

WOMEN AND SKILLS TRAINING: GENDER IMPARITY IN IN TECHNICAL FIELDS

Ramlee B. Mustapha
Azami Zaharim
Norhazizi Lebai Long
Fouziah Mohd

Universiti Kebangsaan Malaysia

Abstract

The issue of gender imparity in technical fields is complex. Several studies found that gender inequality exists in certain sectors of the economy. Women are still concentrated in certain types of job. The imbalance may be due to problems associated with the inability to make decision, the lack of information about self and career, and pressure from parents and peers. In addition, gender ideology may play an important role in maintaining the inequality between women and men, particularly in the labour market. The purpose of the study was to identify the factors that influence the career choice among female students in technical schools. The study found that the gender imbalance in technical and vocational fields is mainly due to the career decision making process. Among the factors that hinder women's involvement in non-traditional career is the lack of confidence among some women to explore the field. In other words, they are not very confident with their ability to venture into non-traditional career compared to the traditional career for women. Other factors that hinder female students from choosing technical fields can be summarised as follows: (a) technical field is a field that requires its workers to have high physical and mental endurance and durability, (b) there is a lack of encouragement from family, peers, and teachers, (c) female students are seldom given a chance to "prove" that their capability is equal to males, (d) female students lack confidence in certain fields, and (e) the gentleness in them causes them to be timid to try. However, a high percentage of the female respondents in the technical schools assert that they are capable of competing with male students.

Keywords: Gender, Women, Technical and Vocational Education, Career Decision Process, Malaysia

INTRODUCTION

When talking about gender, most people assume that we are only looking at women issues. This is a wrong assumption. It is also a gender issue if we discuss about the lack of male students in Malaysian universities. However, in the field of technical and vocational education, the gender issue is mostly associated with the lack of women's participation in the technical and vocational sector.

Following the need to increase knowledge and skills as well as the movement towards a high intensity human capital, the demand towards highly-skilled and multi-skilled employees will increase. Therefore, women need to be given more training opportunities to acquire new and most advanced skills as well as ones that fit the

industrial needs. Further, to face the rapid change in technology that requires new skills, women have to be given more opportunities for retraining. The private sector should also be encouraged to assist the government's effort in providing more opportunities for skills training for women including in the new technology (Government of Malaysia, 2006).

Women need to be provided with more education and training opportunities to fulfil the knowledge-based economic demand and also to assist their mobility to higher-paid jobs. To encourage more women to continue their education in unconventional fields such as science, engineering as well as vocational and technical training, career counselling programme needs to be offered to provide information and to promote awareness among female students and their parents about the career opportunities in the professional and technical fields (Government of Malaysia, 2006).

Working is an important activity in people's life. Most people will be satisfied with their life when they have a permanent and guaranteed job. Furthermore, occupation could show the status of the society, its economic level and income. Working means one must be active in an economic activity that could bring monetary benefits to him/or her and to the field he or she is involved in. Occupation is said to influence self-concept, feeling of value, peacefulness and one's personal identity (Muhd Mansur & Siti Nordinar, 1989). Nevertheless, the majority of Malaysian women are still holding mundane positions and earning relatively low salary. Only few are at the level of the highest management and decision making positions. In 2000, there are only 10.4 percent out of 3.23 million women working in the field of Information Technology (Government of Malaysia, 2006).

The aim of the Malaysian government for the year 2020 is to become a developed country. To achieve technological advancement requires many engineers and technicians. The Ministry of Higher Education and the Ministry of Human Resource in Malaysia have involved in many discussions about the strategies to produce high quality human capital. The growth in the nation's economic and industry depends on our capability to maintain a high rate of productivity and competitive advantage. Educated, skilled and highly motivated labour could enhance economic growth and productivity.

Hence, the role of technical and vocational education is very significant to achieve the aspiration and hope of the nation (Ramlee, 1999). The lack of skilled labour may slow down the industrial growth and thus yield low GNP. For the past four decades, women have achieved a level of development that we could be proud of in the occupational sector in Malaysia. In fact, since the 1970s, their number in the occupational sector has increased. The percentage of female labour increases from 37 percent in the year 1970 to 43.5 percent in the year 1995, and 47.7 percent in the year 2003 (Ministry of Women, Family and Community Development, 2004).

However, there is an imbalance in terms of the courses taken by female students which creates further disparity in the types of job held by women. Although various higher technical institutions such as the polytechnics and MARA University of Technology offer technical courses to females, the concept of courses which are only suitable for males and suitable for females still continues. School students, particularly secondary school students often face problem in choosing a career. The

problems that they faced are associated with the inability to make decision, the lack of information about self and career, and the pressure from parents and peers. According to Holland (1973), student's personality may affect the student's choice of career. An individual is attracted to a job because of his or her personality and several other factors related to the job. One would give his or her opinion about an occupation based on the types of work and ranks of the occupation. The assumption about a career is a main determiner in choosing the job. Holland (1996) also stated that talent and the ability to do a job in a certain fields influence an individual's career selection process.

GENDER ISSUES IN TECHNICAL AREAS

The study of gender in technical and vocational education and training is seldom conducted in Malaysia since most of the studies focus on the discussion about gender in general. This study was conducted to identify the career aspiration among the students of technical secondary schools as well as the factors that influence their choice of career. According to Noran Fauziah (1987), at certain age, teenagers begin to think about their future career and it is at this stage that they will make an initial decision about career. They begin to think about their ability and interest to be suited to a certain working role and begin to make a realistic plan.

According to career theory introduced by Ginzberg (1972), at the age of 17 years old, teenagers are beginning to feel the importance of making immediate, concrete and realistic decision about the future career. At this stage, teenagers realise that the decision they make will actually have an impact towards their future. In making a career decision, not all teenagers are systematic and rational. Many teenagers are still indecisive about their future careers even after leaving high schools. Until now it is unknown in Malaysia how many individuals graduating from technical schools are working in the technical fields. Since the challenges are significant for women in the technical career, there must be several factors that influence female students to pursue a career in the technical fields. Perhaps the parties close to female students such as family and teachers play a role in encouraging female students to work in technical fields.

PURPOSE OF THE STUDY

The purpose of the study was to examine gender imparity in technical and vocational education. Specifically, the objectives of the study were as follows: (a) to identify the interests of male and female students towards career in the technical fields, (b) to identify the factors that influence the career choice among male and female students, (c) to identify whether the gender factor influence the career choice in the technical fields, (d) to identify the factors that prevent female students from choosing technical fields and (e) to identify the strategies to attract more female students to choose career in technical fields.

CONCEPTUAL FRAMEWORK

According to the career choice theory, making a career choice is a decision making process that occurs from teenage until early twenties, which is when the individual

begins to be aware of the importance of “getting a job” (Ginzberg, 1972). This theory states that there are three main factors that affect a career choice. First, personal factor such as evaluating self suitability with the job or internal characteristics such as the personality which is assumed to suit a chosen job. The second is the factor of reality associated with the career, which are the characteristics of the career that he or she assumed to be attractive to that prompts the decision to choose a career. The third is the influence from significant others such as parents, neighbours, teachers, councillors and peers.

According to Ginzberg (1972), the level of education is important in making career choice. The level of education could determine the type of occupation that a person is seeking. If the level of education is high, there is a good chance that the person could acquire a better job. On the other hand, if the level of education is low, the chance of getting a good job is slim. In other words, Ginzberg states that career choice must be suited to interest, ability, and values. Figure 1 shows a conceptual framework that was based on Ginzberg’s (1972) and Holland’s (1985) theories. In career choice, there are constraints for women since technical fields are dominated by men.

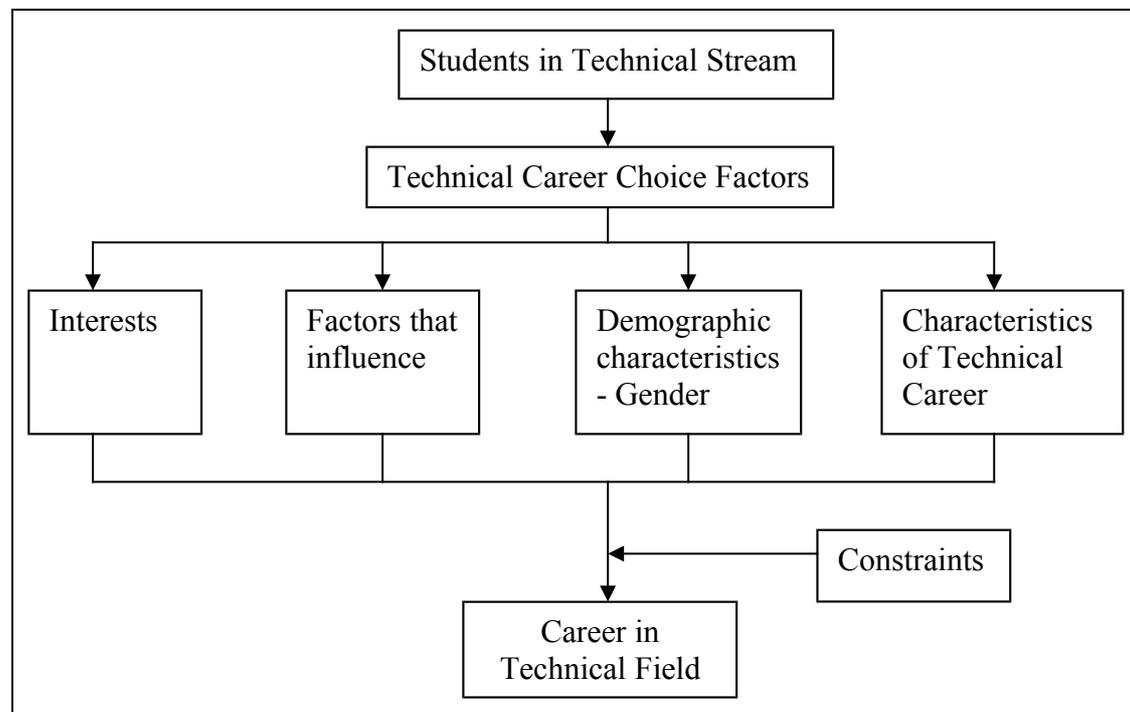


FIGURE 1. Conceptual Framework

LITERATURE REVIEW

The Definition of Gender

Gender refers to the social differences between males and females. It refers to what has been passed down by society to males and females from different social groups about their role and responsibility. Some researchers use gender to elaborate the characteristics and behaviours which are assumed by the culture as suitable for men and women. Gender is a construct that is shaped socially. For example, males and

females are expected to behave in certain ways. The concept of gender also refers to the position of men and women in the society (Raqu Dori Selia, 1999). According to Bushrah et al. (2006), gender is supposed to be understood not only as social differences between males and females but also as an interaction that connects to a social role determined by sexual or biological differences. Many people assume that gender is an issue that merely involves women. It has to be stressed here, however, that gender analysis that only focuses on females is incomplete. If gender is seen as a relationship between males and females, then every study that involves female will also involve males.

Gender Studies

De Beauvoir (1953) and Firestone (1970) agree that the main contradiction in society is the opposition between sexes. The opposition originates from the biological differences between males and females. Females are considered physically weaker because of their reproductive function. Therefore, many women hope for the assistance of others who are stronger. That is why they are considered inferior than men. Fatimah (1983) asserts that discrimination towards females is still widespread and this could be seen in the rules coded and practised in various institutions and organisations. Gender differences could become the basis of getting “rights” and special opportunities (Coote & Gill, 1974).

Psychoanalysts argued that the physical and intellectual capabilities of males and females are determined by the factor that differentiates them, namely biological factor. On that account, the most suitable place for women is at home which is to manage the household, take care of husband and children. The roles of a woman as lover, nurturer and comforter are suitable with the emotional needs of the family. Meanwhile the qualities required in most jobs such as aggressive, risk taker and competitive are not only inappropriate for women but these qualities could spoil their role in the family (Lundberg & Farhnam, 1947).

Gender Issues in Career Choice

Presser and Kishor (1991) who studied about job segregation according to gender in Puerto Rico for the duration of 1950-1980 found that job segregation has decreased because women have shifted from working at home to working in the production and service industry. According to Cadogan (2001), the US Department of Labor found that non-traditional jobs where 25% or less labour are women. Non-traditional jobs include working in the construction industry, factories and in auto service.

Shamsulbahriah (1989) found that gender inequality exists in the process of economic development of Malaysia. Majority of the women are still concentrated in the same type of job. She argued that gender ideology has played an important role in maintaining the inequality between women and men, particularly in the labour market. Noor Rahmah (2005) stated that jobs that are suitable for women include teacher, doctor and clerk because of the characteristics in a woman such as patient, gentle, attentive and motherly.

Clerical work does not involve rough work and is considered easy, light and with a fixed working time. Other jobs are also suitable such as nurse, accountant, secretary,

babysitter and tailor. Boserup (1987) who conducted studies in Latin America, Middle East, East and South Asia and Africa stated that there are three forms of occupation among women. Her study found that in industrial countries, primarily West Europe and North America, there is a high rate of women in clerical work and only a few in professional jobs. In Latin America, the pattern is different, where more women are in professional areas rather than clerical work. The distribution of female workers in Africa and Asia is at a low rate in both professional and clerical fields.

Law (1991) found that male and female students in Form Four have a high aspiration towards careers which are traditionally classified according to their respective gender. Most females are found to portray themselves as adults, wives and mothers. The males on the other hand portray themselves in terms of their vocational interests. Females are interested in jobs that require direct relationship with the public such as nursing, taking care of children, teaching or doing social work. Males on the other hand, prefer mechanical area. According to Siti Hamisah (2005), most women who are involved in the area of engineering are more interested in civil, electrical and chemical engineering. This is because these fields of engineering do not require physical strength and a more conducive working environment for women.

Rohany (1981) studied the association between gender and interest in career found that male students in Malaysian universities are more interested in scientific/engineering, business, and skill-related jobs. In contrast, female students are inclined towards social oriented jobs. Clarks (1965) in Abdul Razak (1998) who examined gender factor and career choice found that 85% female students are inclined towards professional jobs compared to only 30% of the male students.

Gender in Higher Education

Higher education (including technical training programmes) provides qualifications to enter critical fields such as science, engineering, communication, law and medicine. Higher education is also important to produce k-workers who will enhance the nation's economic growth and productivity. The higher the level of an individual's education often means the higher the job status held. Thus, education is a "passport" to the working world.

Gender imbalance in the Institutions of Higher Education (IPTA) with the number of female students surpass the number of male students is not unusual. This phenomenon did not only occur in Malaysia but also in other countries like Canada, United States of America, Saudi Arabia, Australia and New Zealand. For instance, SPM leavers' entry into IPTA for the 2005/2006 session consists only 35.5 percent male students compared to 64.5 percent female students, while STPM leavers that qualified to enter IPTA consist of 41.08 percent male students compared to 58.92 percent female students.

However, if we look at the student entry in technical and vocational institutions, it is quite different where the number of male students exceeds the number of female students. In 2005, the number of Form Five male students in technical school exceeds the number of female students which is 13,178 male students and 11,390 female students. This situation also occurs in the technical fields in university or university college. Female students' entry into technical and vocational institutions such as

Polytechnics and Community Colleges is still low and needs to be increased. In Form Four, students begin to think about their future career that they are interested in. In general, female students are more inclined towards the academic areas while male students are more interested in vocational fields.

In some countries, the stereotyped gender roles between males and females have caused female children to receive education which is not towards technical fields (Heyzer, 1986). To reduce the gender imbalance in certain fields, Heyzer (1986) has suggested these measures:

- (a) Increase the number of females entering into the technical fields of high education and training through financial support, scholarship and other incentives.
- (b) Re-evaluate the textbooks, curriculum and educational programmes to eliminate gender inequality in educational materials and consciously promote the egalitarian value and the neutral perception of gender role.
- (c) Train more women in the areas that offer many job opportunities which are expected to develop economically.

Women and Skills Training

Sheng et al. (1996) stated that vocational education could prepare women for various skills occupations. However, career in the vocational fields mostly “practise” gender segregation. Burge and Culver (1990) stated that gender inequality exists in almost all societies. Most fields of vocational training prioritise gender; for example, fashion design, health and household economics are traditionally for women while car mechanics, carpentry, and agriculture are for men.

According to Stockyard (1980), women are still lagging behind men in skills training. The importance of vocational education and skills training system cannot be denied. In developed countries such as the United States of America and Germany, skills training has become an important agenda in their national plan. They view skills training as a “panacea” for solving the unemployment. Wanzel who was the Management Director of the German-Malaysia Institute (GMI) once stated:

“In Germany, vocational schools are the first choice. To enter university or get academic qualification has become the second choice. It has become the priority for German people to acquire skills before they work or further study in university.”

In Malaysia, this concept is supposed to be implemented formally and explained to the students who are undergoing skills training so that they will feel more confident with the vocational courses they are taking. School counsellors have to play a role in giving explanation to the students continuously based on the most updated information about career. In Malaysia, skills training in technical and academic schools should be upgraded in order to train more teenagers who are academically weak. According to Mohamad (1994), early study about the loitering culture among youth in Kuala Lumpur found that 74.0% of those youth aged below 21 years old, 45.8% of them are school students while the others consist of teenagers aged 15 to 18

years old. These teenagers are supposed to be in school or training institutions in the country.

Interests in Technical Fields

A career has the potential to fulfil not only an individual's economical needs, but also social and personal needs, such as social interaction, feeling of personal respect or self-satisfaction, acquaintance and human relationship as well as the way to channel one's energy, ability, value and interest. Consequently, one may be more comfortable if the career chosen suited his or her self-concept. Satisfaction from work depends on how far one finds a way to channel one's ability, interest, personality and value.

According to Abu Zahari (1987), interests in some careers may influence students' learning achievement. A high level of interest could influence and encourage an individual to make a serious effort to acquire what is desired. Frylund (1950) in Shahrul Riza (1998) stated that the interests that emerge from inside a student will influence the learning process. When one is interested in an occupation, he or she will be prepared to study diligently until success is achieved. This means that the teaching and learning process will become easier if a student has a clear career goal. Sharifah Alwiah (1985) stated that interest is an encouraging factor which is important to an individual in achieving his or her ambition.

Vocational interest plays an important role in the teaching and learning process. An individual who is interested in a vocation may work hard to achieve his or her dream. According to Crow (1967), there are three factors which should be known by every individual before getting involved in any occupational field that he or she is interested with, namely (a) an individual's capability, interest and personal characteristics, (b) available jobs and the conditions, and (c) the abilities required by certain jobs. Therefore, it is common for an individual to take time to think before selecting a job that is assumed to suit him or her and is in line with his or her interest towards the job.

Career Factor

Career is often associated with a profession or affiliation. According to Buchhloz (1978), there are three main perspectives towards occupation. First, occupation is a good thing, and everyone must work. Second, occupation is a medium or channel that is to inform that a member of the society will be appreciated and the appreciation depends on his or her contribution to the society or organisation through his or her involvement in the profession. Third, through working, humans could fulfil their physical, emotional and social needs and develop their potential as humans. According to Mohd Rizal (2001), in selecting a career there is a direction that motivates one towards achieving aims in life. In addition to having direction in life, the individual could choose and evaluate a suitable career. Nor'ashikin (2002) found that female students agree that technical area provides them opportunities to further their education to a higher level and provides them with promising job opportunities.

However, few women are working in technical and vocational fields. The lack of women's involvement in the field may be due to "sex bias" or "stereotype". "Sex bias" and "stereotype" that could limit their career choice. Female students in vocational education are often directed to jobs such as secretary or beautician while

male students are placed in various skilled or semi-skilled industries (Williams 1980). According to Weiler (1997), the traditional theory does not take into account the career choice, the preparation and the working world for women. Weiler (1997) also stated that there are five aspects that influence women's career development, namely their knowledge in the working world, family factor, environment, socialisation effect and effect from the nation.

FACTOR THAT INFLUENCE CAREER PATHWAYS

There are many factors that influence an individual to follow a programme or course in an institution of higher education. Among them is one's interest towards the programme. The interest factor for some students is significant when they want to chase their ambition or career. For instance, to become a doctor the student has to have an interest in the medical field. To realise this career, he or she has to take medical programme/course. If the student is not interested but is forced to become a doctor and take the medical programme/course, the student may face difficulties in the course. There are many factors that could influence career choice.

Teacher Factor

A teacher is an individual that plays an important role in determining a student's career direction. Students need both education and career guidance. The teacher's role as a facilitator is to pass on information to the students. Teachers are considered second to the family for those who have close relationship with the students. Teachers do not only impart knowledge but they also spread out information about careers that could be selected by the students (Suhaimi, 1996).

Mokhtar (1999) found that even though without the teachers' encouragement, the choice of engineering stream among students is still associated with the teachers' involvement factor in assisting in decision making. This could be due to the teachers' communicating method, behaviour and teaching that have an indirect impact to the students' career choice. Teachers are also able to associate the subjects that they teach with the engineering field.

Teachers play an essential role in nurturing students' interest towards the subjects they teach. Therefore, an important characteristic of a teacher is to raise students' interest through his or her teaching. This is because students may have very little natural interest. Consequently, teachers are supposed to play their roles by nurturing their students' interest (Abu Zahari, 1987). The Swann Report (1985) stresses that teachers are the key element in the education process. Teacher's racist and prejudice behaviours are not acceptable. On the gender issue, teachers have to educate students without biases or prejudice.

Influence from Family and Peers

According to Ginzberg (1972), parents have significant influence on the children's career choice. A study conducted with 3,971 respondents found that the main influence in career choice is the parents. The study conducted by Amir (1984) has shown that the factors of father's career, prestige and economic status are indirectly associated with and influencing students' career. Normawati (1982) in her study also

discovered that parents have important influence in teenagers' career choice. Salmi Abas in Law Choon Yin (1991) found that 25% of students are influenced by peers while 75% are influenced by the mass media while making career choice. Salmi Abas conducted a study on 100 Form Five students in Sekolah Menengah Iskandariah Shah, Jasin, Malacca.

Personality and Career Choice

The Holland theory mentions that career choice is greatly influenced by the personality factor. The theory mentions that the degree of compatibility between personality and working environment will determine the level of satisfaction, achievement and ability of an individual (Holland, 1985). The theory involves the identification of personality that could be associated with vocational environment. His assumption is that humans that have various types of personality will be attracted to a career that suits their lifestyle. According to Holland, a worker involved in the technical field is categorised in the realistic group with characteristics and personality as follows:

- a) Characteristics – stable, natural, masculine, practical, diligent, frank, able to stand on their own, physical, materialistic, honest, shy, consent, genuine, inventive, normal, rigid standpoint, cautious, hard hearted, repeated, less reasoning ability.
- b) Likes – mechanical activities, outdoor work, athletic (sports), manual activities, concrete things (money, power and status), working with equipment, flora and fauna.
- c) Dislikes – academic activities, social activities, self-exposure, working with other people.
- d) Orientation – direct involvement with concrete activities, object manipulation.
- e) Occupation – mechanical, electrical, engineering, mechanic, life skills teacher, technician, marine officer, forestry officer, animal officer, cook, fashion designer, photographer, surveyor, diver, driver, petrol station attendant, carpenter, plumber.
- f) Educational fields – civil engineering, mechanical engineering, forestry, medical technology, food preparation, technical and vocational field, agriculture and livestock production.
- g) Academic environment – nurturing competency and achievement in technical field and manipulating objects, machines, agriculture and livestock production.

Students' personality has significant influence on their career choice. An individual will be attracted to an occupation because of his or her personality and several other factors contained in the job profile. An individual will express his or her views towards a job based on the nature of work and status of the job. Comparison of oneself with his or her assumption about a job and the feeling of accepting or rejecting it is the main determiner in career selection (Holland, 1973).

Factors Hindering Female Students from Selecting Technical Fields

Among the factors that hinder women's involvement in non-traditional career is the lack of confidence among women to explore the field. In other words, they are not very confident with their ability to perform the tasks of non-traditional career compared to traditional career (Farmer et al., 1995). This argument is supported by Noor Rahamah (2005) who stated that unsuitable jobs for women from the view of all three generations in her study are soldier, police, lawyer/judge, night club worker and hard labour. The main reasons women are assumed not suitable to do these jobs are because women have less required physical strength, working hours, impermanent working place, negative image, and residence. One of the third generation respondents stated that her first job is as a policewomen trainer, but she quitted because she could not stand the durability of the job.

According to Perrone et al. (2001), the lack of women's participation in non-traditional career occurs because women often face gender discrimination, sexual disturbance at work and obstacle to get a high position. Based on the study by Norhazizi (2008), the factors that hinder female students from taking certain technical fields can be summarised as: (a) technical field is a field that requires its workers to have high physical and mental endurance and durability, (b) there is a lack of encouragement from family, peers, and teachers, (c) female students seldom be given a chance to prove that their capability is equal to men, (d) female students are lacking confidence in certain fields, and (e) the gentleness in them causes them to be timid to try.

STRATEGIES TO ATTRACT MORE FEMALE STUDENTS TO CHOOSE TECHNICAL FIELDS

Based on the data acquired, teachers are the main factor that encourages students' career choice in the technical fields. Therefore, teachers have become the resource for students in communicating the information about career in the technical fields. In school, counselling teachers have a role to pass on the information about career to students. Therefore, the role of a counselling teacher is to conduct programmes associated with career in school to guide to students. Career guidance is needed for students to choose their career path in the working world. Therefore, the guidance unit must devise a strategy to attract female students to nurture their interest in the technical fields.

Zuraidah Ismail (2003) stated that government should encourage more women to further their study in non-traditional areas such as science, engineering as well as vocational and technical fields. Career counselling programmes should be conducted to provide information about non-traditional careers that offer higher salary. Shertzer and Stone (1981) did mention about the influence of the work "image" itself that is able to attract students to make career choice. In general, a job's prestige is an important factor in making career choice and therefore it has an impact towards the job aspiration of adolescents. In addition, what is attractive in an occupation include salary, prestige, social factor as well as the opportunities for promotion.

Several strategies that could be implemented to attract the interest of female students in technical fields are (a) giving talks and courses related to technical fields, (b) providing wider exposure through exhibition and visits, (c) introducing technical and vocational fields at the primary school level so that the students have more options, and (d) nurturing the attitude of positive thinking to all female students so that they are more confident to explore non-traditional and challenging careers.

Fawcett and Howden (1998) also suggested the steps that could be taken to attract women's interest in the technical fields, including (a) adding technical training for women and improving women's productivity in service sector such as hospitality, tourism, textiles, and office work, (b) adding new courses for women in new technologies such as computer and telecommunication fields, and (c) changing the curriculum that is commonly specialised for men to guarantee broader opportunities for women such as auto mechanics, electrical installation, carpentry and metal work.

CONCLUSION

Career choice is critical for students since it will determine their future. There are many factors that could determine student's career choice. The main findings from this study show that there is no significant difference for selecting career choice in technical fields based on gender. From the literature review about the issue of gender imbalance in technical and vocational education it can be summarised that the interest shown by male and female students towards the technical fields is relatively high. However, the main factor that influences them to choose a technical field is the exposure to information regarding technical fields in school. Thus, teacher factor is critical in giving appropriate advice to the students. In addition, the nature of technical career does not hinder female students from choosing that career. A high percentage of the female respondents indicated that they are capable of competing with males students.

RECOMMENDATIONS

Based on the results of the study, several suggestions are put forward to attract female students towards the careers in technical fields. The findings of this study could be used as a guide for all parties, namely school, parents, teachers, Guidance and Counselling Unit, and the Technical Education Department.

The Role of School

Schools should set up a high quality Career Guidance and Counselling Unit for students and must ensure that the operation and activities of the Unit are carried out professionally. School should hire a qualified Career Guidance teacher so that he or she can assist the students in making career choice.

The Role of Parents

Parents need to play a greater role in determining their children interest in choosing a career. Among the respondents' parents are those who work in technical field. Therefore, the parents' interest could be passed down to their children so that they could consider the technical occupation as their career. The nurturing of working culture among family is needed so that the experience and knowledge in the family could stimulate and motivate their offspring towards more challenging careers. Consequently, the family has to play a critical role in rejuvenating interest in their children towards technical fields. Parents should encourage their daughters who are technically inclined to explore technical fields.

The Role of Teacher

Teacher should facilitate the process of career making decision among the students. A teacher is a trusted source and could provide much information to their students. Teachers have to be able to: (a) relate the real situation with what is taught to the students without considering the gender factor, (b) identify the students' interest in career indirectly during the teaching and learning process, (c) list down and provide examples of suitable jobs which are liked by the students, (d) provide explanation about career indirectly during the teaching and learning process to form a positive career interest among students, and (f) make a guideline which consists of the aspects that the students need to fulfil or acquire in order for them to pursue a career in the technical fields.

The Role of Guidance and Counselling Unit

In school, the Guidance and Counselling Unit has the function as the distributor of information to students. In determining students' career choice, this unit has to play its roles, for instance, communicating relevant information about career in the technical fields through seminars, career talk, career exhibition and so on. This information could be acquired through reading as well as other mass media in the unit operation room. Another role of this unit is to upgrade the counselling, guidance and career room in school so that it will be able to communicate the information as a whole to all students to help them choosing a career that suits their interest and ability. The Guidance and Career Unit must be active in planning effective activities such as visiting while learning, seminars, exhibitions and so on that could increase students' knowledge and awareness towards their career. The unit has to prepare a guideline about career and education plan to make it easier for students to make their career choice, for instance, knowing which subjects need to be prioritised by the students if they want to pursue a specific career. The room has to be equipped with information about career for students' convenience such as newspapers, pamphlets and prospectus about the career world and the Institutions of Higher Education (public and private). Internet facility also has to be provided to make it easy for students to obtain information about career online.

The Role of Technical Education Department

The Technical Education Department is a department that takes care of the technical education in technical secondary schools. The department should modify the curriculum to make it "gender-free" curriculum that attract both sexes to the technical fields. The department should also collaborate with the industry so that students will

be exposed to job opportunities in the technical fields by acquiring information directly from the companies. In addition, the department should provide broader opportunities for female students to take the technical stream primarily in the mechanical field which has few female students. This is critical to reduce gender imbalance in the technical fields and to provide a broader non-traditional programme for female students.

REFERENCES

- Abdul Razak Hussin. (1998). *Perancangan kerjaya di kalangan pelajar-pelajar di Universiti Kebangsaan Malaysia*. Tesis Sarjana. Universiti Putra Malaysia.
- Abu Zahari Abu Bakar. (1987). *Memahami psikologi pembelajaran*. Petaling Jaya: Fajar bakti Sdn. Bhd.
- Amir bin Awang (1991). Penyebaran maklumat kerjaya kepada pelajar: Suatu pemerhatian dan saranan. Universiti Teknologi Malaysia: Makalah.
- Boserup, E. (1987). *Women's role in economic development*. London: George Allen & Unwin.
- Burge, P.L. & Culver, S.M. (1990). Sexism, legislative power, and vocational education. In S.L. Gabriel & I. Smithson (Eds.), *Gender in the classroom* (pp. 160-175). Urbana: University of Illinois Press.
- Bushrah Basiron, Mohd Ismail Mustari, Nurazmallail Marni, Azhar Muhammad, Selmah Ahmad, Sulaiman Shakib Mohd. Nor (2006). *Persepsi mahasiswa terhadap dasar pengasingan penginapan mengikut gender; Kajian perbandingan di Universiti Teknologi Malaysia*. <http://eprints.utm.my>
- Cadogan, C.J. (2001, July). *Women in non-traditional occupations: What works?* <http://iveta.itweb.org/papers/cadogan.pdf>
- Coote, A, & Gill, T. (1974). *Women's rights: A practical guide*. Hammondswoth: Penguin.
- Crow, L.D. (1967). *Psychology of human adjustment*. New York: Alfred A Knopf.
- De Beauvoir, S. (1953). *The second sex*. New York: Bantam Books.
- Farmer, H.S., Wardrop, J.L., Anderson, M.Z., & Risinger, R. (1995). Women's career choices: Focus on science, math And technology careers. *Journal of Counseling Psychology*, 42, 155-170.
- Fatimah Abdullah./(1983). *Wanita Melayu dan pekerjaan: Satu analisis konflik peranan*. Tesis Ijazah Sarjana Sastera. Jabatan Antropologi dan Sosiologi. Universiti Kebangsaan Malaysia.

- Fawcett, C.S. & Howden, S. (1998). *Gender issues in technical training and vocational education programs*. Washington, D.C: Inter-American Development Bank.
- Firestone, S. (1970). *The dialectic of sex*. New York: William Morrow and Company Inc.
- Ginzberg, E. (1972). Toward a theory of occupational choice: A restatement. *Vocational Guidance Quarterly*, 20(3), 169-176.
- Ginzberg, E, Ginsburg S.W Axelrad, S., & Herman J.L. (1951). *Occupational choice: An approach to a general theory*. New York: Columbia University Press.
- Government of Malaysia. (2006). *Ninth Malaysia Plan 2006-2010*. Kuala Lumpur: Percetakan Nasional Malaysia Berhad.
- Heyzer, N. (1985). *Missing women: Development planning in Asia and the Pacific*. Kuala Lumpur: Asian and Pacific Development Centre.
- Heyzer, N. (1986). *Working women in Southeast Asia: Development subordination and emancipation*. Milton Keynes: Open University Press.
- Holland, J.L. (1973). *Making vocational choices: A theory of careers*. Englewood Cliffs, NJ: Prentice Hall.
- Holland, J. L. (1985). *Making vocational choices: A theory of vocational personalities and work environment*. Englewood. Cliffs, NJ: Prentice Hall.
- Holland, J. L. (1996). Exploring careers with a topology: What we have learned and some new directions. *American Psychologist*, 51(4), 397-406.
- Law Choon Yin. (1991). *Hubungan bangsa dan jantina dengan pemilihan kerjaya di kalangan pelajar tingkatan empat: Satu kajian kes*. Tesis Sarjana. Fakulti Pendidikan, Universiti Kebangsaan Malaysia.
- Lundberg, F. & Farnham, M.F. (1947). *Modern women: The lost sex*. New York: Harper and Brothers.
- Mohamad Jantan. (1994). Menangani budaya lepak. *Minda Pelajar*.
- Mokhtar Mokri. (2005). *Faktor-faktor yang mempengaruhi pelajar memilih aliran kejuruteraan teknikal sebagai pembentukan awal kerjaya selepas peperiksaan Penilaian Menengah Rendah (PMR) di dua buah SMT negeri Melaka*. Tesis Sarjana. Fakulti Pendidikan, Universiti Teknologi Malaysia.
- Muhd Mansur Abdullah & Siti Nordinar Mohd Tamin. (1991). *Kaunseling kerjaya*. Kuala Lumpur: Penerbit Fajar Bakti.
- Noor Rahamah Abu Bakar. (2005). Pendidikan dan segregasi pekerjaan mengikut gender. *Akademika*, 67, 51-74

- Noran Fauziah binti Yaakub. (1987). *Pengantar sosiologi*. Petaling Jaya: Penerbit Fajar Bakti Sdn. Bhd.
- Normawati Mohd Job. (1982). *Pemilihan kerjaya di kalangan pelajar-pelajar dilihat dari aspek masa dan faktor yang mempengaruhinya*. Bangi: Universiti Kebangsaan Malaysia.
- Perrone, K.M., Sedlacek, W.E., & Alexander, C.M. (2001). Gender and ethnic differences in career goal attainment. *The Career Development Quarterly*, 50, 168-178.
- Presser, H.B. & Kishor, S. (1991). Economic development and occupational sex segregation in Puerto Rico: 1950-80. *Population and Development Review*, 17(1), 53-85.
- Ramlee Mustapha (1999). *The role of vocational and technical education in the industrialization of Malaysia as perceived by educators and employers*. Unpublished Doctoral Dissertation, Purdue University, West Lafayette, Indiana.
- Raqu Dori Selia (1999). *Penganalisaan gender dalam perkahwinan di kalangan masyarakat Bidayuh*. Unpublished academic research. Universiti Malaya.
- Shamsulbahriah Ku Ahmad. (1989). *Stratification and occupational segmentation in the Peninsular Malaysia labour force: A case for gender-oriented development planning*. Paper presented at the Colloquium on Women and Development in Malaysia: Implications for Planning and Populations Dynamics. Population Studies Unit. Universiti Malaya. 10-12 January.
- Sharifah Alwiyah Alsagoff (1985). *Sosiologi pendidikan*. Kuala Lumpur: Heinemann.
- Siti Hamisah Tapsir (2005, July). Women engineers in Malaysia. *JURUTERA*.
- Siti Rohani Yahaya. (1989). *The development process and women's labour force participation: A macro level analysis of patterns and trends 1957-1987*. Paper presented at the Colloquium on Women and Development in Malaysia: Implications for Planning and Populations Dynamics. Population Studies Unit, Universiti Malaya. 7-8 April.
- Zuraidah Ismail. (2003). *Perbezaan jangkaan efikasi sendiri kerjaya dalam pemilihan kerjaya di kalangan pelajar-pelajar Melayu mengikut jantina di IPT*. Tesis Sarjana. Fakulti Pendidikan, Universiti Kebangsaan Malaysia.