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Academic Performance, Educational and Occupational Aspirations of Technical Secondary School Students

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ABSTRAK

Satu kajian telah dijalankan untuk menilai prestasi akademik, aspirasi pendidikan dan aspirasi pekerjaan pelajar daripada sekolah menengah teknik. Sebanyak dua ratus empat puluh tiga pelajar terlibat dalam kajian ini. Dapatan kajian menunjukkan bahawa pelajar sekolah menengah teknik mempunyai aspirasi pendidikan yang tinggi. Majoriti daripada mereka merancang untuk belajar sehingga sekurang-kurangnya ke peringkat ijazah Bacelor. Kira-kira 76% daripada mereka merancang untuk memasuki kursus teknikal terutamanya dalam bidang kejuruteraan. Secara purata kira-kira 60% pelajar tersebut mempunyai kebolehan akademik am dan 50% mempunyai kebolehan akademik dalam mata pelajaran sains dan matematik. Tiada perkaitan signifikan diperhatikan antara pencapaian akademik dan aspirasi pendidikan serta aspirasi pekerjaan. Majoriti pelajar berkeyakinan dalam mendapatkan tempat untuk menyambung pelajaran, bidang pengajian dan aspirasi pekerjaan mereka. Pelajar secara sederhananya mempunyai pengetahuan tentang bidang pengajian dan aspirasi pekerjaan mereka.

ABSTRACT

A study was conducted to assess the academic performance, educational and occupational aspirations of students from technical secondary schools. Two hundred forty-three students were involved in the study. The findings of the study showed that technical secondary school students have high educational aspiration. The majority plan to study for at least a Bachelor degree. About 76% of them plan to enroll in technical courses especially in engineering. About 60% of the students have an average general academic ability and about 50% have an average academic ability in mathematics and sciences. No significant correlations were observed between academic achievement and educational aspirations and occupational aspiration. The majority of the students were confident in obtaining a place for further education, the area of studies and the occupations they aspired for. Students were moderately knowledgeable about the field of studies and the occupations they aspire for.

INTRODUCTION

Proponents of career development believe that the students' educational and occupational aspirations have been identified as the most important variable influencing the students' later educational and occupational attainment (Gottfredson 1981; Marjoribanks 1985) and vocational attainment (Blau and Duncan 1967; Burke and Hoelter 1988; Marini 1978; Otto and Haller 1979; Sewell Haller, and Strauss 1957; Anderson 1980). What is aspiration? Markus and Nurius (1986) described aspiration as an individual's ideas of their possible selves, what they would like to become, what they might become, and what they do not wish to become. Trice and King (1991) believe that aspirations, even if formed at an early developmental stage have been found to be highly stable and significant in the students' final occupational choices and occupational futures.

Super (1969) indicated that adolescents are in the crucial stage of "exploring" and "crystallizing" their occupational options. Yong (1996) considered high school students as being in a transitional stage from adolescence to adulthood. While in the process, they face the task of making both educational and occupational choices after completing high

school. Adolescents must decide whether to take a vocational track, a college preparatory track, or other options such as an apprenticeship training program (U.S. Department of Labor 1992). In the Malaysian context, the choice of subjects is made at the Form Four level. Students in the academic secondary schools will choose technical-related subjects or science-related subjects or arts and humanities-related subjects. While students who choose to enroll in technical secondary schools will choose their area of studies such as mechanical or electrical or civil engineering studies, among others. According to Kelly (1988), the decisions made by the students at the secondary school level have a direct and important influence on later occupational choices.

Studies by Conroy (1997) and Empson (1992) have shown that adolescents often have unrealistic occupational aspirations. Many believe that aspiration is an important factor for future attainment. However, high aspiration alone does not guarantee high educational attainment. There are other factors that determine educational attainment. Yong (1996) found that the educational plan of high school students were closely related to their abilities, as reflected by their school grades and self-rating on school abilities and intelligence. Studies also have shown that students' academic achievements are related to their educational aspirations (Powell and Peet 1996). Academic achievement has also been found to influence the minority students' educational aspirations (Velez 1989; Yang 1981).

Research Problem

Choosing an occupation is one of the most difficult tasks a student has to do when he or she finishes school. Whether students like it or not, a tentative choice has to be made while they are still in schools. The tentative occupational choice a student makes will affect the type of subjects or courses he or she will enroll in while in secondary school. Subsequently, it will affect the type of courses he or she will enroll in while at tertiary institutions which will eventually determine his or her occupational option.

Malaysia is an emerging industrialized country. Thus, Malaysia needs many technical people in the process of transformation from a predominantly agricultural country to an industrialized country. Efforts (e.g. establishment of technical universities, advanced technical training institutes, polytechnics) are continually being made by the government to ensure that Malaysia has qualified technical professionals to move the country to the industrialized status. It is estimated that by 2005, Malaysia will need 108,400 engineers, and 247,739 engineering assistants (addition of 52,915 and 117,715 respectively). It is also estimated that enrollment in engineering courses at a first degree level will be 57,684 and at a certificate and diploma level will be 107,395. The statistics show that there is a slight oversupply (+4,669) of engineers but a short supply of engineering assistants (-9,420) by the year 2005. Based on the statistics presented, will our schools be able to fulfill the needs for technical personnel in the future? It all depends on what our students plan to do in the future. Will they pursue courses in the technical fields? Will they enter occupations in the technical fields? Do they have the right academic qualifications to enroll in the technical fields? It is anticipated that most of the students who have chosen to enroll in the technical schools have already made up their minds with regard to the type of education and occupation of their choices. Most, if not all, will choose technical-related occupations. Otherwise, they would not have chosen to enroll in the technical schools. However, is that true for every student who is in the technical secondary schools? What are the educational aspirations of students enrolled in technical secondary schools? Do students in the technical secondary school have good academic abilities for the choices of education and occupation they are embarking on? In view of this, a study was deemed appropriate to determine both educational and career aspirations as well as the academic performances of secondary school students, specifically students from technical secondary schools.

Objectives of the Study

The study was conducted to determine the educational and occupational aspirations of technical secondary school students. Specifically the study was conducted to determine:

1. the academic performance (general academic performance and academic performance in mathematics and science) of Form Five technical secondary school students;

2. the educational aspiration (highest level of education and fields of studies) of Form Five technical secondary school students;
3. the occupational aspiration of Form Five technical secondary school students;
4. the relationship between academic performance and educational aspirations; and
5. the relationship between academic performance and occupational aspirations.

METHODOLOGY

This is a descriptive survey research using a sample of 243 Form Five technical secondary school students. The sample was randomly selected from 6 technical secondary schools in the states of Selangor, Negeri Sembilan, Melaka, and Johor.

A questionnaire was used to obtain the data which consisted of two parts. Part One of the questionnaire contained questions soliciting demographic information from students (example: location of residence, parental education). Part Two contained questions related to their academic achievement, educational and occupational aspirations. The students' academic achievements were assessed using the results of the final semester examination at Form Four, and also of the selected subjects (Mathematics and Science). Students were requested to provide the grades of each of the subjects taken in all the examinations. The grades provided ranged between 1A and 9G. Each of the grades was assigned a value ranging form 0 and 8 (1A = 8, 2A=7, 3B=6, 4B=5, 5C=4, 6C=3, 7P=2, 8P=1, 9G=0). The school counselors were requested to verify the students' grades. The students' educational aspirations were assessed by asking them the highest level of education they plan to attain if they have the choice and the field of studies they plan to pursue at the tertiary level. The students' occupational aspirations were determined by asking "what type of occupation would you want to enter once you complete your education". Students were also asked about their confidence in achieving the level of education, the field of studies, and the occupations they aspired for. The field of studies and the type of occupations students aspired for were categorized into either technical or non-technical fields.

Data were summarized using means, frequencies, standard deviations, chi-square, and correlation coefficients.

FINDINGS

Demographic Characteristics of the Respondents

The respondents comprised 54.6% male and 45.5% female students. About 30% of the respondents were from housing estates, 28.2% were from small towns, 27.4% were from big towns, and 14.7% were from rural areas. They come from families whose parents were educated at various level of education. About 40% of the fathers were educated at the Form Five levels and another 40% were educated to a college or university level. About 44% of the others were educated till Form Five level and about 27% of the mothers were educated to a college or university level.

Academic Performance of Form Five Technical Secondary School Students

The students' academic performance was based on the grades of subjects they made available to the researcher. Their grades were assigned values ranging form 0 to 8 (9G=0, 8P=1, 7P=2, 6C=3, 5C=4, 4B=5, 3B=6, 2A=7, 1A=8). The students' academic performance scores (based on cumulative scores of the grades) ranged between 5.0 and 60 with a mean of 29.56 (SD. = 6.9). Their academic performance was categorized into low performers (score of 5.00 - 22.30), average performers (score of 22.4 - 44.6), and high performers (score of 44.7 - 60.0). About 60% of the respondents can be categorized as average performers, 12.7% of the students can be classified as high performance, and 27.5% of the students can be classified as low performers.

The students' academic performance in Mathematics and Science was also analyzed (Table 1). The study shows that students are doing quite well in Modern Mathematics with a mean score of 4.56 (S. D. = 2.43) that is an average of 4B. However, their academic performance in Additional Mathematics was not good (Mean = 2.48, S. D. = 2.56). Translated into a letter grade, it means the students obtained grades between 6C and 7D. As shown in the table, about 36% of the students failed Additional Mathematics. Their performance in Physics was also not good (Mean=2.95, SD. =2.25). Students obtained about 6C grade in this subject. The students' performance in Chemistry was better than their performance in Physics and Additional Mathematics (Mean=3.40, SD. = 2.29). The students obtained grades between 6C and 5C in this subject. The students' performance in the

selected subjects were categorized into 5 categories (failed, below average, average, above average, and excellent). The study shows that 14.2% of the students failed Chemistry, 20.4% failed Physics, 36.4% failed Additional Mathematics, and 7.6% failed Modern Mathematics. The percentage of students who obtained grades between 7P and 8P (below average grades) were 14.4% for Modern Mathematics, 19.7% for Additional Mathematics, 22.4% for Physics, and 21.4% for Chemistry. The percentages of students who obtained average scores in Mathematics were 22.4%, Additional Mathematics (19.2%), Physics (32.1%), and Chemistry (31.5%). About 30% of the students obtained above average grades in Mathematics, Additional Mathematics (15.2%), Physics (16.8%), and Chemistry (19.3). The percentages of students who obtained excellent grades in Mathematics were 25.7%, Additional Mathematics (9.6%), Physics (8.1%), and Chemistry (12.7%).

Educational Aspirations of Form Five Secondary Technical School Students

As shown in Table 2 technical secondary school students have high educational aspirations. A little more than one-half (53.1%) of them plan to pursue studies up to the level of a Master's Degree and 38.5% would further their education to a Bachelor's degree level. The majority of the students (73%) feel confident in obtaining a place for further education. Technical secondary school students have chosen a variety of studies. As shown in Table 3, the majority of students (76.3%) in the technical secondary schools planned to further their education in technical areas and about 22% of them aspired for areas of studies that may not be suitable with their enrollment in technical schools (Psychology, Law, Sports Science, Communication, and Medicine). About 63% of all the respondents wanted to study Engineering, 4.8% wanted to study Architecture, 1.8% wanted to study Design, 6.9% wanted to go into skill training, 9.5% chose

TABLE 1
The students' performance in mathematics and science

Level of performance	Subjects							
	Grades	Modern Mathematics		Additional Mathematics		Physics		Chemistry	
		f	%	f	%	f	%	f	%
Failed	9G	18	7.6	71	36.4	40	20.4	28	14.2
			7.6		36.4		20.4		14.2
	8P	22	9.3	23	11.6	23	11.7	20	10.2
Below average	7P	12	5.1	16	8.1	21	10.7	22	11.2
			14.4		19.7		22.4		21.4
	6C	21	8.9	22	11.1	32	16.3	34	17.3
Average	5C	32	13.5	16	8.1	31	15.8	30	15.2
			22.4		19.2		32.1		32.5
	4B	37	15.6	16	8.1	20	10.2	27	13.7
Above average	3B	34	14.3	14	7.1	13	6.6	11	5.6
			29.9		15.2		16.8		19.3
	2A	34	14.3	10	5.1	13	6.6	17	8.6
Excellent	1A	27	11.4	9	4.5	3	1.5	8	4.1
			25.7		9.6		8.1		12.7
	Total	237	100.0	196	100.0	196	100.0	197	100.0
	Missing	25	9.5	66	24.4	66	25.2	65	24.8
	Mean		4.56		2.48		2.95		3.40
	SD.		2.43		2.56		2.25		2.29

Notes: 9G=0, 8P=1, 7P=2, 6C=3, 5C=4, 4B=5, 3B=6, 2A=7, 1A=8

TABLE 2
The students' educational aspirations and their general academic abilities

Academic ability	Educational Aspiration					Total
	SPM Only	Polytech Cert	A Diploma	Bachelor Degree	Master Degree	
Low (1-22.3)	1(1.5%)	7 (10.6%)	7(10.6%)	22 (33.3%)	29 (43.9%)	66
Average (22.4-44.6)	1 (0.8%)	3 (2.1%)	2 (1.3%)	60 (41.1)	80 (54.7)	146
High (44.7-68)				11 (35.5%)	20 (64.5%)	31
Total	2(.8%)	10 (4.1%)	9 (3.7%)	93 (38.5%)	129 (53.1%)	243

Kendall-tau C = .147, p <.01

TABLE 3
The area of studies students plan to choose

Areas of studies aspired to by students	Frequency	Percent
Science-related fields		
Medicine	2	.9
Sports science	3	1.3
Science related studies	1	.4
Technical-related fields		
Engineering	145	62.8
Architecture	11	4.8
Design	4	1.8
Computer related studies	11	4.8
Non-science and technical-related areas		
Education	3	1.3
Psychology	1	.4
Law	4	1.8
Accounting	22	9.5
Economics	1	.4
Communication	1	.4
Skill training	16	6.9
Total	231	100.0

Missing = 31 (11.8%)

Accounting, and 4.8% chose Architecture and Computer-related studies (respectively). Other areas of studies can be viewed in Table 3.

We should praise our students for having such confidence in obtaining the desired level of education. Blau and Duncan (1967), Sewell and Hauser (1975), and Sewell and Shah (1968) suggested that the extent to which an adolescent believes that he or she should attain a higher level of education will directly affect the drive, motivation, and effort that they put toward the achievement of that goal. However, having confidence alone is not enough. Students must prove that they have the academic ability to fulfill their aspirations.

Relationship between the Students' Academic Performances and Their Educational Aspirations

An analysis was done to determine the relationship between the students' academic performances and their educational aspirations. The students' academic performance was divided into three categories. The categories were: low performance, average performance, and high performance. The study shows that there is a significant correlation between the students' academic performance and their educational aspirations (Kendall-tau C = .147, p <. 01). All high performing students plan to study either for a Bachelor's or a Master's degree. However, the study also revealed that some students did not have a realistic choice of the highest level of education they want to obtain. For example, there were 66 students who could be categorized as low performers (scores below 22.3) but interestingly, 77.2% of them wanted to study for either a Bachelor's or a Master's Degree.

The areas of studies chosen by students were categorized into two: technical and non-technical fields. A chi-square analysis was performed to determine the relationship between the students' choices of the area of studies and their academic abilities in Mathematics and Science. The result shows that there is no association between the students' choices of the area of studies and their abilities in mathematics and science ([Chi square $_{(DF. = 2)}$ = 1.72, p >.05]). As shown in Table 4 almost 60% of the students with low ability in Mathematics and Science planned to pursue courses in technical areas, mainly Engineering and Architecture. About 71% of students with average ability in Mathematics and Science plan to pursue their studies in technical fields. About 33% of students with high ability in mathematics and science do not plan to further their education in technical areas. What it means is that students have made the choices without paying any attention to their academic ability in the subjects required for a successful performance in the selected courses. For example, as shown in Table 5, of those who wanted to study Engineering, 63.1% obtained poor grades in Additional Mathematics, 53.2% obtained poor grades in Physics, and 46.8% obtained poor grades in Chemistry.

Occupational Aspirations of Form Five Technical Secondary School Students

Technical secondary school students have chosen a variety of occupations. Among the occupations chosen were Engineering (42.2%), Architecture (8.1%), Business or Entrepreneurship (8.1%), and Accounting (8.1%). Other occupations chosen by students can be obtained from Table 6. The students' occupational choices were divided into two categories, namely technical and non-technical occupations. Based on these two categories it shows that about 50% of the students in technical schools plan to enter technically related occupations such as Engineering and Architecture. These two professions require job applicants to have college degrees or professional qualifications. Other occupations requiring college degrees or professional qualifications aspired by students are law profession, managerial related occupation, teachers and lecturers, economist, accountants, computer related occupations, and business.

TABLE 4
Selected area of studies by the students' academic abilities in mathematics and science

Mathematics and science ability	Areas of studies			
	Non-technical		Technical	
	F	%	F	%
Low ability	14	41.2	20	58.8
Average ability	37	29.4	89	70.6
High ability	15	32.6	31	67.4

$\chi^2_{(2)}$ =1.72, p > .05; n = 206
Phi = .091, p=.422

TABLE 5
Course grades in selected subjects for students aspiring to the engineering program

Level of performance	Grades	Chemistry		Physics		Additional Mathematics		Mathematics	
		F	%	F	%	F	%	F	%
Failed	9G	40	28.4	49	34.8	65	46.1	19	13.5
Below Average	8P	13	9.2	15	10.6	14	9.9	12	8.5
	7P	13	9.2	11	7.8	10	7.1	7	5.0
Average	6C	18	12.8	20	14.2	11	7.8	13	9.2
	5C	18	12.8	18	12.8	10	7.1	15	10.6
Above average	4B	17	12.1	12	8.5	11	7.8	16	11.3
	3B	6	4.3	7	5.0	6	4.3	18	12.8
Excellent	2A	11	7.8	7	5.0	8	5.7	22	15.6
	1A	5	3.5	2	1.4	6	4.3	19	13.5
	Total	141	100.0	141	100.0	141	100.0	141	100.0
	Mean		2.86		2.38		2.14		4.39
	SD		2.48		2.31		2.58		2.70

Notes: 9G=0, 8P=1, 7P=2, 6C=3, 5C=4, 4B=5, 3B=6, 2A=7, 1A=8

TABLE 6
Occupational aspirations of students from technical schools

Type of occupations	Frequency	Percent
Doctor	2	.9
Engineer	94	42.2
Architect	18	8.1
Businessman/entrepreneur	18	8.1
Lawyer	11	4.9
Computer related occupation	13	5.8
Managerial related occupation	6	2.6
Accountant	18	8.1
Technician/mechanics	12	5.4
School teachers	9	4.0
Lecturer	1	.4
Economist	1	.4
Designer	9	4.0
Security related occupation	3	1.3
Others	8	3.6
Total	223	100.0

Missing =26

Is There a Relationship Between Academic Performance and Occupational Aspiration?

One of the objectives of the study was to determine the relationship between the students' academic performances in Mathematics and Science and the students' occupational aspirations. The students' performances in Mathematics and Science were categorized into three groups (low ability, average ability and high ability). About 15% of the students had low ability in Mathematics and Science, 63.1% of them had an average ability in Mathematics and Science, and about 22% had a high ability in Mathematics and Science. A chi square analysis

was conducted to determine if occupational choice is related to academic ability in mathematics and science. The result of a chi-square analysis shows that the students' occupational choices are not related to their ability in Mathematics and Science (Chi square $_{(2)}$ = 1.92, p>.05). As shown in Table 7 even students with low ability in Mathematics and Science choose technical occupations (64.5%). Also shown in the table, a large percentage (27.3%) of the students with a high ability in Mathematics and Science do not choose technical occupations. A larger percentage of the students who choose technical occupations are with an average ability in Mathematics and Science (65.3%). The results may suggest that some of the students may not really know what is required of them in order to pursue occupations in technical fields.

SUMMARY AND DISCUSSIONS

Economic development will continue to influence and impact the lives of many people in many parts of the world. With the advancement of new technologies, businesses and industries demand workers who are highly skilled and educated. Therefore, students will have to prepare themselves to meet the demands of the world of work so they can realize their aspirations. Upon the examination of the academic performance (general academic ability, Mathematics and Science), one may conclude that not all students will be able to realize both their educational and occupational aspirations. Without appropriate planning and preparation, many students may never fulfill their aspirations. The present study shows that more than 50% of the students have a moderate amount of knowledge about the occupations of their choices. Almost 60% of them have a moderate knowledge about the field of studies of their choices. Without a good amount of knowledge about the chosen field (education and occupations) students will not be making appropriate educational and occupational decisions. Therefore students should (either by

TABLE 7
Students' academic performance and occupational aspirations

Academic performance	Occupational aspirations		Total
	Non-technical	Technical	
Low ability (1-22.3)	18 (8.5%)	35 (16.5%)	53 (25.0%)
Average ability (22.4-44.6)	29 (13.7%)	102 (48.1%)	131 (61.8%)
High ability (44.7-68)	12 (5.7%)	16 (7.5%)	28 (13.2%)
Total	59 (27.8%)	153 (72.2)	212 (100.0%)

Chi-square (DF. =2) =6.25, p <. 5
Cramer V =0.172, p = .044

TABLE 8
Students' performance in mathematics and science and occupational aspirations

Science and mathematics ability	Occupational aspirations		Total
	Non-technical	Technical	
Low ability (< 4.51)	11 (5.4%)	20 (9.9%)	31 (15.3%)
Average ability (4.52-19.89)	30 (14.8%)	98 (48.3%)	128 (63.0%)
High ability (> 19.9)	12 (5.9%)	32 (15.3%)	44 (21.7%)
Total	53 (26.1%)	150 (73.9%)	203 (100.0%)

Mean = 12.25, SD. = 7.64, Chi square (DF. =2) = 1.92, p > .05
Max. score =32, min score = 1.0

themselves or with help from teachers or counselors) obtain the needed information to enable them to make good educational and occupational choices. Providing factual occupational information and educational and vocational planning seems especially important for students (Wei-Cheng Mau 1995). Thus, Mau (1995) asserted that students must receive appropriate educational training and career guidance if they are to compete in the competitive workplace. In fact as George (1990) suggested, students must begin to receive information on educational and career planning as early as grade 8 (equivalent to Form 2 in Malaysia). Grant and Sleeter (1988) believed that as early as the age of 13, students must make a decision by selecting the subjects they will study.

Technical secondary school students have high educational aspiration, which is very good. The study shows that more than 90% of them will pursue their studies for a Bachelor's or a Master's degree. Walberg (1989) postulated that young people's aspirations guide what they learn in school, how they prepare for adult life, and what they eventually do. With the rapid technological advances, Valadez (1998) suggested that some form of postsecondary education is almost a necessity for students entering today's job market

The study shows that about 63% of technical secondary school students will pursue studies in technical areas mainly engineering. The students' choices of the areas of studies were independent of their academic ability in Mathematics and Science. This finding differs from those of Farrel and Pollard (1987), Mau (1995), Shepard (1992). Their findings suggested that academic ability influences students' aspirations. In this study it was found that almost 60% of the students with low ability in Mathematics and Science planned to pursue courses in technical areas, mainly Engineering and Architecture. About 71% of students with an average ability in Mathematics and Science plan to study Engineering and Architecture. About 33% of students with high ability in Mathematics and Science did not plan to further their education in technical areas. The result of this study indicated that the students had made the choices without paying any attention to their academic ability in the subjects required for a successful performance in the selected areas of study. For example, about 44% of the students obtained a grade of at least 6C in Additional Mathematics (mean=2.14) and 46% obtained a grade of at least 6C in Physics (mean=2.38). These two subjects are normally required for a successful enrollment and performance in engineering courses. This shows that some of the students do not possess the academic ability to pursue courses in their selected fields. They are actually working on their aspirations with limited knowledge and with limited access to information.

In Malaysia, about 356,000 new employees in technical areas (mainly engineers and assistant engineers) will be needed by 2005. By 2005 we expect to have 57,684 engineering students at a degree level, 42,879 at a diploma level, and 64, 516 at a certificate level (a total of 165,079 potential professional and sub-professional). However, the result of this study shows that only about 45% of the students in technical secondary school are assumed to have the required academic ability for enrollment in technical fields especially engineering. It means that only about 45% of students (grades between 6C and 1A) from technical secondary schools will be eligible to study engineering at all levels (degree, diploma, and certificate) although about 65% of them plan to enroll in technical-related courses. If this situation persists, Malaysia will face a shortage of engineers and assistant engineers in the future. With the academic ability (general and mathematical and science) students may be unlikely to meet their educational and occupational goals and consequently the country may not be able to have a pool of qualified engineers and assistant engineers. Their poor performance in both Mathematics and Science was partially related to their performance in Mathematics and Science at the PMR level. An analysis shows that 51.8% of the students at the technical secondary schools obtained an A and 31.2% obtained a B and about 42% of the students obtained an A and about 39% obtained a B in Science and Mathematics respectively in the PMR examinations. There are some 17% who obtained poor grades in Mathematics and about 19% who obtained a poor grade in Science. Something has to be done to help students acquire the academic ability needed to pursue courses in engineering. The issue of obtaining good academic performance especially in Mathematics and Science-related subjects should be made known to students in order for them to

make realistic educational and occupational choices. Otherwise, we may not be able to produce eligible students for engineering courses at the tertiary level.

It is good for students to have high educational aspirations for education and occupations in technical fields. However, the choice or the aspiration must of course be based on accurate and adequate information about educational and occupational opportunities as well as about themselves. Educational and occupational choices are best made by integrating what one knows about one's self and about different occupations and/or majors (Billups and Peterson 1994) and according to Wahl and Blackhurst (2000) there should be some congruence between interest, abilities, achievement, and the educational preparation required for specific occupations. Preparing students to make informed occupational choices is a developmental process requiring counselors to have up-to date information and knowledge about education and occupational opportunities available now and in the future. Wahl and Blackhurst (2000) believed that educational and occupational aspirations are of concern to school counselors at all levels. The knowledge of students' aspirations play an important role in the education-planning process regardless of the philosophical underpinnings that drive the program development process (Conroy 1999).

CONCLUSION

Based on the study the following conclusions were drawn:

1. Technical secondary school students have high educational aspirations with more than 90% planning to pursue their education up to at least a Bachelor's degree. About 76% of them plan to enroll in technical courses especially engineering. This is good for the country to fulfill the needs for more technical people to achieve the objective of becoming an industrialized nation.
2. About 60% of the students have an average general academic ability and about 50% have an average academic ability in Mathematics and Science. Since their academic ability was about average, it makes their educational aspirations (highest level of education and field of studies) as well as occupational aspirations unrealistic. It shows that students may not know the requirements for further studies in the areas they have selected.
3. Low significant correlations were observed between academic achievement and educational aspirations and occupational aspiration. The majority of the students wanted to study for either a Bachelor's or a Master's degree and choose technical-related occupations. It implies that students may not know the academic requirements needed for the highest level of education and type of occupations they aspired for.
4. The majority of the students were confident of obtaining a place for further education, the area of studies and the occupation they aspired for.
5. Students were moderately knowledgeable about the field of studies and the occupations they aspired for. It means that they have no exposure to the world of work. If they have little information about courses available at the tertiary institutions as well as the information of the world of work, then students have been making unrealistic educational and occupation choices.
6. There are some significant correlations between achievement in Mathematics and Science at the PMR level and achievement in mathematics and science at the Form Four level. If we continue taking in students into technical schools without concentrating on the mathematical and science ability, we may be doing injustice to the students themselves. Administrators of technical schools should realize that technical streams are almost similar to science streams in academic schools except, students in technical schools need not do biology. Thus, those who are admitted for enrolment in technical schools should have a strong ability in both Mathematics and Science.

SUGGESTIONS

1. Schools should provide more time for career advice and career exposure to students and it should begin as early as possible at least prior to enrollment in technical schools. According to Picklesimer (1998), exploring various career options is imperative to help adolescents formulate a plan of action for their future, no matter what route they take after high school graduation.

2. Helps students make their aspiration become a reality. Students need to be told about the professional or academic requirement needed for a particular occupation. They need to be advised on the academic qualifications needed to obtain a place in their desired field of studies.
3. Encourage the students to have realistic educational and occupational aspirations. It is unwise for a student to choose Engineering as his or her occupational option when he or she does not do well in engineering related subjects (such as Mathematics and Physics). If students still choose Engineering, then some kind of help needs to be given to them to master the basic subjects needed for Engineering courses.
4. Encourage students to do self-analysis prior to committing themselves to a specific occupational choice or even before attempting to enroll in technical schools. Students must identify their strengths and weaknesses. They should capitalize on their strengths and work on improving their weaknesses. The process of self-analysis should be done on a regular basis.
5. Schools should provide the students with more information about possible occupations related to their fields of studies in technical schools so that they have many more options to choose from for further education as well as occupational choices. Job awareness and exploration is an important feature of preparing students for future educational and occupational opportunities. Picklesimer *et al.* (1998) indicated that exploring various occupational options is imperative to help adolescents formulate a plan of action for their future, no matter what route they take after high school graduation. In fact, O'Brien (1996) reported that students participating in the career exploration programs had increased their confidence in performing tasks related to investigating, selecting, and implementing a career choice.
6. Proper academic screening should be done prior to selecting students into technical secondary schools. If possible, admit only students with good grades in Mathematics and Science especially for those who plan to do Engineering.

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