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ICT Skills for Technical and Vocational Education Graduates' Employability

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Abstract: Technical and Vocational Education (TVE) graduates preparedness to gain flexible employability skills that will enable them compete favourable into a dynamic labour market cannot be under estimated in the present Technological era. The challenges in the world of work as a result of the way ICT rapidly changes and considering its deployment in all aspect of economic activities as well as its sophistication, calls for necessary curriculum reorientation of any human resource preparation programme e.g. TVE. In view of that, products of TVE programmes are hereby challenged to possess ICT skills necessary for employment in the present dynamism in work. This paper review literature technically to highlight the challenges ahead of TVE graduates regarding acquisition of ICT-based employability skills. Specifically, the paper discusses concepts from journal articles, textbooks and conference proceedings; accessed via Universiti Teknologi Malaysia Library web portal (www.psz.utm.my). The review further explores the need for ICTs in TVE and recommended the procedures to be adopted in strengthening TVE curriculum to meet up with the global ICT skill challenges.

Key words: ICT · Technical · Vocational · Education and Graduates' employability

INTRODUCTION

Today's job market labour requirement changes rapidly without cross boarder limitation and neglecting time or space factors to be considered for employment. These changes can also be observed in the way Information and Communication Technologies (ICTs) are equally gaining popularity and touching almost every nook and cranny of economic development globally. In fact, due to the diffusion of computer technologies into all segments of the economy the majority of IT technicians do not work for ICT-specific firms but mostly for other industries and relevant economic sectors. Thus, employees are spread across all segments of the economy ranging from banks and insurance companies to manufacturing companies, food suppliers, public administration, research institutes and so on [1]. While different dimensions and advancement in ICTs are taking place in both industrial and economic sectors, new set of skills are now emerging and posing challenges to workers in the 21st century. Not only to workers, these new set of skills emanated as a result of ICTs advancement and are in turn imposing great challenges to education and training institutions in general and to some extent students offering Technical and Vocational Education (TVE) to be specific.

The dynamic nature of the present world of work put high demand on ICT skill than other employability skills thereby placing more emphasis on the preparation of students undertaking courses/training in different area of specializations to be more versatile in current labour market needs and hence be qualified to work in businesses and industrial sectors of the economy. That is why UNESCO (2012) categorically puts it that "gaining employment increasingly depends on person's ability to effectively and efficiently uses ICTs". Consequently this calls for structural adjustment of the entire TVE curriculum to meet up with the global challenges in skills requirement. Moreover, one of the reasons why ICTs should be fully deployed in the field of TVE training and by so doing

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students should be able to acquire flexible employability skills that will qualify them fit into the ever changing labour market without serious difficulties.

To provide ICT-based employability skills, TVE programmes need to refocus curriculum offering on what is globally termed as a 'requirement for employment' (ICT capability). In that, In today's job market, basic ICT skills are considered essential for people entering the workforce and for those trying to find a better job; ICT skills are demanded in all sectors of economic development ranging from construction, manufacturing, agriculture and other general services industries [2]. This could also be one of the reasons employers nowadays attached so much importance to ICT skills while looking for graduates, for recruitment [3, 4]. Furthermore, another thing that matters most in a knowledge-based society is people full of ideas and abilities to make commercial use of the knowledge. Therefore, one of the main challenges is to identify, ICT skills needed for economic and industrial sustainability and incorporate them in TVE curriculum for the creation of social sustainability.

However, despite utmost significance of ICT in economic development of every nation, it is unfortunately acknowledged that ICT skills are in short supply globally especially in Small and Medium Enterprises (SMEs) [5], which implies that TVE programmes stakeholders have to stand up awake and become more prepared to face realities in the knowledge-based world of work. Consequently, educational programmes as a result of ICT skills demand, is on the challenges ahead any work preparation outfit is to make necessary adjustment in its programme and entire curriculum contents to reflect global requirement in terms of ICT skilled manpower especially in a situation where 90% of the jobs will require computer skills [6]. While ICT replaces old tasks and occupations through automation, the same technologies also creates new tasks and occupations in which ICT products and services generate new jobs, the current development was that Technical and Vocational Education graduates are not only challenged to be in possession of employability skills, but be adequately prepared and become ever ready to manipulate new jobs, new products and also services generated as a result of ICT advancement. This is because, ICT skills increase the chances of persons' employability and that those applicants that do not demonstrate ICT knowledge during job selection exercise face the risk of being excluded for consideration during employment process.

ICT Skills and TVE Graduates Employability: Several studies established the relationship and effect of ICT skills on employability [7, 8]. These studies indicated the way ICT transforms businesses and practices of enterprises across all sectors of the economy and also demonstrated new skills that are needed to exploit new technologies and new innovations taking place in a "knowledge-based" world of work. These studies further unfold challenges facing graduates of TVE on the need to be more up to date; to possess adequate and relevant skills and abilities that helps them handle sophisticated tools, machineries that are purely ICT operated, which were recently introduced as a result of ICT advancement. Although, these new jobs that require new competencies from workers are manifesting; the real creation of these jobs can only occur if the right mix of skills and competencies are available in the labour market [8].

TVE training was designed to satisfy labour market demands in terms of making productively adequate trained personnel who are competent, nimble and highly equipped with employability skills ready for action without necessarily receiving additional training. In summary, graduate employability in either 'self employment' or 'public sector' has significant relationship with TVE programmes. Hence, "without the right skills, people are kept on the margins of society, technological progress does not translate into economic growth and countries can't compete in today's economies" [9]. It has been observed in some developing countries, the mismatch between applicants' qualification and labour market demand that reflects on the outdated skills taught by TVE institutions. The implication of the above shortfall is for the TVE institutions to adopt the key features in Globalization and Sustainability, ICT revolution, Emergence of Knowledge based Society and Rapid knowledge obsolesces [10]. Therefore TVE graduate should possess these three components as suggested by Majumdar as presented in the Figure below.

It is a well documented fact that TVE plays greater role in equipping individuals with skills, knowledge and competencies to respond favourably in the globalized world of work. This can be seen in reports by organization such as UNESCO, EU, ILO and other similar bodies. However, despite this development, TVE graduates are still faced with myriad challenges to actively participate in the ever changing new employment opportunities. It is quite unfortunate to have formal TVE without necessary training facilities, trainees having little or no access to up-to-date machinery and equipment, trainers having

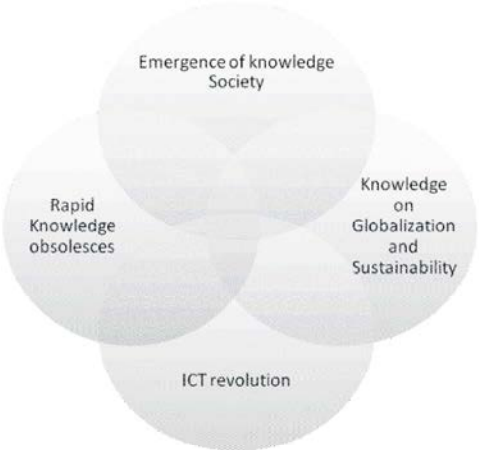

Fig. 1: Diagram showing requirements in producing ICT skilled TVE graduate

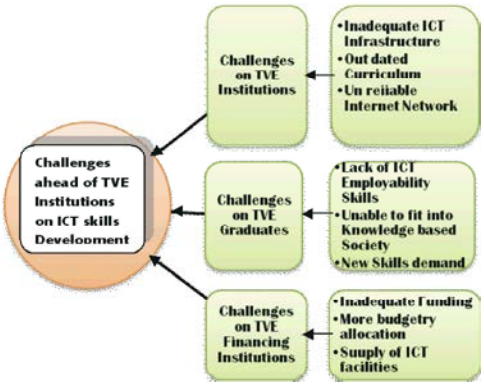

Fig. 2: Conceptual framework of some challenges ahead TVE on ICT skills development

quite little knowledge on the labour market requirement due to lack of retraining and exposure to current issues in the world of work. Though, this manifests in some developing economies, but is stronger among poor developing countries [11].

ICT Skills Development Challenges on TVE Institutions: The challenges that are ahead of any TVE institutions toward producing adequately trained graduates that are ICT-capable can be grouped under three main categories; (a) challenges on TVE institutions, (b) on TVE graduates and (c) on TVE financing organization/agencies (Fig. 1). Considering the challenges in TVE institutions; there is need to realign curriculum offering to reflect the current labour markets demands in terms of ICT skills, to retrain staff with an up-to-date knowledge and ICT skills that is required to handle new equipment and new services in a knowledge-based society. This is because traditional curriculum was unable to take into cognisance new skills demanded by present knowledge society and labour market [12]. In summary, challenges on TVE institutions are on inadequate ICT infrastructure, out-dated curriculum and unreliable internet network.

Secondly, the challenges on the graduates perspective includes; gaining adequate ICT skills for employment, ability to fit into knowledge-based society and ability to cope with new skills demanded by present day labour market. While in TVE financing institutions, the challenges ahead includes: making adequate provision of funds, adequate budgetary allocation to TVE sector, supply and maintenance of ICT facilities (conceptual framework in Fig. 2).

All the challenges outline above could be tackled if adequate arrangements are done in order to make TVE one of the areas of priority given by every country (developed and developing) across the world. Therefore, it was concluded that technological and physical ICT infrastructures have to be put in place in countries where adequate budgetary allocation to ICT in education is made [13].

CONCLUSION

It is globally accepted that TVE serve as one of the major training sectors providing trained manpower for agriculture, industrial and commercial development. It is also acknowledged by different scholars, researchers, educationist, agencies and organizations (public and private) that ICT skills are considered one of the most important requirement for employment. Moreover, the emergence of new skills and dynamic nature of labour market is another factor identified by 21st century studies. This development has therefore necessitates authors of this write up to outline challenges that are ahead of any TVE institutions in training graduates enriched with variety of ICT skills that enables him/her compete favourably into the present knowledge-based society. Although, the article has added quite little to the existing body of literature on the area of TVE and ICT; it is recommended that 'hands must be on deck' to deploy and to use adequate ICT facilities, make curriculum current to labour market and provide adequate training to teachers on current global skills requirement.

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