Role of Information and Communication Technology in the Provision of Career Information in Higher Technical and Vocational Education Institutions

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ABSTRACT

The development of 2.0 web applications and the need to transform higher technical and vocational education (HTVE) in order to respond positively in a global market demand for an "ICT-capable" workforce underlines the importance of identifying and profiling the roles of ICT-based career information (CI) to HTVE programs. Therefore, this paper observed, digested, and extracted from the existing literature on the application of ICTs in the provision of CI, specific concepts that can make a significance contribution to HTVE programs. Specifically, the paper discussed the literature on career information that has a significant relationship with HTVE, due to its peculiar characteristics that are different from other areas of specialization. Several documents were consulted and scrutinized; information was extracted explaining the topic under discussion. The documents used included: textbooks, journals articles, conceptual papers, and technical reviews, which were downloaded through the A-Z online databases of the Universiti Teknologi Malaysia (UTM) library. It was found that ICT-based career information is of great benefit to students of HTVE in providing information about: (a) the current trend in the world of work, (b) the knowledge and skills requirement for various jobs, (c) how to match skills with jobs and (d) updating labor market information (LMI). The paper concludes that HTVE institutions should apply ICT tools in order to give students and career counselors a sense of continuity with regard to current happenings in their area of specialization.

Keywords: information and communication technologies, career information, technical and vocational education (TVE)

INTRODUCTION

Career development is one of the pillars on which technical and vocational education (TVE) programs have been built worldwide (Liu, Hsu, Lo, & Lai, 2011). Provision of up-to-date career information (CI) to students in a TVE program is paramount, considering the current labor market orientation and demand in terms of skilled workers. Not much attention has been directed toward the provision of career guidance services at TVE higher institutions in some parts of the world, for example, in Australia (Watts, 2010) where "VET students have fewer opportunities than those in universities

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to benefit from career guidance in their institutions". Studies have revealed that career information influenced students' decisions on whether to opt for TVE or other science and engineering fields (Igbinedion & Ojeaga, 2012). The consequences are evident from the low enrolment in TVE programs; which have been classified as a non-lucrative field of study that only prepares technicians, craftsmen, and artisans who will eventually work in manufacturing companies and other petty businesses that require manual labor.

The evolution of information and communication technologies (ICTs) has transformed the way people interact and operate businesses; in the industrial sector (Gaith, Khalim, & Ismail, 2012), in the agricultural sector (Ajani & Agwu, 2012), in health care delivery (Spadotto, Hawkins, & Monrose, 2009), and in other areas of human endeavor too numerous to mention. These developments have posed challenges to graduates from TVE programs with regard to the need to explore information on current trends in the world of work.

However, it is obvious that information on job opportunities and the entire requirement for one to fit into and remain relevant in the present world of work can effectively be explored with an efficient web-based guidance service. Gone are the days when CI services were restricted to the four walls of an office; with the current expansion of the internet network, it is feasible to utilize accessibility to all the information processing gadgets, with their availability and affordability, expediency, and privacy guidance services that a student may require at competitive pricing to the cost incurred for a traditional face-to-face visit. The present era of innovation and change is due to the increase in ICT applications in education and other professional services, such as web-based CI, enables students to have the information "on the door step" (Hansen & Lehmann, 2006). The impact that ICTs are making on CI is observed in three ways: as a tool, as an alternative, or as an agent of change (Watts, 2002). The impact was summarized by Usman MNSE,

Ayuba, & Gatabazi (2001) as follows:

1) "offers unprecedented *access* to career-related resources;

2) *connects* existing services, their resources, partners, stakeholders and clients in new ways;

3) makes it possible to *target* clients and stakeholders much more effectively and efficiently;

4) makes it possible for careers services to *track and record* the routes users take through the service's resources;

5) provides an environment for *open and distance learning*, including off-campus, experience-based learning;

6) offers highly *interactive* resources, and enables its human advisers to interact with clients independently of time and place; and

7) makes careers services *visible* as never before, in particular on the World Wide Web. It opens the services up to *competition and comparison* from outside".

With the current globalization, coupled with the fact that many tradition-embracing jobs are no longer in existence, or have been replaced by new ones, TVE students need to be equipped with competencies that will help them seek information that will assist in mapping out their interests, skills, education, and competencies with labor-market qualifications and opportunities. In view of this and because of the pressing need of the academic cycle to include more literature on career guidance and ICTs—especially ones linked to TVE—this paper was purposely developed to supplement the scarce amount of literature on the relevance of web-based CI in TVE. Specifically, the paper explored and extracted from diverse opinions, suggestions, and recommendations documented by renowned professionals in career information and guidance, as applied to TVE programs because of the distinguishing characteristics to help prepare students for the job market.

Objective of the paper

This paper was developed to provide

additional literature on the relevance of ICTs to the provision of effective CI services with a specific link to the field of TVE. Specifically, the paper discussed CI in the framework of TVE, the need of ICTs for effective CI in TVE, and the role of ICTs in provisions of CI in TVE.

Research questions

Three research questions were formulated based on the specific objectives to which the literature review ought to provide answers:

1. What is CI in the framework of TVE?

2. Are ICTs necessary for effective CI in TVE?

3. What roles do ICTs play towards the provision of CI in TVE?

METHODOLOGY

Several categories of document were downloaded using some prominent search engines such as Google, AltaVista and Yahoo at http://www.google.com.my/, http://www.altavista.com/ and http://www.yahoo.com/, respectively. All subscribed journals were accessed via A-Z online databases from the Universiti Teknologi Malaysia (UTM) library website at www.utm.mny/spz. Related documents were read and their technical contents discussed and cited to form this technical review.

Significance and limitation of the paper

The need for additional literature in TVE is an issue that has been addressed by a growing number of researchers; however, limited literature exists on the topic under discussion. This has posed a great challenge to researchers interested in the progress of TVE. Therefore, this review paper can add to the body of knowledge on TVE in developing countries. Although the paper involved the collection of secondary data from documentary analysis only, the concept of the relevance of ICTs in CI to TVE is highlighted, giving a deeper understanding to interested prospective researchers on TVE and ICTs with regards to CI.

RESULTHS

Career information in the framework of TVE

Generally, career guidance (Lopez-Bassols, 2002) refers to…

> Services intended to assist people of any age and at any point throughout their lives to make educational, training, and occupational choices to manage their careers. Career guidance helps people to reflect on their ambitions, interests, qualifications, and abilities. It helps them to understand the labor market and education systems and to relate this to what they know about themselves.

The Institute of Career Guidance, United Kingdom added to the above definition the places where such services are provided: schools, universities and colleges, training institutions, public employment services, the workplace, the voluntary or community sector, and in the private sector. Furthermore, career guidance has been summarized to address the personal, social, educational, and vocational development of students (Conger, Hiebert, & Hong-Farrell, 1994). It includes assisting people to reflect on their aspirations, interests, competencies, personal attributes, qualifications, and abilities and to match these with available training and employment opportunities (Hansen & Lehmann, 2006).

The definitions above present a true reflection of the concepts that form part of the general requirement of TVE in that TVE is aimed at inculcating practical abilities in students toward self-reliance, and CI compliments the process by providing direction to students so they can fulfill their career aspirations. Therefore, TVE will not achieve its objective independent of the CI service. In other words, CI is an ingredient of successful TVE; hence, it act as a bridge linking TVE programs and the world of work (Hoeckel, Field, & Grubb, 2009). Viewing the student as an active agent in the

relationship, a CI role can make sure that student demand is well-informed in terms of the labor market (Watts, 2009). Therefore, with the role CI plays in the accomplishment of TVE, students will be highly productive in designated areas of economic activities (Usman, Northern, & Gatabazi, 2009).

The need for career information in TVE

The hope of every TVE graduate is to be absorbed and compete favorably in the dynamic labor market. It is rather unfortunate that TVE students about to graduate are not prepared to face the challenges in the labor market; perhaps most of them are ignorant about the nature of occupations and skills requirement due to inadequate CI during the course of their training. This situation is sufficient to underscore the need to emphasize career guidance to students opting for TVE rather than to those opting for other fields in general education (Watts, 2009). He further added that within TVE programs, CI should be provided at all levels of decision making and at the time when students graduate. With CI in TVE, students keeps away from careers that have poor working conditions thereby opting for occupations that best suit their skills in terms of remuneration and continuity or are highly demanded in the society both in "the short-run and the long run" (Norton Grubb, 2006).

While TVE graduates are required to possess certain skills to effectively compete in the labor market, 'transferable skills' (generic) that will enable them to switch between careers and attain mobility should also be adequately emphasized (Lopez-Bassols, 2002). Since these generic skills are not taught in the core curriculum, they should be attained through organized CI which helps graduates to be more transferable and adaptable to certain situations as well as fulfilling the demand of the present labor market (Hoeckel, et al., 2009). CI is an important and necessary ingredient in the preparation of potential workers; it provides adequate information about the labor market and

establishes realistic training and employment goals. It assists in the planning for, and the determination, implementation, and assessment of each stage of a person's life. Educational, training, and professional occupational preferences could be realized through a well-coordinated and organized provision of career information. Career information includes all that is needed to help students reach informed decisions throughout their working lives (Hansen & Lehmann, 2006). Consequently, the characteristics of reliable career information should:

> (a) be easily readable and interpreted to the lowest literacy level and should be read and understood, (b) be reproduced with least cost and in quantities that can reach those needing it, (c) be accessible on an individual basis in recognition of the limited number of professional counselors and the need for individuals to discover their careers on their own, (d) be updated when the need arises, (e) be within the reach of the potential users through all the public places, and (f) be included in the training for career guidance counselors.

Role of ICT in the provision of career information in TVE

Information and communication technologies (ICTs) become the live wire that connects every sector of human endeavor, breaking barriers to human development and simplifying the way and manner in which individuals interact and exchange information. The role ICTs play in education and societal transformation made them one of the icons in the 21st century (Usman, et al., 2009); their availability, flexibility, and acceptability among users (especially career information and guidance educators) have made them one of the reliable tools in the provision of labor market information (Usman MNSE, Ayuba, & Gatabazi, 2001). While CI has a place in work preparation programs such as TVE and also plays a vital role in human lives, ICT simplifies the provision of CI by assisting guidance

counselors to effectively store, distribute, and utilize information (Masagca & Londerio, 2008).

A model of ICT applications in the provision of career information (Watts, 2002): "self-awareness, opportunity awareness, decision learning, and transition learning" is relevant and can simply be adopted in TVE programs (Figure 1). ICTs further assist in accessibility, support, and interactivity among students, guidance counselors, and the world of work in the form of "hyperlinks and online searching" tools for labor market information (Phillips & Kelly, 2000).

The development of the internet resulted in the evolution of social media such as Face book, Wikis, blogs, Skype, Twitter, and YouTube among others, which are becoming more relevant in the life of youth, especially students in higher institutions of learning (Toole, 2011). Although some have maintained that the use of social networks only arises when relevant information about the availability of a job is searched for, the use of social networks helps students to discover new career options; to generate career objectives, to identify an efficient strategy, and to effectively receive results from others (Richmond, Rochefort, & Hitch, 2011). At one time, TVE programs were identified as work

Figure 1   Role of ICT in career information for technical and vocational education

preparation for students training to face job market challenges, and also as a program that only emphasized hands-on activities, neglecting the aspects of a student's social life. However, with the current flourishing social networks, a TVE student's social life is also affected, especially for students in formal TVE institutions. Moreover, the accessibility and availability of internet connectivity, which makes it possible for job searching and posting, is conducive to an environment to "attract workers to search and post their CVs on many internet recruitment sites offer free information about salaries or training opportunities, and give advice about the best ways to interview for a job along with other career and job-seeking advice" (Freeman, 2002).

According to Usman MNSE, Ayuba, & Gatabazi, (2001), a career is ''the individual's lifelong progression in learning and in work''. CI allows individuals to make preferences regarding what they intend to become in life. Therefore, among the objectives of TVE are the preparation of young men and women to enter occupations to earn a living. Consequently, the need to prepare TVE students to be fully integrated in the ever growing and changing world of work requires the creation of greater awareness and up-to-date information on employment opportunities, and the nature of labor market demand through adequate CI services, specifically through the use of ICT tools. Indeed, career counselors in formal and informal TVE institutions should have to deploy ICT tools in order to provide the most current and evidence-based guidance services (Glavin & Savickas, 2010). The need to clarify the mismatch between the careers known to the generality of people and those that exist in reality is one of the reason why "e-guidance" is required; thus it assists in guiding people to match their career with their interest (Gurevych, Müller, & Zesch, 2007).

The availability of information resources enables students to take advantage of and to access information at a distance without physical contact
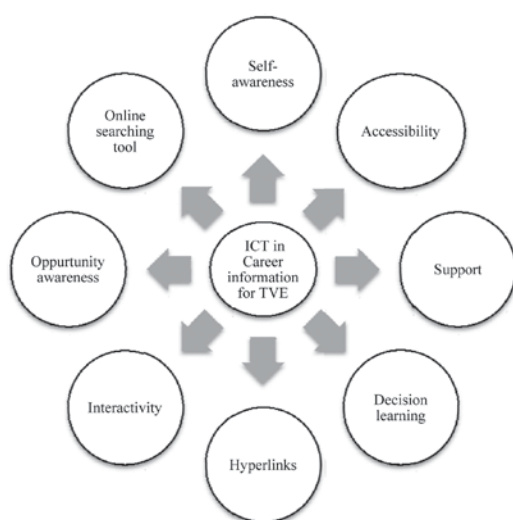
with career counselors. Sometimes students may find it very difficult to visit a counselor's office, or they may not want to disclose their situation and prefer tackling their problems using self-service. In view of this, ICT is now expanding to have the capability to render services to individuals/clients who live in remote geographical locations or have difficulty visiting centers or for other reason perhaps related to health (Watts, 2002). He further notes that ICT has the potential to significantly increase access to guidance services, freeing it from the constraints of time and space.

The role of ICTs in providing CI automatically initializes the investigation and diagnostic fundamentals of the usual services. For example, they can be used to assist people to develop their career-learning skills through the use of games and simulations and provide an interactive way of exploring the worlds of learning and work. Therefore, ICTs promote self-reliance by simplifying the most routine part of the guidance process, thereby allowing guidance practitioners to focus on offering higher level support services to their clients.

CONCLUSION

With the numerous advantages outlined concerning the roles of information and communication technologies (ICTs) in the provision of CI in almost all aspects of human life, vocational technical education (TVE) institutions should not be left out. However, it is acknowledged by renowned researchers in career information that the use of ICTs does not mean replacing face-to-face guidance services but rather strengthening and simplifying the nature of the services. That is why Usman MNSE, Ayuba, & Gatabazi (2001) sees the role of ICT in the provision of guidance in three ways: as a tool, as an alternative, or as an agent of change. However, the need is great for career guidance practitioners in TVE institutions to redirect their efforts by enhancing

ICT tools for counseling services. To this end, TVE policy makers, program administrators, guidance practitioners, and teachers are hereby encouraged to deploy ICT facilities and to ensure functionality and usage in order to help students or trainees effectively explore the available opportunities in the world of work.

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