Of course, the negative attitude is a global trend of behaviour towards TVET that has been encountered in very many parts of the world especially Africa and countries are trying to deal with it. Increasing awareness among parents and clan leaders through university forums, workshops is key. The limited career guidance done at the secondary school level also affects choice of professional careers as students transition from secondary to tertiary education. With the introduction of vocational education career guidance practices are an essential component of this programme.

A needs assessment before establishing certain training programmes will be necessary to avoid the recurring challenge of mismatch between training programmes and the labour needs. Institutions of higher learning should also intensify their international and regional collaborations with more experienced organisations and institutions for both technical and moral support. Hussein (2015) concludes that higher education institutions in Somalia should establish what he terms as meaningful collaborations internationally and regionally with other institutions. Such collaborations will ease the process of training and development of trainers, developing curriculum and mentoring of administrators and managers through capacity building mechanisms.

There is need for a curriculum review process of the existing university curriculum to accommodate the vocational concurrent programmes. This will balance the students credit load and improve on the learning process especially knowledge and skills development.

## **Ethics Statement**

This study was approved by the Centre for Research and Development of the University of Bosaso Garowe.

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