Vocational training and IT competencies for students with special needs in Malaysia

Norani Salleh Ramlee Mustapha
Abdul Razak Habib
The National University of Malaysia
Malaysia

Abstract

The plight of individuals with disabilities can be described as a tug-of-war that has gone on for decades. In several Third World and developing countries, the lack of educative and legislative commitment from society has perplexed the future for special needs population. Jobless special needs youth who completed schools are widespread. Employers, in general, are not keen to train or employ them. In Malaysia, for the past 13 years (1990 – 2003), less than 5% of the special needs population has been employed and those employed are mostly in traditional occupations. This may be due to the lack of relevant and marketable skills possessed by them. Further, society perceives that vocational training is designed for low and below average students. This perception may become a self-fulfilling prophecy. A digital divide exists not only among rich and poor, urban and rural but also among normal and special needs populations. As a result, some segments of society have become disenfranchised by exclusion from access to information and information technologies. This article reports on the supportive and suppressive factors regarding vocational training and IT provisions for special education. Findings from this critical review may enhance our understanding of the nature of challenges faced by special population and their needs for differentiated education and training. In the long run, it is hoped that the findings may increase the awareness of the policy makers and practitioners regarding the critical aspect of providing access to IT and vocational training for special populations so that they can become productive citizens in a democratic society. Several recommendations are provided.

Introduction

A critical challenge that faces post-modern society is to attain full employment and to sustain economic growth in the global economy. In the era of globalization and k-economy, the future of Malaysia's competitiveness depends on the skills of its workforce. Human capital theory asserts that investment in education and training is essential to achieve social and economic progress. Special populations can be an asset to the country, not a liability. If trained properly and given job opportunities, it is not impossible that people with disabilities can be employed and become taxpayers (Mustapha et. al, 2004).

There has been some encouraging progress in enhancing job opportunities for people with disabilities in Malaysia. In civil service, one percent employment quota for the disabled has been gazetted since 1988 (Kerajaan Malaysia, Pekeliling Perkhidmatan Bil 10, 1988). More technical and vocational schools and polytechnics are open to special needs learners. Several government agencies and NGOs have been involved in the training and placing of youth and workers with disabilities in the employment sector. Manpower Department and Welfare Department have implemented training and placement programs for disabled individuals. Several companies including Multinational companies have hired people with disabilities. However, for the past 13 years (1990 – 2003), less than 5% of the special needs population has been employed in Malaysia (Mustapha et. al, 2004). It is worthy to note that

the percentage doesn't take into account the attrition and turn over rates of the workers.

Statement of the Problem

An empirical study by Salleh et. al (1998) found that education and training opportunities for special needs population in Malaysia are still minimal and the traditional training for special needs individuals may not be relevant and marketable in today's new economic environment. To be ready for competitive employment, research has indicated that students with disabilities should be included in vocational programs where appropriate training is provided (Greene et. al, 1991; Krajewski & Callahan, 1998; Okolo, 1988; Stodden & Leake, 1994). However, many teachers especially new vocational teachers are placed in special needs classrooms with little or no pre-service training in special education (Mustapha et. al, 2002). To increase the Science and Technology (S&T) in regard to human resources, the Ministry of Education has increased the numbers of special needs students entering secondary technical and vocational programs in the recent years.

However, studies abound which show that individuals with disabilities have encountered difficulties in seeking employment after completing secondary schools. Jobless special needs individuals have often lived with the extremes of poverty and dependence (Tomblin & Haring, 1999). Further, in Malaysia, little empirical research has been conducted regarding the vocational and IT competencies of special needs teachers and students. This study reviews current literature regarding the vocational and IT provisions and competencies of special populations in Malaysia.

Purpose of the Study

This article reports a critical review of literature regarding the vocational and IT provisions and competencies of special population in Malaysia. Specifically, the objectives of the study were: (a) to identify the vocational and IT provisions available for students with special needs, (b) to examine the curriculum regarding vocational and IT training for special needs learners, (c) to determine the competencies of special need learners and teachers in vocational and IT domains, and (d) to assess the teacher preparation in teaching vocational and IT subjects for special needs learners.

Methodology

In this research, a review of relevant literature, content analysis, and comparative analysis were utilized. According Gall, Borg, and Gall (1996), content analysis is an in-depth study on a particular aspect of the information contained in a document, archive, film and so forth. Relevant documents here include journal articles, conference proceedings, books, government documents, and cross-national data. Comparative analysis simply means that this study also compares different policies and experiences in Malaysia and the United States which are related to vocational and IT provisions and competencies for special needs populations.

Defining Special Populations

There are many ways to categorize special populations or individual with special needs. Sarkees and Scott (1986) identified some of the general categories: (a) mentally handicapped learners, (b) learners with emotional problems, (c) visually impaired learners, (d) hearing-impaired learners, (e) learning disabled learners, (f) speech-impaired learners, (g) health-impaired learners, (h) physically handicapped learners, (i) multi-handicapped learners, and (j) disadvantaged learners. The World Health Organization (WHO) also categorizes special needs population as blind, deaf, speech problems, physical, mental, emotional and others. WHO estimates that 10% of the world's population are people with special needs and 3.3% of them are children below 15 years of age. Out of the 10%, 1% are severe, 6% are

moderate and 3% are undergoing rehabilitation.

In Malaysia, the Ministry of Education has a rather narrow definition of special needs learners which included only three categories: (a) Blind, (b) Deaf, and (c) Learning Disabled. The Malaysian Ministry of Health (1996) estimated about 2% (the total population in Malaysia is 23 million), have disabilities and one-third are children. Salleh et. al (1998) stated that in Malaysia, 9.1% of preschool children had special needs in.

Vocational Education for Special Population

Throughout the world, children who have disabilities and many others who experience difficulties in learning have traditionally been marginalized within or excluded from schools (Ainscow & Haile-Giorgis, 1998). Today, more and more children with special needs are admitted into schools because of the pressures from parents, educators and advocacy groups around the globe. Even though general education is necessary, it is an insufficient condition for special needs population to obtain jobs. To be ready for competitive employment, research has indicated that students with disabilities should be included in vocational programs where appropriate training is provided.

Vocational training can be defined as the acquisition of trade skills in order to obtain employment. Vocational training is differentiated from academic preparation but the border is not always clear. Vocational education and training (commonly known as VET) is practical preparation for jobs that requires knowledge and skills as well as an understanding of the theory behind those skills. Vocation is an occupation or job in a particular industry, for example, as a mechanic, builder, beautician, horticulturist, electronics technician, chef, computer support person, or graphic artist. Vocational education and training provides skills and knowledge that help people get a job or to further their education and training in a particular field.

Vocational training is often seen as the way to overcome the unemployment problem (Giroux, 1991). Unfortunately, the image of vocational training program is not always positive (Mustapha, 1999). Society perceives that vocational training is generally designed for low and below average students. This perception may become a self-fulfilling prophecy.

Vocational special needs education and training designed for special populations require special curriculum, infrastructure and support services because of disabilities, illness, delayed development, an emotional disorder or some other reason. Education and training are provided as individually as possible, according to each student's needs. The objectives of the program are for students to gain trade skills, to find a placement in working life and to become productive individuals and members of society. The objectives are the same as in other education and training fields leading to gaining competencies, although the implementation method may be different.

Mustapha et. al (2002) studied hearing impaired students at one of the polytechnics in Malaysia. The group was the first batch (year 2000) of special needs students entering post-secondary public technical institution and majoring in Mechanical Maintenance program at the Certificate Level (2-year program). The study involved three categories of participants, namely, hearing impaired students (n=10), technical instructors (n=4), and special needs instructors (n=2). The data from the interviews and observations were analyzed and categorized based of the following themes: (a) the teaching and learning process, (b) the curriculum, (c) resources and facilities, and (d) equity and accessibility. The study found that the technical instructors had communication difficulties with the students because the instructors were not trained to teach special needs students even though they took a 2-week

basic course in sign language. The instructors also suggest that the curriculum and facilities

need some modifications especially with regards to laboratory safety and assessment procedures. The students pointed out that they were not given enough choices to choose the field that they liked. They indicated initially that they preferred to pursue studies in other areas.

Curriculum modification for special needs students is essential. King-Sears (2001) identified four types of curriculum modification (a) accommodation, (b) adaptation, (c) parallel curriculum outcomes, and (d) overlapping curricula on a continuum. This categorization represents the relation between modified curriculum and general curriculum in terms of differences and similarities in educational input including content knowledge and conceptual difficulty, educational output including educational goals, and methods of instruction. The extent to which the modified curriculum differs from the general curriculum becomes greater as educational practice moves from accommodation to overlapping curricula. For instance, in accommodation, the only educational components which may differ from general curriculum are instructional method and educational goals, whereas, in overlapping curricula, all components–input, output, and instructional methods that students receive–can be totally different from those designed in general curriculum. Nevertheless, in general, vocational program for special needs should have the following elements:

1. Providing prevocational programs and assessing work-related skills, interests, aptitudes, and attitudes.
2. Coordination and modification of the regular vocational program.
3. Assisting individuals in developing attitudes, self-confidence, and vocational competencies to locate, secure, and retain employment in the community or sheltered environment; and to enable such individuals to become participating members of the community.
4. Establishing work training programs within the schools and community.
5. Assisting in job placement.
6. Instructing job trainers and employers as to the unique needs of the individuals.
7. Maintaining regularly scheduled contact with all workstations and job site trainers.
8. Coordinating services with the related agencies to provide support for special learners.

IT for Special Populations

Healthy economic growth and sustainable development are important goals for a developing country like Malaysia. To achieve these objectives, lifelong learning and social transformation must be put high in the national agenda. All members of the society should be given lifelong opportunities to develop their potentials especially in IT. However, digital divide is still widespread not only among rich and poor; urban and rural but also among normal and special needs populations. As Martinez (1994:395) asserts:

> Access to information and participation in a democratic society are mutually dependent. This connection implies the possibility that a segment of society can become disenfranchised, not by exclusion from voting rights, but by exclusion from access to information and information technologies. Large-scale survey data on access to information technologies hint that such a process has already begun. As information technology proliferates, we approach a societal watershed in which technology will either improve the life chances of the disadvantaged or further drive a wedge between the poor and the privileged.

Access to IT has always been a controversial issue, both in rich and poor countries. A rich

country such as the United States has an advantage in terms of providing the physical infrastructure as compared to a developing country like Malaysia. For example, in the United States in 1994, the percentage of the US classrooms with internet access was just 3 percent. In 1996, President Clinton announced a set of national education goals which included connecting every classroom in the US to the internet. By 1997, the portion of connected classrooms had grown to 27 percent (National Center for Education Statistics, 1999). In 1999, the US Department of Education announced that over half of the US classrooms have internet access; by the Fall 1999, the Department expects 80 percent of the US classrooms to have internet connection. This was partly attributed to the impact of the "E-rate" or telecommunications discount to schools and libraries passed by the US Congress in 1996 (Means, 2000).

To achieve the aims of Malaysia's Multimedia Super Corridor (MSC) and the nation's Vision 2020, the initiative to integrate the use of IT and multimedia technologies in special needs education is timely. The Ministry of Education seems serious in paving its way to equip schools with computers and appropriate telecommunications for databases and internet facility. The Ministry has launched *Komputer Dalam Pendidikan* (Computer in Education) program in 1992 to enhance computer literacy among Malaysian teachers and students (Berita Harian, 29 September 1999). The IT and multimedia revolution has virtually permeated every sector of society. It has transformed the way people live and work, communicate, entertain, and conduct business (Mai & Neo, 2000). Further, the unprecedented demand for IT professionals has never been more critical (Peng, 2000). This challenge has enormous implications for both the classroom and research (Saunders, 1998). However, in Malaysian schools, it seems that the IT frenzy is just rhetoric. Unless a real commitment is made, the IT innovation in Malaysian schools will be considered as just another fad or something that the politicians are pushing.

In addition, a study by the Malaysian National Information Technology Council (INFOSOC Malaysia, 2000), highlighted that a total of 5,010 or 69.5 percent of primary and 758 or 46.2 percent of secondary schools do not have computer facilities. A total of 6,478 or 89.8 percent of primary and 1,082 or 66 percent of secondary schools do not have Internet access. Furthermore, about 276,000 households constituting 1.2 million Malaysians are considered as "marginalized" when it comes to accessing information technology.

According to Hasselbring and Glaser (2000), millions of special needs students across the United States cannot benefit fully from a traditional educational program because they have a disability that impairs their ability to participate in a typical classroom environment. For these students, computer-based technologies can play an especially important role. Not only can computer technology facilitate a broader range of educational activities to meet a variety of needs for students with mild learning disorders, but adaptive technology now exists than can enable even those students with severe disabilities to become active learners in the classroom alongside their peers who do not have disabilities. For example, the use of computer technology for word processing, communication, research, and multimedia projects can help the three million students in the United States with specific learning and emotional disorders to keep up with their non-disabled peers. Computer technology has also enhanced the development of sophisticated devices that can assist the two million students with more severe disabilities in overcoming a wide range of limitations that hinder classroom participation ─ from speech and hearing impairments to blindness and severe physical disabilities. However, many American teachers are not adequately trained on how to use technology effectively in their classrooms, and the cost of the technology is a serious

consideration for all schools. Thus, although computer technology has the potential to act as

an equalizer by freeing many students from their disabilities, the barriers of inadequate training and cost must first be overcome before more widespread use can become a reality.

Besides the United States, the utilization of IT and multimedia technologies in Malaysia has not yet reached the satisfactory level in the school settings. To reach the optimal potential requires full commitment from the government, serious thinking, research, and experimentation. Although Malaysia has made great strides in enhancing IT infrastructure, the IT utilization in schools is still low. Students with disabilities are less likely to own computers or access to Internet. Further, research (Wiser, 1995) has shown that students with disabilities need support in utilizing small group learning as a means of enhancing computer access. Therefore, administrators and teachers should reevaluate and restructure the curriculum so that the curriculum is viable for the development of IT competencies for all students including special needs learners. Also, the teacher training program should upgrade IT and multimedia technologies in its curriculum so that more teachers are up-to-date with the technology.

Integration into Workforce

Work is an important part of life. It provides a sense of recognition and self-respect for all people including the disabled (Sarkees & Scott, 1986). Nowadays, jobs are becoming more demanding and complex. However, our schools do not seem up to the task (Tomblin & Haring, 1999). The demands of today's workforce include advanced training and high standards for productivity, problem solving, and team work. While several studies report that the enrollment rates of American students with disabilities in postsecondary education is increasing, they are experiencing limited success. Numerous authors suggest that the poor post-school outcomes of youth with disabilities are due to their limited development of self-determination and career decision-making skills (Izzo & Lamb, n.d.).

In addition, there are still a high percentage of special needs individuals who work part-time jobs with minimum wages and others are still living at home ─ unemployed. The scenario for females is much more discouraging (Tomblin & Haring 1999). Women continue to be found in low-wage, dead-end jobs (Hanson, Malyn-Smith, & Guilfoy, n.d). About 30% of people with work disabilities in United States live below poverty line (Lai, 2000).

Baldwin and Schumacher (2002) studied job mobility among special needs workers in the United States and found that the most pronounced difference in patterns of job mobility between disabled and non-disabled workers is the higher rate of turn over among workers with disabilities. The finding was consistent with the theory that disabled workers, like other minority groups, comprise a secondary labor force that is last hired and first fired.

In addition, the higher rates of turn over among disabled workers are also consistent with a job-mismatch hypothesis that assumes the turn over results from poor job matches and that employers and workers have greater difficulty making effective matches when a worker is disabled person. Literature also shows that that there are several factors that may contribute to this phenomenon (high turn over rate among disabled workers) such as lack of relevant competency, attitudinal problems, poor transition program, lack of cooperation from employers, and the absent of appropriate laws.

In terms of employment, so far, there is no specific act or law that mandates the private sector employers to train and hire special needs individuals in Malaysia. Therefore, the need to draft

laws that require employers to take social responsibility in training and employing individuals

with disabilities has never been more critical (Mustapha et. al, 2004). In the United States, for example, the Rehabilitation Act of 1973, Section 503 states: "Any employer receiving federal assistance in the form of contracts for $2,500 of more is required to develop an affirmative action plan to recruit, hire, train, and advance in employment handicapped individuals … The plan must be reviewed and updated once a year" (Sarkees & Scott, 1986, p.8).

Section 503 of the Law also requires that employers make a "reasonable accommodation" for handicapped workers. This means that specific changes must be made to the work environment to accommodate the needs of the special workers. These changes may require, for instance, that a ramp be built or a work table be lowered or that a blind employee be provided with appropriate support tools. This requirement does not mean that an employer must assume a large financial hardship. Government funds should be made available to help employers make appropriate changes to the building or the work site (Sarkees & Scott, 1986). Further, the Americans with Disabilities Act (ADA) [passed by Congress in 1990] requires employers to accommodate disabled workers and prohibit discrimination against the disabled in hiring, firing, and wages (Acemoglu & Angrist, 2001). There are no such laws in Malaysia.

Literature analysis also indicates that the future demands for workforce and the community require people with new skills of work competence, community participation and self-advocacy (Halpern, 1992; Tomblin & Haring, 1999; US Department of Labor, 1991). With knowledge playing a dominant role, education and training is indispensable. Education and job opportunities for special needs individuals should be open as wide as possible. In addition to the traditional career pathways for people with disabilities such as telephone operators, musicians, crafters, tailors, waiters, masseurs, assemblers; we should also train special populations for nontraditional career pathways such as IT professionals, accountants, economists, stock brokers, teachers, technicians, software developers, system analysts, entrepreneurs, inventors, and technopreneurs (Mustapha et. al., 2001).

Conclusions and Recommendations

In this article, we argue that the present state of vocational training and IT provisions for special population in Malaysia is still lagging behind other advanced countries such as the United States in terms of legislative, funding, infrastructure, teacher training, support services and school-to-work programs. However, core challenges facing special population are considered universal across nations. Urgent measures need to be taken if Malaysia wants to enjoy status at par with industrialized nations as mentioned in the Vision 2020. In today's classroom, teachers are almost always expected to teach students at varying levels (Bender & Bender, 1996). This is particularly true in an inclusive classroom. To increase the chance of employability, research has indicated that students with disabilities should be included in vocational classes. Furthermore, with the quality movement and educational reforms, the concern about the quality of vocational program for special needs students has never been more critical.

Careful consideration of individual learner's needs is important for the success of disabled students in educational endeavors. To be effective in dealing with individual needs, a teacher must be able to recognize the uniqueness of each individual and try to accommodate a variety of learning styles. In addition, it is also necessary to determine the kind of support services the students require if they are expected to participate successfully in vocational special needs classroom. Research also suggests that teachers' pre- and in-service training are inadequate

for preparing teachers working with varied categories of special needs learners. Therefore, a

new teacher training curriculum that emphasizes on technology modification for special needs students should be introduced.

From the critical review of literature, we can conclude that many new and experienced vocational teachers lacked sufficient skills to be effective in working with the wide range of special needs learners commonly found in their classrooms. Likewise, many special needs teachers who were not exposed to vocational training or trades-related experience may have difficulty in teaching the actual trade skills and planning the school-to-work program. One possible solution to this problem is to provide professional development opportunities to all teachers in varied teaching methods, diverse learning styles, vocational trades, industrial attachment, IT and relevant topics related to learners with special needs.

Our recommendations include the development of a new curriculum and training program for teacher education to address the needs of special needs learners in terms of vocational and IT competencies in Malaysia. IT and vocational special needs infrastructure such as laboratories and shops needs to be built or improvised the existing ones. Involvement of stakeholders such as parents and employers needs to be enhanced. Transition program from school-to-work must be put in place where critical preparation and career counseling are provided for senior special needs students. It is timely to have a comprehensive law in Malaysia to uphold the rights of special populations to education, training, support services, and employment. Finally, to avoid the "self-fulfilling prophecy", it is critical to bridge the gap between education and employment for youths with disabilities and find ways to ensure more viable solutions to the problems they encounter on a daily basis.

References

Ainscow, M., & Haile-Giorgis, M. (1998). The education of children with special needs: Barriers and opportunities in Central and Eastern Europe. Occasional Paper – Economic and Social Policy Series 67. Florence, Italy: United Nations Children's Fund, International Child Development Centre.

Alper, S., Schloss, P.J., & Thielbar, L. (1994). Implications of best practices literature for vocational special needs personnel. *Journal for Vocational Special Needs Education,* 16(3), 8-15.

Badusah, J., & Hussin, M. (2000) *Bilik Darjah Internet: Pengunaan Pelbagai Bahan Media* [Internet classroom: The usage of multimedia]. Paper presented at the National Seminar on Research and Development in Education 2000, Petaling Jaya, Malaysia (3-4 October).

Baldwin, M.L., & Schumacher, E.J. (2002). A note on job mobility among workers with disabilities. *Industrial Relations,* 41(3), 430-441.

Greene, G., Albright, L., Kokaska, C., & Beacham-Greene, C. (1991). Instructional strategies for students with special needs in integrated vocational education settings: Enhancing educational opportunities. *Journal for Vocational Special Needs Education, 13(*2), 13-17.

Hasselbring, T.S., & Glaser C.H. (2000). Use of computer technology to help students with special needs. *Future child,* 10(2), 102-122.

Hippolitus, P. (1985). *College freshman with disabilities preparing for employment: A statistical profile.* ERIC Document Reproduction Services No. ED 283 313.

INFOSOC Malaysia (2000). Equity and Access: Benchmarking for Progress. http://www.nitc.org.my/events/infosoc.shtml [Retrieved 25 April 2005].

Krajewski, J., & Callahan, J. (1998). Service-Learning: A strategy for vocational training of young adults with special needs. *The Journal for Vocational Special Needs Education*, 21, 34-38.

Lai, C.W. (2000). The change of job mobility among workers with disability in the early 1990's. Unpublished project paper for the Department of Economics, East Carolina University.

Artinez, M.E. (1994). Access to information technologies among school-age children: Implications for a democratic society. *Journal of the American Society for Information Science,* 45(6), 395-400.

Mustapha, R. (2004). IT and multimedia literacy in technical and vocational education in Malaysia. *International Journal of Digital Contents,* 2(1), 113-115.

Mustapha, R., Ali, M., Yasin, R., & Bari, S. (2002). Technical and vocational education for all: The case of special needs students in technical higher education in Malaysia. *Proceedings of the International Conference on Education for All*. Bangi, Selangor: Universiti Kebangsaan Malaysia.

National Center for Education Statistics. (1999, February). *Internet access in public schools and classrooms: 1994-1998.* http://www.nces.edu.gov/.

Razak, N., Embi, M.A., & Mustapha, R. (2004). Computer literacy of English language teachers in Malaysian technical schools. *International Journal of Vocational Education and Training*, 12(1), 7-20.

Salleh, N., Abdullah, K., & Buang, N. (1998). Job opportunities for special needs population in Malaysia (Final Report IRPA Project: 07-02-02-0015). Bangi: Faculty of Education, Universiti Kebangsaan Malaysia.

Sarkees, M.D., & Scott, J.L. (1986). *Vocational special needs.* Homewood, IL: American Technical Publishers, Inc.

Tomblin, M.J., & Haring, K.A. (1999). Vocational training for students with learning disabilities: A qualitative investigation. *Journal of Vocational Education and Training,* 51(3), 375-370