INTEGRATING VOCATIONAL STREAM IN SECONDARY SCHOOL: A QUALITATIVE CASE STUDY

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ABSTRACT

Vocational stream is a new set-up in the education system of developing countries especially for countries with low population and limited area of land. Nevertheless, this countries are working on providing vocational education to their citizen particularly for their youngsters in secondary school. There are few important elements or items that can be used as guidence in a certain implementation that might be the basics of the implementation. The qualitative methodology (Inteviews, Documents analysis and observation) are used. Research findings show that there are some items that can be adopted as the Guidelines On International Best Practices In Integrating Vocational Education In Secondary School especially for the vocational streamed school. It is also found that, it is still too soon for the implementation of vocational stream in the existing secondary schools if the basic requirements for it are not being formed or improved. It is suggested that, the implementation of International Best Practices in Integrating TVET in the Secondary School which was also being suggested previously for other developing countries by model pathway of voational stream student.

Key Word: Secondary School, Guidelines, Best Practices, Vocational Stream

1. Introduction

The development of TVET in the others countries has undergone a lot of changes in the past decades. This is mainly possible due to the increase in population and the education and training as a major means of preparing people for employment. The research has shown that in most island nations, education is becoming more of a priority in government economic strategies. The development and implementation of TVET programmes are very important. TVET provides skills training for young students, as well as the working population wanting to attain higher skills and competencies, therefore supporting global initiatives such Education for All, Second Chance Education, Life Long Learning and Equity Education. In addition, TVET development helps industries and communities keep abreast of the fast changing technologies. Basically, in the education system of any country, technical and vocational education and training (TVET) has been a cornerstone. UNEVOC (2009) has defined TVET as the concern in the acquisition of knowledge and skills for the world of work. Wikipedia (2010) has defined Vocational education or Vocational Education and Training (VET), also called Career and Technical Education (CTE), as preparing learners for jobs that are based in manual or practical activities, traditionally non-academic and totally related to a specific trade, occupation or vocation, hence the term, in which the learner participates. It is sometimes referred to as technical education, as the learner directly develops expertise in a particular group of techniques or technology.

2. Literature Review

Secondary and higher secondary education are important terminal stages in the system of general education because it is at these points that the youth decide on whether to pursue higher education, opt for technical training or join the workforce. Educationists and experts have consistently recommended that education at these stages should be given a vocational bias to link it with the world of employment. In Australia, the United Kingdom and Germany, training policies are increasingly based on similar general principles. However, in the main, implementation of these principles remains specific to each country (National Centre for Vocational Education Research, 2006). In Australia the recognition of prior learning is available to individuals in the VET sector under the Australian Quality Training Framework (Josie Misko, 2006)

Wikipedia (2010) explained that in Australia vocational education and training is mostly post-secondary and provided through the vocational education and training (VET) system by registered training organisations. This system encompasses both public and private providers in a national training framework consisting of the Australian Quality Training Framework, Australian Qualifications Framework and Industry Training Packages which define the assessment standards for the different vocational qualifications. In Finland, vocational education belongs to secondary education. After the nine-year comprehensive school, almost all students choose to go to either a *lukio* (high school), which is an institution preparing students for tertiary education, or a vocational school. Vocational education is an important part of the

education systems in Austria, Germany, Liechtenstein and Switzerland (including the French and the Italian speaking parts of the country) and one element of the German model. In Hong Kong, vocational education is usually for post-secondary 3, 5 and 7 students. The Hong Kong Institute of Vocational Education (IVE) provides training in nine different vocational fields, namely: Applied Science; Business Administration; Child Education and Community Services; Construction; Design; Printing, Textiles and Clothing; Hotel, Service and Tourism Studies; Information Technology; Electrical and Electronic Engineering; and Mechanical, Manufacturing and Industrial Engineering. Normally at the end of elementary school (at age 14) students are directed to one of three types of upper secondary education: one academic track (gymnasium) and two vocational tracks. Vocational secondary (szakközépiskola) provide four years of general education and also prepare students for the maturata. These schools combine general education with some specific subjects, referred to as pre-vocational education and career orientation. At that point many students enrol in a post-secondary VET programme often at the same institution, to obtain a vocational qualification, although they may also seek entry to tertiary education. Japanese vocational schools are known as senmon gakkō. They are part of Japan's higher education system. They are two year schools that many students study at after finishing high school (although it is not always required that students graduate from high school). Some have a wide range of majors, others only a few majors. Some examples are computer technology, fashion and English. Vocational high schools offer programmes in five fields: agriculture, technology/engineering, commerce/business, maritime/fishery, and home economics. In principle, all students in the first year of high school (10th grade) follow a common national curriculum, In the second and third years (11th and 12th grades) students are offered courses relevant to their specialisation. In some programmes, students may participate in workplace training through co-operation between schools and local employers. In Mexico, both federal and state governments are responsible for the administration of vocational education. Federal schools are funded by the federal budget, in addition to their own funding sources. The state governments are responsible for the management of decentralised institutions, such as the State Centres for Scientific and Technological Studies (CECyTE) and Institutes of Training for Work (ICAT). These institutions are funded 50% from the federal budget and 50% from the state budget. The state governments also manage and fund "decentralised institutions of the federation", such as CONALEP schools. New Zealand is served by 39 Industry Training Organsiations (ITO). The unique element is that ITOs purchase training as well as set standards and aggregate industry opinion about skills in the labour market. Industry Training, as organised by ITOs, has expanded from apprenticeships to a more true life long learning situation with, for example, over 10% of trainees aged 50 or over. Moreover much of the training is generic. This challenges the prevailing idea of vocational education and the standard layperson view that it focuses on apprenticeships. Nearly all those leaving lower secondary school enter upper secondary education, and around half follow one of 9 vocational programmes. These programmes typically involve two years in school followed by two years of apprenticeship in a company. The first year provides general education alongside introductory knowledge of the vocational area. During the second year, courses become more trade-specific. Nearly all of those leaving compulsory schooling immediately enter upper secondary schools, and most complete their upper secondary education in three years. Upper secondary education

is divided into 13 vocationally-oriented and 4 academic national programmes. Slightly more than half of all students follow vocational programmes. All programmes offer broad general education and basic eligibility to continue studies at the post-secondary level. In addition, there are local programmes specially designed to meet local needs and 'individual' programmes. Nearly two thirds of those entering upper secondary education enter the vocational education and training system. At this level, vocational education and training is mainly provided through the 'dual system'. Students spend some of their time in a vocational school; some of their time doing an apprenticeship at a host company; and for most programmes, students attend industry courses at an industry training centre to develop complementary practical skills relating to the occupation at hand. In Malaysia, the government has established varieties of schools including the secondary Vocational school that offers numbers of programs that stand on academic and skills. Apart from that, there are 27 Politechnique Schools have been set up. Moreover, there are more than 30 Community collegues that play important roles in developing the vocational system by offering relevant courses to suit the requirements of the local communities.

3. Methodology

Qualitative and case study are the mothods used in this research. The case is the Integrating of Vocational Education in Secondary Level. For the qualitative study which require interviews data, documents analysis and continuous discussions, we have been based at Centre for Continuing Education (CCE), Ministry of Education at Male'. A period of time has been given to complete the assignment. We have been based at Centre for Continuing Education (CCE), Ministry of Education at Male'. A period of time has been given to complete the assignment. We have completed the assignment within one year. For the matter, we have studied the existing national framework of CCE and the implementation of vocational subjects by CCE and secondary schools throughout the country. We have scheduled visits to observe the schools or institutions which implemented or conducted the TVE programs. The NVivo 8 is used as a platform to manage the data including all of the pictures and videos. Furthermore, discussions have been conducted with TVE'S officer at CCE. We started working in my office at MOE to study the existing Nation Curriculum Framework and discuss with the TVE'S officer the schedule to visit the schools which implemented the vocational subjects. We had studied some of the important documents at EDC, CCE and some of the schools. Interview or discussion has been conducted with the Head of CCE, TVET's Coordinator of CCE, the experienced instructors and students who have taken Vocational skills, secondary school principals and the parents of students. Observations have been conducted in 3 schools in Male' and 2 school in Atolls (Kulhudhuffushi and Fuvahmulah Islands). We observed the workshops and classes in the schools. We have submitted a comprehensive report on Integration of Vocational Education in the Secondary Schools of the Republic of Maldives within one month after the operations.

4. Findings and Discussions

4.1 Key International: International Considerations

The implementation of vocational education in secondary school especially the upper level (form 4 and 5) in Malaysia has been going on for a fairly long time. Similarly in developed countries such as Australia, the Unites States of America, European countries and also Asian giants such as Japan and China. Although there are differences in methods due to the factors of cultures, population and the education system, vocational education has been a vital method or field that highly needed since it could provide high level of skills that can help secondary school to practically dominating a certain field of expertise.

A study by Perive Tanuvasa Lene (2009) shows that, the total number of students in the region attending secondary school, approximately 35% of them made it to year twelve and/or thirteen to prepare for their tertiary education The other 65% either dropped out of secondary schooling at year ten or earlier, or could not get places in further studies programs due to limited intake. If they fail to get employment, they become totally dependent on their families and communities. The research has shown that unskilled, unemployed population is increasing at an alarming rate across the Pacific. The number of secondary schools offering TVET varies from country to country depending on the national education systems they have. Courses offered are mainly associated with industrial arts subjects. Overall, the level of TVET skills students gain at secondary school is either very limited or non-exist. As entry requirements at regional universities for academic studies can only accommodate the top level students from secondary school, the opportunities and vacancies available in TVET programmes are insufficient to meet the increasing demand for places.

4.2 TVET Policies

The next step is to ensure that policies on TVET education are relevant and that they are aligned with government plans for the development of the country. Implementation of TVET will results in massive changes in the current policies of education especially concerning the organization and infrastructures. For example, if a course of Electrical Device Installation is planned to be integrated in the secondary school curriculum, the head of the school is require to choose a suitable teacher who are well prepared to lead the program. The existing teachers might also need to undergo certain training courses to prepare them for the successful implementation of the new program. Our observations show that, current policies in school do not really include the TVET in specific. Furthermore, TVET need to be approved by the ministry and human resource development organization so that they can plan the pathways for the students who took the courses during their secondary school. Therefore, TVET policy has to satisfy both the school's and government's policies. Case study of successful TVET programs in secondary schools. Case studies of successful TVET programmes in secondary schools should be studied and presented to the Ministers of Education and other Members of Parliament, especially those concerned with economic development. The importance of TVET and the need to vocationalise the secondary school curriculum should be spelt out clearly and concisely. The consequences of not doing so should be made plain. A recommendation to policy makers should advocate that it should be compulsory for all secondary students to undertake both academic and vocational education courses. The important advantages of secondary students leaving school with vocational and academic education and training should be documented. Table 1.0; describe the example of findings that showing the necessity of integration of vocational policies in secondary school.

Table 1.0: The Policy Maker to Implemented the vocational skill in the secondary

Activities	Objectives	Tasks
Vocational Skill policy in the secondary school	School, teacher, parents of student, student Awareness	Write the policies
Mininum Requirements to enter the vocational stream system	School, teacher, parents of student, student, comunities Awareness and advertisement	Designed the template based on vocational courses
Insructor, teacher Tasks	Instructor and teacher will know their task	Write the task
Workshop Policy	The instuctor and student are aware about the safety	Write the Policy
Apprenticeship Policy	Students, instructors, parents of student, company are informed	Write the Policy
Vocational Stream Time Table Procedure	The administrative can plan	Write the procedure

4.3 Curriculum

A relevant curriculum based on the vocational needs can be developed. A relevant curriculum based on the vocational needs can be developed. It should be concerned on the sources of income for certain area or location. If the school is located in area where the residents depend on fishing activities for a living, a curriculum of skills in repairing boat or skills in effective fishing should be developed. The curriculum has to be integrated with practical training with relevant companies. Many islands in Asia are in need of better marine studies programmes that equip students to live and work in a marine environment. Consequently, TVET programmes will vary significantly from school to school. For example, a school close to a tourist destination may choose to offer courses in the hospitality industry, while a school near a busy port could offer TVET programmes associated with navigation, marine engineering and boat-building. Students need to be able to choose TVET programmes with open and flexible pathways from lower secondary to higher secondary and move on to tertiary and industry levels. Too often there is little or no integration between these sectors, making it difficult and sometimes impossible for students to progress on their chosen TVET pathway.

4 Skills of Teachers (Instructor)

TVET teachers must keep up with the vocational area in which they teach as well as constantly improving their methods of teaching. Therefore, there must be a professional development opportunities. On-line training would be a possibility for some aspects of professional development. Even though studies pertaining to skills and usage of technology (electronic application) are still in dispute, the need of this approach nowadays is undeniably paramount. In the globalization era, varieties of teaching and learning approaches are highly necessary even for the field of skills related and vocational.

However, real participation in the industries in which they teach should not be overlooked. We need to provide incentive packages to ensure teachers do not get stuck in a rut. Salary increment could be offered for teachers who perform well. Easy and regular opportunities for TVET in-service training such as short-term skill-enhancing workshops could be an important incentive. Special awards could be presented to the best TVET teachers of the year, outstanding TVET students, supportive parents and co-operative industries. In this way, support is rewarded and TVET programmes are enhanced.

4.5 Teaching Methods

The day-to-day teaching conducted by TVET teachers needs to be reviewed and redesign. Teaching can too easily become uninspired, monotonous and boring. The delivery of effective teaching and learning in both theory and practice is a must. Ways of motivating tired teachers and encouraging them to be enthusiastic must be explored. We believe that, TVET method needs to revolutionize along with the advancement of ICT. E – Learning could be used as a method enabling students to understand better on certain topics such as electric skills. The application of multimedia interactive teaching aids could provide the graphic illustration of the flow of electricity. This can be shown through cable or video where students will be demonstrated by the steps of how to fix an electrical bulb correctly.

4.6 Infrastructure

Consequently, there is little incentive for teachers to teach well. Adequate TVET facilities in the form of appropriate buildings, adequately equipped workshops, laboratories and necessary tools should become the scaffolding of which successful TVET programs can be mounted. A good infrastructure includes a laboratory which is specially designed for skills related courses. The level of safety features is also must be at the highest standard along with good arrangement and cleanliness. Besides that, machines and tools need to undergo excellent periodical maintenances. A good infrastructure could improve the motivation of students, parents and stake holders.

4.7 Resources

TVET teaching or learning resources are often in short supply. For optimal learning outcomes, TVET teachers need adequate stationery, sufficient raw materials, up-to-date textbooks and a range of suitable teaching aids to deliver their courses. Creative teachers are highly essential for TVET. The existing teachers in school can be trained as technical skills teacher as long as they have high interests in skills related field. One of the factors that caused

4.8 Funding

Without money, effective TVET courses cannot be delivered. Most courses are expensive to deliver. It is essential to secure funding from the government, local private donors and overseas donors. So that effective delivery of TVET courses can be conducted. TVET requires substantial financial sources. Nevertheless, if the school has good relationship with some related agencies or organizations, they could obtain sponsorship or financial aids for the implementation of TVET. For example, a unit that is in charged of industrial relation should be set up in school so that cooperation in doing any twinning programs with outside agencies or organizations can be run smoothly and effectively.

4.9 TVET awareness

It is surprising how little is known by the community and in many secondary schools about the TVET possibilities. Awareness programmes must start with ourselves in our own country, in the educational context in which we work. Having comprehensively informed ourselves, we need to spread this knowledge throughout our country's schools. We need to inform teachers, students, management and administrative staff, traditional and religious leaders, parents' groups and mothers' clubs. The wider community must also be informed. Community awareness programmes that include visits to vocational schools and colleges, open days, public meetings, brochures and handouts, television and radio broadcasts, and informative articles in the local print media should be mounted. Web pages may be appropriate in some islands where electronic communication is widespread. Parents need to be made more aware of what can be offered to their children. They need to be convinced that TVET offers real employment opportunities equal to and sometimes far more appropriate for their child than what may be available at the end of a purely academic programmes. The good news of TVET needs to be disseminated to parents by home visits, parents' days, and TVET days where TVET promoters and personnel, including staff and students speak about their TVET programmes. The aim of developing strategies to promote public awareness about TVET is both to inform and to change people's attitude towards TVET. They need to view TVET as an exciting and positive real-world pathway for anyone who cares to start walking in that direction. TVET is about educating people to see the potential and giving people the enthusiasm (and sometimes the courage) to take up vocational studies. TVET providers must also publicly address the issue of gender equity. All TVET courses should be available to both male and female students. We need, for instance, to bypass the thinking that only men should undertake plumbing and that only women can weave. Sometimes in certain countries

cultural norms override gender equity and cultural sensitivity is required in such situations.

4.10 Industry Partnerships

TVET courses need practice opportunities in real workplaces. Good industry partnerships are vital. Arrangements for TVET students to do work attachments, internships and work placements in industry will make a TVET course come alive. Trainers will need to liaise with industry partners to ensure that that all industry requirements are met. These will include insurance coverage, parent waivers and consent letters. Arranging work placements will need a degree of flexibility from TVET providers and industry. It may take the form of one or two days a week, it may involve a block of time or it may be held during holidays, at weekends or even in the evening. A mutually convenient time for workplace practice must be set aside by the workplace personnel and trainers. Overall, commitments from all stakeholders, including businesses, industries, trainers and service providers, parents, communities and donors, must be brokered if TVET programmes are to succeed and be sustained. Sustainability is the key issue.

4.11 Standards

Without a clear articulated national qualification framework and an accreditation council to implement the framework, the standards will not be maintained and TVET will be weakened. A national qualification framework managed by a recognized accreditation council will allow order for all training providers in terms of the value of their qualifications and the competencies of their graduates. It will also allow employers to validate the qualifications possessed by job seekers. To assist in the development of national standards, a taskforce on employment creation can raise awareness about TVET in the eyes of the country's leaders. Its role would include the identification of key performance indicators to monitor the job opportunities for job seekers. The taskforce should also liaise with training providers about job opportunities in industry and how appropriate TVET courses can be set up to provide pathways for students who wish to

5. Suggestions on International Best Practices

Suggestion 1: The Programs

TVET programs must be considered as a priority area for inclusion and development in the secondary school's curriculum of the national education strategic and corporate plans.

Suggestion 2: Work Closely with TVET Providers

Secondary schools must work closely with TVET providers at the post-school, tertiary level and with other stakeholders in the development of the secondary TVET curriculum so that there is a smoother and better quality pathway for students to follow when they complete or drop out from secondary school.

Suggestion 3: Awareness Programs

TVET possibilities and programs must be promoted to parents and communities right through the secondary schooling to make them aware of viable study pathways and to show how it can help them to build their future.

Suggestion 4: Study Models of Other Countries

Successful TVET training models had been practised by other countries in the region should be used as guidelines to develop national TVET programs to suit each country's needs.

Suggestion 5: Include Life Skill and Livelihoods Programs

Include life skills and livelihoods programs as part of TVET to raise students' self-esteem and to equip them with the necessary problem-solving and educational skills required to become successful adults.

Suggestion 6: Staff Support Programmes

Develop staff support programmes to keep teachers updated about the best teaching methods to deliver vocational courses and to keep them abreast with fast changing technologies.

6.0 Integrate TVET in the Secondary School

Epeli Tokai and Jennie Teasdale (2009) have suggested that the following practical steps should be taken by any secondary school that wants to integrate TVET into its curriculum. These suggestions are presented from the perspective of the principal, though steps can be taken in collaboration with appropriate staff, industry representatives and other stakeholders. Representatives from the potential or actual student body should also have their say;

- *Step1*. Develop an action plan that clearly defines the task, the time-frame, the people responsible, the resources and the costing. It is wise to monitor, evaluate and review these elements constantly.
- *Step 2.* Look carefully at the vision or mission statement of the school to see how TVET can be encompassed within the existing structures.
- *Step 3.*Review workable ways of integrating TVET into the existing curriculum. All the things that matters need to be reviewed in order to ensure that the curriculum is appropriate.
- Step 4. Involve stakeholders in the review process.
- *Step 5.* Identify career pathways or courses that are relevant to the local community. Build on what already exists. This will be linked to the geographic locations and the resources available.
- *Step 6.* Inform the Ministry or Department of Education of the needs of the school by submitting the recommended revised curriculum.

Step 7. Systematically develop an awareness programme to inform all members of the school community, including teachers, students and staff. Actively inform parents and the wider community by using the media and announcements. Visit stakeholders to inform them of the proposed changes. The aim is to publicize and promote the proposed TVET programme to get rid of any stigma that may be attached.

Step 8. In order to sustain the TVET programme, the whole process and the steps within it must be monitored and reviewed systematically to ensure continuing effective deliver.

7.0 Suggestion and Example of Career Pathway

Figure 1.0 shows a career pathway between an academic stream and a vocational stream. The students can choose only one stream whether the academic stream or the vocational stream. Level 1 vocational stream will be offered to all students at lower secondary schools (not only for the limited or lower achievement students). The existing education in Republic of Maldives leads me to suggest this model. I understand that the existing secondary school education system are: (1) Intake to any stream in secondary schools does not have to go through decision process (streaming), (2) most of schools adapt two session, (3) Most of the schools especially in Male' consist of three streams which are Science, Art and Commerce, (4) There are also secondary schools that have only one stream especially on small islands, (5) A term (semester) is about 15 weeks. Therefore, I suggest that this Vocational Stream will be more focused towards skill based field without abandoning the theory. For example, students are offered Certificate Computer Hardware Course. Curriculum for Computer Hardware vocational course in secondary schools should be designed in a way so that student can learn Computer Hardware theory and competent in Computer Hardware practical based on National Competency Standard. I suggest that the proportion 50:50 (Theory and Skill) is used for vocational skill and optional vocational stream subject must be related to the student knowledge improvement ability to undertake vocational discipline in Diploma and Degree level. For example, students taking Computer Hardware vocational stream should take 2 out of 3 optional skills which are Physic and Chemistry and one optional stream subject. In this way, students taking Computer Hardware Vocational Stream can further subjects in Computer Engineering fields in Diploma and Degree level since they already posses the basic knowledge needed. The significant of integrating the vocational stream in secondary schools are explained based on Pathway's level as follows:

Level 1: Pathway

The students will enroll the vocational stream at Grade 8 (Lower Secondary Schools). They need to register English, Dhivehi, Islam and Mathematic as general compulsory subjects. They also need to register a Vocational Skill (Level 1) as a core subject and they will choose one optional subject. The learning activities include classes, workshops, and Competency Based Assessment (CBA) will be conducted in 30 weeks (2 Term) in the year. The students will be graduating in Vocational Skill (Level 1) in

a year. For example, the students who have taken the Computer Hardware (Level 1) course will complete the course at grade 8.

Level 2: Pathway

In grade 9, the students will learn Computer Hardware (Level 2). The learning activities include classes, workshops, and Competency Based Assessment (CBA) and apprenticeship programmes need to be conducted within 30 weeks (2 Term). The apprenticeship programmes will offer opportunities for the students to learn more at the actual work place. The students need to complete at least 150 hours.

Level 3: Pathway

In grade 10, the students need to continue for Computer Hardware (Level 3). The learning activities include classes, workshops, and Competency Based Assessment (CBA) and apprenticeship programmes which need to be conducted within 30 weeks (2 Term).

Level 4: Pathway

In grade 11, the students can continue for Computer Hardware (Level 4). The learning activities include classes, workshops, and Competency Based Assessment (CBA) need to be conducted within 30 weeks (2 Term).

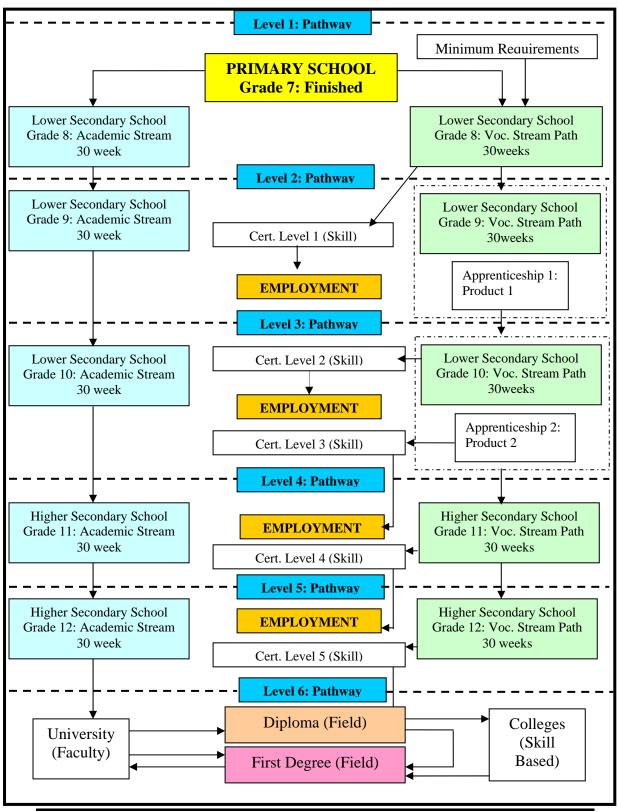
Level 5: Pathway

In grade 12, the students can continue for Computer Hardware (Level 5). The learning activities include classes, workshops, and Competency Based Assessment (CBA) need to be conducted within 30 weeks (2 Term) train for these jobs.

8.0 Conclusion

The TVET experts committee convinced that TVET can be effectively implemented in secondary schools by taking the steps outlined above. The MOE needs to suggest that this TVET master key has the capacity to open and close doors. This concept is spelt out in TVET vision statement: "Education is the key to development, then TVET is the master key that will open the doors to employment opportunities, sustainable livelihoods and self-reliance—and close the doors to adversities". Vocational Courses have already been offered in several secondary schools as a pilot test although not consistently across the island. There is a continuing need for all people or stakeholders to collaborate in introducing quality TVET programmes in secondary schools across the region. Collaboration is needed between the countries that are in the process of strengthening these programmes and countries that are already running successful TVET courses in their secondary schools. If the process of integrating TVET across the secondary school curriculum is well planned and properly introduced, the outcomes will be positive and all stakeholders will benefit. Members will also fully support the development and delivery of popular courses for all students in the lower secondary schools as pre-requisites for further training at higher secondary level to meet local skills needs and labour mobility for better social and economic development.

Figure 1.0 shows a career pathway between an academic stream and a vocational stream.



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