



Republic of Trinidad and Tobago

The National Institute of Higher Education,  
Research, Science and Technology



*Survey of  
Secondary School  
Middle Form Students  
2014*

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## Foreword

In this publication, the National Institute of Higher Education, Research, Science and Technology (NIHERST) presents the results of the Survey of Secondary School Middle Form Students, 2014. This study originated from NIHERST's participation in the Action Plan of Panama 2012-2016, OAS Working Group 2 which focuses on Human Resources, Training and Education.

The Survey of Secondary School Middle Form Students, 2014 was an enquiry of form three students (middle form students) in government, government-assisted and private secondary schools. The study focused on form three students because at this juncture of secondary education students usually select appropriate C.S.E.C. subjects to pursue their future career.

The major objective of this study is to compile benchmark data on students such as their desire to further their studies, factors that influence students' decision to study, their opinion and choice of scientific careers, and reasons for pursuing/not pursuing careers in science and technology. This undertaking will also examine students' attitudes towards science and technology and activities performed in science and mathematics classes.

This study will provide information on science education and the promotion of scientific and technological careers amongst school students. The results of this study are intended to assist decision-makers, researchers, teaching personnel and, in general, stakeholders in science education and communication.

NIHERST wishes to thank the Ministry of Education for approving the conduct of this study in secondary schools. We also acknowledge the co-operation of the principals and teachers from the government, government-assisted and private institutions in administering the questionnaires and the form three students who willingly provided the data collated in this report.

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## Methodology

### Introduction

The empirical results of this study will provide information on science and mathematics education and the promotion of scientific and technological careers amongst school students. The results of this study are intended to assist decision-makers, researchers, teaching personnel and, in general, stakeholders in science education and communication. This methodology describes the objectives, scope, coverage, data collection and processing of the results of the survey.

### Objectives

The results of this study are intended to provide data on key education indicators necessary for the advancement of science and mathematics education, and also the promotion of scientific and technological careers amongst school students. This enquiry focused on:

- ◆ students' desire to further their studies,
- ◆ factors that influence students' decision to study,
- ◆ fields of study students were desirous of pursuing,
- ◆ reasons for pursuing/not pursuing careers in science and technology,
- ◆ opinion and choice of scientific careers,
- ◆ attitudes towards science and technology,
- ◆ activities performed in science and mathematics classes.

### Scope

The scope of this study included information on the demographic and social characteristics of secondary schools' form 3 students and their parents. The survey also examined students' desire to further their education, their attitudes towards science and mathematics, careers in science and mathematics, classroom and after-school activities, and home background.

### Coverage

The frame for the study was obtained from the Ministry of Education. It contained a total of 181 public and private secondary schools in the various educational districts of Trinidad and Tobago. Of the 181 secondary schools surveyed, 28, mainly private schools, were out of operation or did not conduct any form three classes. A representative sample of 79 schools, which included all form threes from each school, was selected to participate in the survey. The following table shows the number of selections and response rate by type of school.

**Response by Type of Secondary School**

Type of secondary school	Total	No. selected	No. Responded	% Responded
Total	153	79	78	99
1. Government	89	46	45	98
2. Government-assisted	42	22	22	100
3. Private	22	11	11	100

## **Sample Design**

The list of secondary schools was divided into educational districts and then stratified by government, government-assisted and private schools; after which 50% of each stratum were chosen in random order. Through this process, a representative sample of five thousand, six hundred and twenty-six (5626) students from seventy-nine (79) public and private secondary schools responded to the enquiry.

## **Data Collection**

A questionnaire from the OAS Working Group 2 which was designed to achieve the survey objectives was amended for Trinidad and Tobago secondary schools' form three students. They were then delivered to the schools and subsequently monitored by a group of experienced interviewers. Data collection commenced in February, 2014 and was completed by April, 2014.

## **Data Processing**

As completed questionnaires were received, data were edited for consistency and omissions. Where discrepancies were identified, questionnaires were returned to the field for verification and correction as necessary. Edited data were then captured in the Statistical Package for the Social Sciences (SPSS) version 16.0 software which was used to produce the tabulations in this report.

## **Results**

The results of the survey are presented for the sample of respondents in the various tabulations and graphics which follow.

## **Executive Summary**

- ❖ Of the total sample of 5626 secondary schools form 3 students who participated in the survey, 55% were females and 45% were males. A review of the data by type of school shows an equal distribution of males and females in government-assisted and private schools while females (59%) out-numbered their male counterparts (41%) in the government schools.
- ❖ The modal age of form 3 students in general was 14 years (53%) while 30% were 15 years of age. By type of school, a larger proportion (65%) of students in government-assisted schools were 14 years of age compared to their counterparts in government (47%) and private (52%) schools.
- ❖ The most popular subject amongst the form 3 secondary school students was Mathematics (21%) followed by English Language (11%) and Integrated Science (10%).
- ❖ Mathematics (21%) was the most popular subject amongst males followed by Integrated Science (10%), English Language (8%), IT (7%) and Physics (6%) while female students preferred Mathematics (21%) followed by English Language (13%), Integrated Science (11%), Social Studies (6%) and Visual Arts (6%).
- ❖ The majority of students cited interest as the main reason they preferred a subject except in the case of Mathematics where the majority (49%) indicated that it was challenging while one-third (34%) found it interesting.
- ❖ The least preferred subject amongst the form 3 students was Spanish (25%) followed by Mathematics (17%). This pattern of responses was observed amongst all ages, gender and type of school.
- ❖ Difficulty and boredom to a lesser extent were identified as the main reasons subjects taught in form 3 of secondary schools were considered least preferred. Over a half of the students showed a lack of preference for Mathematics (73%), Integrated Science (66%), Chemistry (62%), Spanish (60%), Physics (55%) and Technical Drawing (54%) mostly because these subjects were too difficult. A substantial proportion of students who preferred English Language, Literature and the Social Sciences the least stated that the subjects were boring.
- ❖ A significant majority (88%) of the sample of form 3 students expressed a desire to further their education after secondary school. By gender, a relatively larger proportion (92%) among females was desirous of furthering their education compared to males (83%).
- ❖ Of the students who expressed a desire to further their education, a substantial percentage (40%), especially females (50%), indicated that they would study Social Sciences and Humanities while 20% and 13% selected Natural Sciences, and Engineering and Technology respectively. Social Sciences and Humanities (27%) were

also the most popular fields of study amongst male students followed by Engineering and Technology (23%) and Natural Sciences (22%).

- ❖ Two-thirds and more of the students stated that the ability to earn money (70%), getting a job (68%) and focusing on what they like doing and pursuing a fulfilling career (66%), greatly influenced their decision to further their studies. The factors that least influenced students decision to further their studies were a desire to construct buildings, bridges and tools (43%), invent technology (computers and programmes) (35%) and friends' opinion (30%).
- ❖ Students who did not wish to further their studies after secondary school identified that secondary education was sufficient (34%), having to work right after school (26%), and a lack of interest (25%) as factors that greatly influenced their decision.
- ❖ A review of data of students desirous of furthering their education by their choice of profession shows that a higher percentage (28%) of students, mainly among males (47%), selected engineering while 26%, especially females (32%), wanted to become doctors. One-third (33%) of the students were not interested in either of the S&T professions as a scientific career. In terms of gender, a substantially larger proportion of the females (39%) expressed this view compared to their male counterparts (24%).
- ❖ Over 60% of the students agreed that each of the characteristics (see Table 20) described a scientist except being absent minded (11%).
- ❖ Over a half of the form 3 students rated a scientist's job which most likely, entailed observation and laboratory experiments (70%), was well paid (67%), used theory and mathematics (55%), demanded specialised training (54%) and was creative and challenging (53%).
- ❖ The majority of students assigned high ratings to various factors (see Table 22) that motivated a scientist to do his/her job, except having power and being famous, which scored 4 and 5 from 12% and 18% of the students respectively.
- ❖ A half (50%) of the sample of form 3 secondary school students who participated in the survey were of the opinion that a scientific career attracted the youths of their generation while a quarter (24%) disagreed and a similar percentage did not know (25%).
- ❖ A substantial percentage of the sample of form 3 students agreed that S&T made their lives easier and more comfortable (71%), and also provided more job opportunities for future generations (50%). A relatively large proportion disagreed that S&T contributed to job losses (27%), and would eliminate poverty and hunger globally (27%).
- ❖ In general, over a half (57%) of the students were of the opinion that S&T brought many benefits while a quarter (25%) believed it brought some benefits.

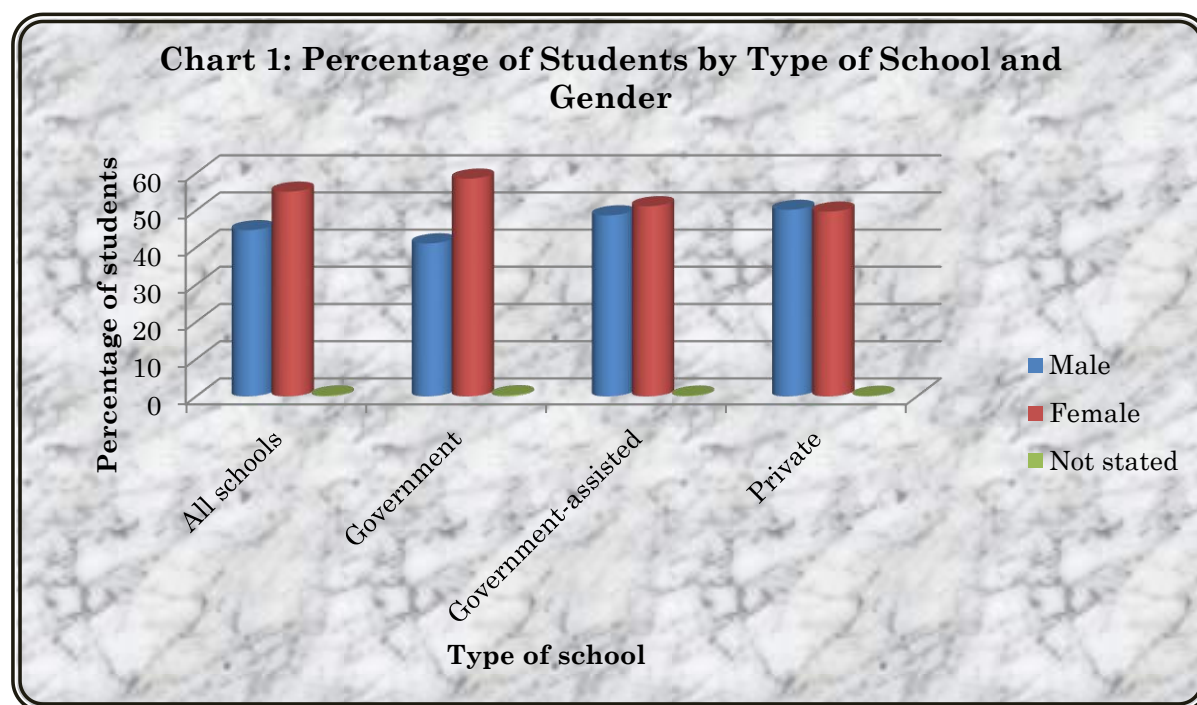
- ❖ One-third (32%) of the students were of the opinion that S&T brought some risks while 28% and 20% indicated that it brought many risks and few risks respectively; a negligible 2% believed that it brought no risk.
- ❖ One-third of the sample of secondary school form 3 students stated that outside of school hours they always looked at nature or animal life programmes or television documentaries (33%), visited zoos and botanical gardens (32%) and watched movies or read books and or magazines (comic strips, comics etc) on science fiction (30%) while a quarter (24%) always used the Internet to find scientific information. A large proportion of students never listened to radio programmes on S&T (47%), participated in science fairs, clubs and Olympiads (45%), read scientific news in the daily papers (43%) or read science magazines (43%).
- ❖ An assessment of the performance of the sample of form 3 students in various subjects for the last academic year showed that over a half of the students who studied English Language (57%), Art (55%) and IT (53%) indicated a 4 or 5 performance on the Likert scale. One-fifth (21%) of the students stated that they performed excellent (5) in Mathematics while 23% and 27% assigned ratings of 4 and 3 respectively. With regards to the natural sciences, students stated that they performed relatively better in Biology with 47% assigning scores of 4 and 5 compared to Chemistry (42%) and Physics (40%). Students' performance rating in natural sciences was comparable to social sciences.
- ❖ A half or more of the form 3 students who participated in the survey agreed with the following statements on mathematics and science subjects: the majority of students could understand science topics if they were well explained (59%); mathematics and science made students think about how to better care for their health (57%); they were interesting (55%); they made them think about how to better care for the environment (51%); and they helped to clarify which profession to pursue in the future (50%). One-third (31%) of the students were neutral to the statement on the school's science subjects were easy.
- ❖ The majority of students never performed any of the activities listed in Table 35 in their mathematics and science classes except using computers where accumulatively 50% indicated that they used it frequently. In addition, 30% and more of the students also assigned a combined rating of 4 and 5 to: view film projections (35%); use laboratories (33%); conduct experiments (32%); and use the library (30%).
- ❖ Students were asked to rate the importance of various activities in their mathematics and science classes. A substantial percentage of students stated that using computers (55%), conducting experiments (51%) and laboratories (51%) were important activities in their mathematics and science classes.
- ❖ Three-fifths of the students had relatives or close friends who were doctors (61%) and engineers (61%). A smaller proportion of students had relatives or close friends who were scientists (16%) and science professors (14%).

- ❖ One-third (32%) of the parents of form 3 students in all schools attained secondary education as their highest level of educational attainment. Thirty percent (30%) of the parents had achieved tertiary education, especially parents of students in state-assisted schools where two-fifths of the fathers (39%) and mothers (40%) attained this level of education.
- ❖ In general, the majority of form 3 students indicated that their houses possessed most of the essential household items. With respect to ICT, a significant percentage of the students stated that their households had a laptop/notebook (87%), Internet connection (79%) and desktop computer (72%).

Table 1: Distribution of Students by Type of School and Gender

Type of school	Gender							
	Total		Male		Female		Not stated	
	No.	%	No.	%	No.	%	No.	%
All schools	(1) 5626	(2) 100	(3) 2514	(4) 45	(5) 3097	(6) 55	(7) 15	(8) 0
Government	3093	100	1272	41	1811	59	10	0
Government-assisted	1915	100	932	49	979	51	4	0
Private	618	100	310	50	307	50	1	0

The table above shows the distribution of the sample of form 3 students who participated in the survey by gender and type of school. Of the total sample of 5626 students, over a half (55%) were females while 45% were males. A review of the data by type of school shows an equal distribution of males and females in government-assisted and private schools while females (59%) out-numbered their male counterparts (41%) in the government schools.



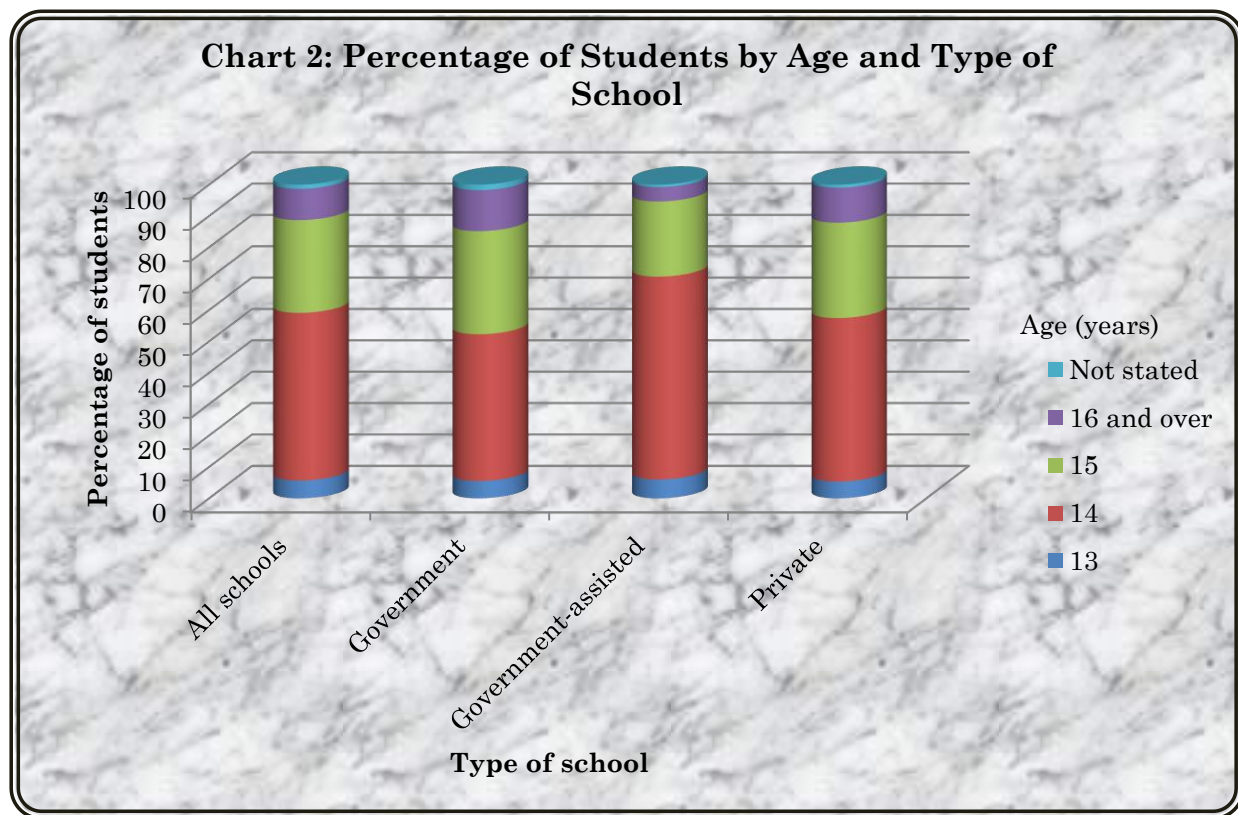
Source: Table 1



Table 2: Percentage of Students by Age and Type of School

Type of school	Age (years)					
	Total	13	14	15	16 and over	Not stated
	(1)	(2)	(3)	(4)	(5)	(6)
	(percentage of students)					
All schools	100	6	53	30	10	1
Government	100	6	47	33	13	2
Government-assisted	100	6	65	24	5	1
Private	100	5	52	30	11	1

In terms of age distribution, the modal age of form 3 students was 14 years (53%) while 30% were 15 years of age. By type of school, a larger proportion (65%) of students in government-assisted schools were 14 years of age compared to their counterparts in government (47%) and private (52%) schools. Approximately one-third of the students in government (33%) and private (30%) secondary schools were 15 years old compared to a quarter (24%) in the government-assisted schools.



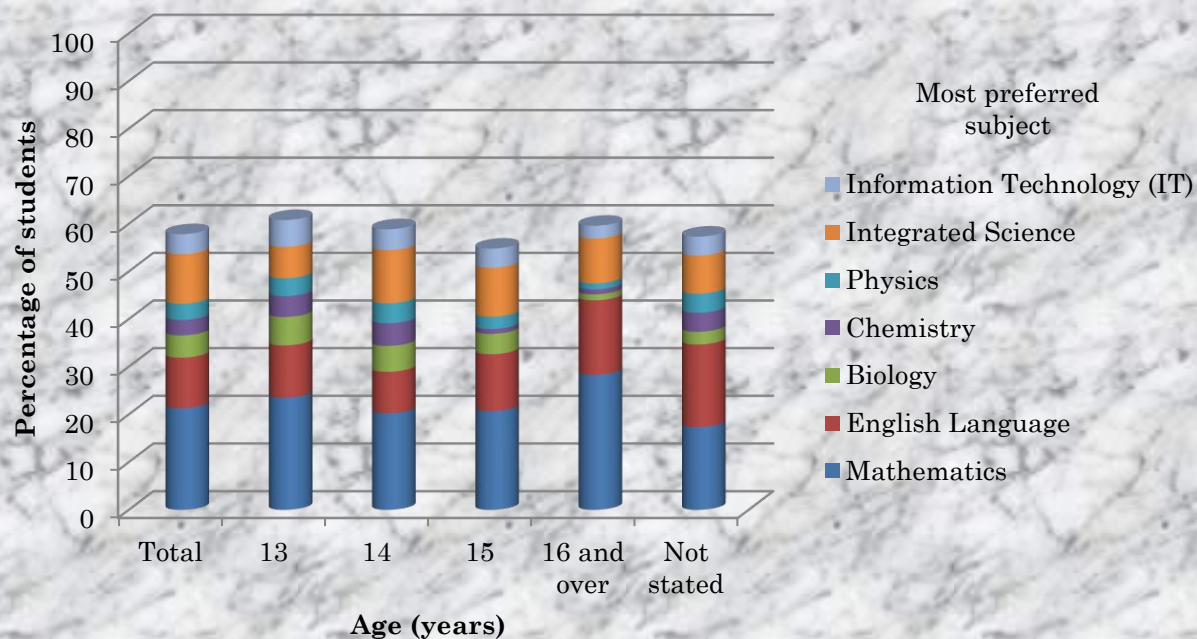
Source: Table 2

Table 3: Percentage of Students by Most Preferred Subject and Age

Most preferred subject	Age (years)					
	Total	13	14	15	16 and over	Not stated
	(1)	(2)	(3)	(4)	(5)	(6)
	(percentage of students)					
Total	100	100	100	100	100	100
Mathematics	21	24	20	21	28	17
English Language	11	11	9	12	16	17
English Literature	2	1	2	2	1	0
Biology	5	6	5	4	1	3
Chemistry	3	4	5	1	1	4
Physics	3	4	4	3	1	4
Integrated Science	10	7	11	10	9	8
Information Technology (IT)	4	6	4	4	3	4
Social Studies	5	4	4	5	10	5
History	2	1	2	2	1	1
Geography	2	2	2	2	1	0
Spanish	4	3	4	5	2	5
French	2	3	2	2	0	1
Food and Nutrition	1	0	1	1	1	0
Home Economic Management	1	1	0	1	1	1
Technical Drawing	1	1	1	1	1	3
Building Technology - Woods	0	0	0	1	1	0
Mechanical Engineering Technology	1	0	0	1	1	0
Visual Arts	6	6	5	6	7	4
Theatre Arts	2	2	2	2	2	7
Music	3	3	2	3	3	4
Physical Education	3	3	2	2	3	4
Principles of Accounts	1	2	1	1	1	0
Principles of Business	2	1	2	2	1	0
Other	1	1	1	1	1	0
Do not know	5	4	5	5	3	7
Not stated	0	1	1	1	1	0

The most popular subject amongst the form 3 students who participated in the survey was Mathematics (21%) followed by English Language (11%) and Integrated Science (10%). A similar ranking of favourite subjects was observed for students of various ages except those 14 years of age who ranked Integrated Science (11%) slightly higher than English Language (9%).

**Chart 3: Percentage of Students by Selected Subjects and Age**



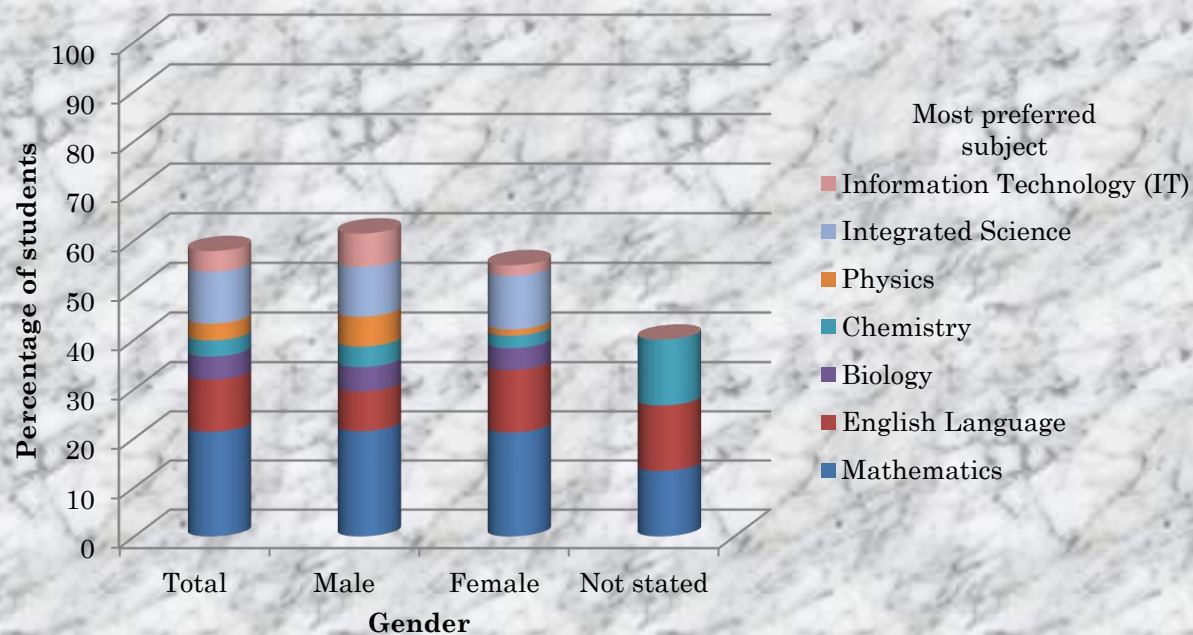
Source: Table 3

Table 4: Percentage of Students by Most Preferred Subject and Gender

Most preferred subject	Gender			
	Total	Male	Female	Not stated
	(1)	(2)	(3)	(4)
	(percentage of students)			
Total	100	100	100	100
Mathematics	21	21	21	13
English Language	11	8	13	13
English Literature	2	1	3	0
Biology	5	5	4	0
Chemistry	3	4	3	13
Physics	3	6	1	0
Integrated Science	10	10	11	0
Information Technology (IT)	4	7	2	0
Social Studies	5	3	6	0
History	2	1	3	0
Geography	2	3	1	0
Spanish	4	3	5	7
French	2	2	2	0
Food and Nutrition	1	0	1	0
Home Economic Management	1	0	1	7
Technical Drawing	1	2	0	7
Building Technology - Woods	0	1	0	0
Mechanical Engineering Technology	1	1	0	0
Visual Arts	6	5	6	13
Theatre Arts	2	1	3	13
Music	3	3	3	7
Physical Education	3	4	2	0
Principles of Accounts	1	0	2	0
Principles of Business	2	3	1	0
Other	1	1	1	0
Do not know	5	5	4	7
Not stated	1	1	1	0

A review of the data by gender reveals that Mathematics (21%) was the most popular subject amongst males followed by Integrated Science (10%), English Language (8%), IT (7%) and Physics (6%) while female students preferred Mathematics (21%) followed by English Language (13%), Integrated Science (11%), Social Studies (6%) and Visual Arts (6%).

**Chart 4: Percentage of Students by Selected Subjects and Gender**



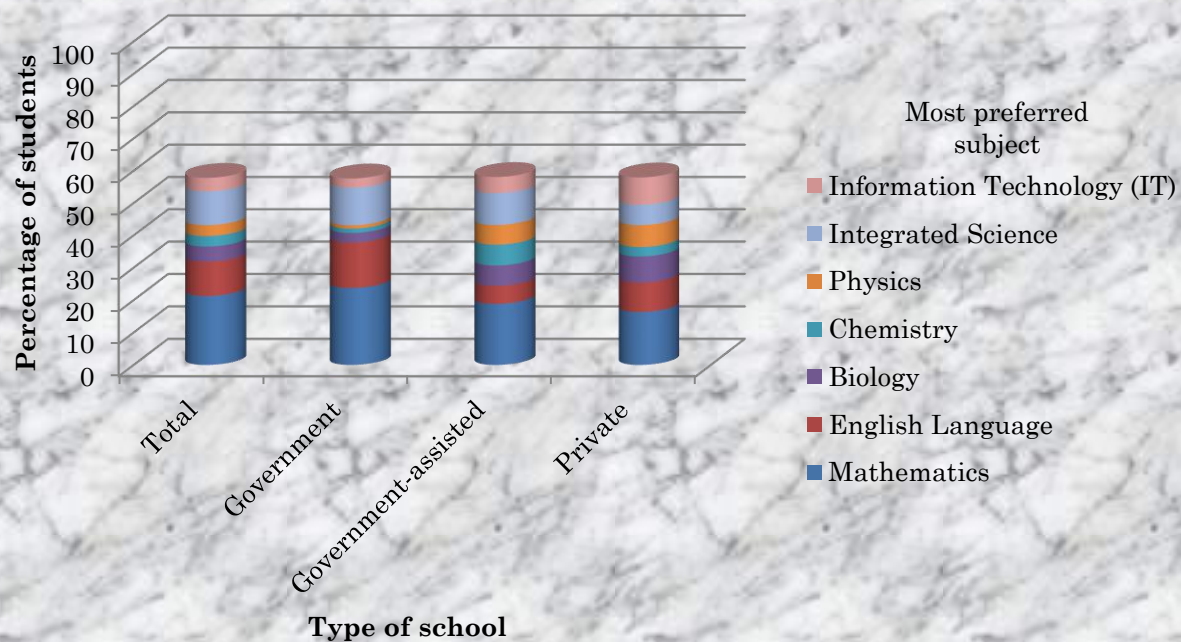
Source: Table 4

Table 5: Percentage of Students by Most Preferred Subject and Type of School

Most preferred subject	Type of school			
	Total	Government	Government-assisted	Private
	(1)	(2)	(3)	(4)
	(percentage of students)			
Total	100	100	100	100
Mathematics	21	24	19	16
English Language	11	14	6	9
English Literature	2	2	3	2
Biology	5	3	6	8
Chemistry	3	1	6	3
Physics	3	1	6	7
Integrated Science	10	12	10	6
Information Technology (IT)	4	3	5	8
Social Studies	5	6	3	5
History	2	1	3	1
Geography	2	2	2	0
Spanish	4	4	4	4
French	2	1	3	1
Food and Nutrition	1	1	0	0
Home Economic Management	1	1	0	2
Technical Drawing	1	1	1	0
Building Technology - Woods	0	1	0	0
Mechanical Engineering	1	1	0	0
Technology				
Visual Arts	6	6	6	3
Theatre Arts	2	2	2	2
Music	3	3	2	4
Physical Education	3	3	2	3
Principles of Accounts	1	0	1	5
Principles of Business	2	1	2	3
Other	1	1	1	2
Do not know	5	4	6	4
Not stated	1	1	1	1

By type of school, Mathematics was observed as the most popular of all subjects. A higher percentage (24%) among form 3 students in government secondary schools indicated that they preferred Mathematics compared to 19% and 16% in government-assisted and private schools respectively. However, natural sciences were the preferred choice of an average of 6% of form 3 students in government-assisted and private schools.

**Chart 5: Percentage of Students by Selected Subjects and School Type**



Source: Table 5

Table 6: Percentage of Students by Most Preferred Subject and Reason

Most preferred subject	Reason						
	Total	Interest- ing	Challeng- ing	Easy	Like the teacher	Other	Not stated
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	(percentage of students)						
Total	100	63	19	10	6	0	1
Mathematics	100	34	49	11	5	0	1
English Language	100	57	8	25	9	0	1
English Literature	100	76	11	7	4	1	1
Biology	100	87	4	4	5	0	0
Chemistry	100	73	15	5	6	0	1
Physics	100	74	16	5	4	1	0
Integrated Science	100	78	17	3	3	0	0
Information Technology (IT)	100	80	9	7	4	0	0
Social Studies	100	77	5	9	7	0	0
History	100	86	6	5	4	0	0
Geography	100	87	3	6	5	0	0
Spanish	100	64	14	10	12	0	0
French	100	70	15	6	9	0	0
Food and Nutrition	100	95	0	5	0	0	0
Home Economic Management	100	81	6	10	3	0	0
Technical Drawing	100	70	21	9	0	0	0
Building Technology - Woods	100	89	4	7	0	0	0
Mechanical Engineering Technology	100	76	18	6	0	0	0
Visual Arts	100	70	11	14	5	1	0
Theatre Arts	100	82	3	9	6	0	1
Music	100	74	6	12	7	1	1
Physical Education	100	54	26	15	2	1	1
Principles of Accounts	100	64	17	17	3	0	0
Principles of Business	100	77	6	12	6	0	0
Other	100	46	10	20	25	0	0

The table above shows a list of subjects students preferred the most and the reasons for such preference. For each of the subjects listed above the majority of students cited interest as the main reason they preferred the subject except in the case of Mathematics where the majority (49%) indicated that it was challenging while one-third (34%) found it interesting.



Table 7: Percentage of Students by Least Preferred Subject and Age

Least preferred subject	Age (years)					
	Total	13	14	15	16 and over	Not stated
	(1)	(2)	(3)	(4)	(5)	(6)
	(percentage of students)					
Total	100	100	100	100	100	100
Mathematics	17	14	15	19	21	16
English Language	2	3	2	2	4	4
English Literature	2	5	2	2	2	3
Biology	1	1	1	1	2	0
Chemistry	3	3	3	4	2	3
Physics	3	3	4	3	1	1
Integrated Science	5	3	4	6	7	7
Agricultural Science	0	1	0	0	1	1
Information Technology (IT)	4	5	4	3	3	4
Additional Mathematics	0	1	0	0	1	0
Social Studies	4	3	4	3	4	7
History	3	3	4	3	2	3
Geography	2	3	2	2	0	3
Spanish	25	27	22	28	31	25
French	5	2	6	4	2	8
Clothing and Textiles	1	0	1	1	0	1
Technical Drawing	1	1	1	1	0	1
Building Technology - Woods	0	0	0	1	0	0
Visual Arts	4	6	4	3	2	0
Theatre Arts	2	1	2	2	1	1
Music	5	3	6	5	4	3
Physical Education	1	3	1	1	1	0
Principles of Business	1	0	1	1	1	3
Other	1	2	1	1	1	0
Do not know	5	4	6	5	4	7
Not stated	1	2	1	1	2	0

The least preferred subject amongst the form 3 students who participated in the survey was Spanish (25%) followed by Mathematics (17%). This pattern of responses was observed amongst all ages (Table 7), gender (Table 8) and type of school (Table 9).

Table 8: Percentage of Students by Least Preferred Subject and Gender

Least preferred subject	Gender			
	Total	Male	Female	Not stated
	(1)	(2)	(3)	(4)
	(percentage of students)			
Total	100	100	100	100
Mathematics	17	12	21	33
English Language	2	3	2	0
English Literature	2	3	2	0
Biology	1	2	1	0
Chemistry	3	3	4	0
Physics	3	2	4	0
Integrated Science	5	3	6	7
Agricultural Science	0	0	1	0
Information Technology (IT)	4	3	5	0
Additional Mathematics	0	1	0	0
Social Studies	4	4	4	0
History	3	3	4	0
Geography	2	2	2	20
Spanish	25	29	22	7
French	5	6	3	13
Clothing and Textiles	1	0	1	0
Technical Drawing	1	2	0	0
Visual Arts	4	5	3	0
Theatre Arts	2	2	2	0
Music	5	6	4	13
Physical Education	1	1	2	0
Principles of Business	1	1	1	0
Other	2	1	2	0
Do not know	5	6	5	7
Not stated	1	1	1	0

Table 9: Percentage of Students by Least Preferred Subject within Type of School

Least preferred subject	Type of school			
	Total	Government	Government - assisted	Private
	(1)	(2)	(3)	(4)
	(percentage of students)			
Total	100	100	100	100
Mathematics	17	20	12	16
English Language	2	2	2	3
English Literature	2	2	3	2
Biology	1	1	1	2
Chemistry	3	3	3	7
Physics	3	3	4	3
Integrated Science	5	7	3	2
Agricultural Science	0	1	0	0
Information Technology (IT)	4	4	4	1
Additional Mathematics	0	0	1	0
Social Studies	4	4	3	3
History	3	3	4	6
Geography	2	1	4	1
Spanish	25	25	24	27
French	5	3	7	3
Clothing and Textiles	1	1	0	1
Technical Drawing	1	0	2	2
Building Technology - Woods	0	1	0	0
Visual Arts	4	4	5	3
Theatre Arts	2	2	2	0
Music	5	5	5	5
Physical Education	1	2	1	1
Principles of Business	1	1	1	2
Do not know	5	5	6	6
Not stated	1	1	1	1

Table 10: Percentage of Students by Least Preferred Subject and Reason

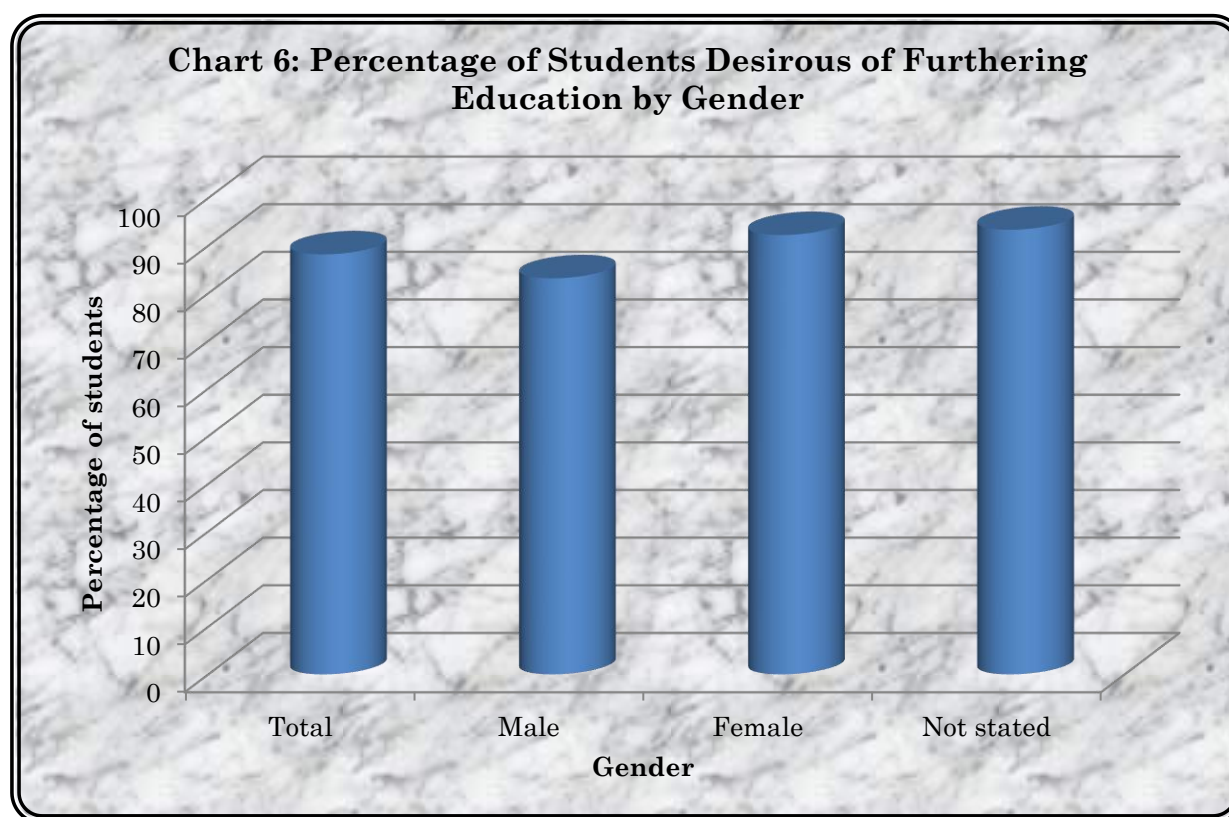
Least preferred subject	Reason						
	Total	Too difficult	Boring	Do not like teacher	A waste of time	Other	Not stated
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	(percentage of students)						
Total	100	49	23	14	11	0	2
Mathematics	100	73	10	14	2	0	0
English Language	100	24	36	30	7	1	2
English Literature	100	24	56	9	10	0	0
Biology	100	41	31	17	12	0	0
Chemistry	100	62	18	14	6	1	0
Physics	100	55	18	19	6	1	0
Integrated Science	100	66	18	12	4	0	0
Agricultural Science	100	46	25	11	18	0	0
Information Technology (IT)	100	31	33	14	21	1	1
Additional Mathematics	100	74	0	16	11	0	0
Social Studies	100	23	40	27	10	1	1
History	100	26	61	4	8	0	1
Geography	100	20	47	22	11	1	0
Spanish	100	60	16	13	10	0	0
French	100	45	19	19	17	0	1
Clothing and Textiles	100	11	42	6	42	0	0
Technical Drawing	100	54	20	14	12	0	0
Building Technology - Woods	100	33	44	0	17	0	6
Visual Arts	100	34	24	9	32	1	0
Theatre Arts	100	24	24	20	31	2	0
Music	100	35	30	9	25	0	1
Physical Education	100	17	43	12	24	3	1
Principles of Business	100	19	60	7	12	2	0
Other	100	29	24	17	30	0	1

Difficulty and boredom to a lesser extent were identified as the main reasons subjects taught in form 3 of secondary schools were considered least preferred. The data reveal that over a half of the students showed a lack of preference for Mathematics (73%), Integrated Science (66%), Chemistry (62%), Spanish (60%), Physics (55%) and Technical Drawing (54%) mostly because these subjects were too difficult. A substantial proportion of students who preferred English Language, Literature and the Social Sciences the least stated that the subjects were boring.

Table 11: Percentage of Students Desirous of Furthering their Education by Gender

Desirous of furthering education	Gender			
	Total	Male	Female	Not stated
	(1)	(2)	(3)	(4)
	(percentage of students)			
Total	100	100	100	100
Yes	88	83	92	93
No	2	3	1	0
Do not know	10	14	7	7

A significant majority (88%) of the sample of form 3 students expressed a desire to further their education after secondary school. By gender, a relatively larger proportion (92%) among females was desirous of furthering their education compared to males (83%) (Table 11). A review of the data by type of school shows that the highest percentage (91%) of students desirous of furthering their education was in government-assisted schools followed by private schools (90%) and government schools (86%) (Table 12).



Source: Table 11

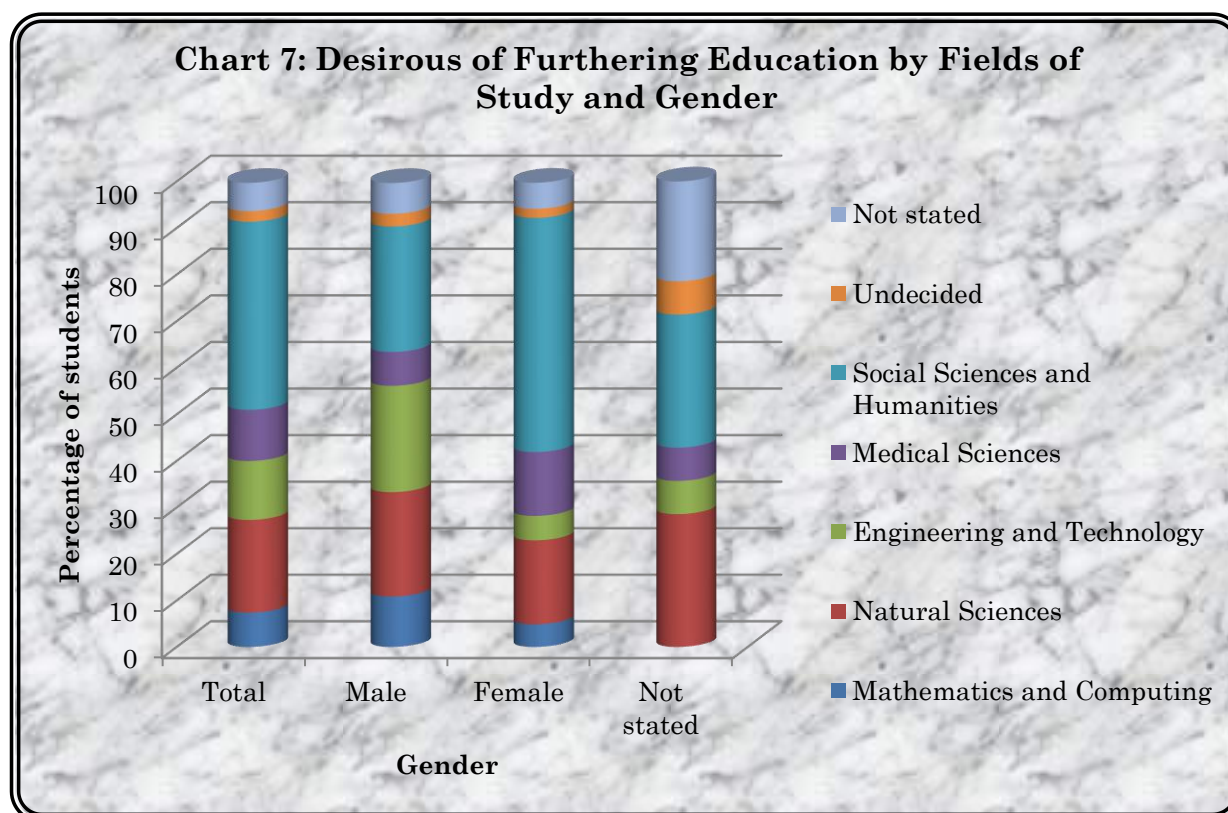
Table 12: Percentage of Students Desirous of Furthering their Education by Type of School

Desirous of furthering education	Type of school			
	Total	Government	Government - assisted	Private
	(1)	(2)	(3)	(4)
	(percentage of students)			
Total	100	100	100	100
Yes	88	86	91	90
No	2	2	1	2
Do not know	10	12	8	8

Table 13: Percentage of Students Desirous of Furthering their Education by Fields of Study and Gender

Field of study	Gender			
	Total	Male	Female	Not stated
	(1)	(2)	(3)	(4)
	(percentage of students)			
Total	100	100	100	100
Mathematics and Computing	7	11	5	0
Natural Sciences	20	22	18	29
Engineering and Technology	13	23	5	7
Medical Sciences	11	7	14	7
Social Sciences and Humanities	40	27	50	29
Undecided	2	3	2	7
Not stated	6	7	6	21

Of the students who expressed a desire to further their education, a substantial percentage (40%), especially females (50%), indicated that they would study Social Sciences and Humanities while 20% and 13% selected Natural Sciences, and Engineering and Technology respectively (Table 13). Social Sciences and Humanities (27%) were also the most popular fields of study amongst male students followed by Engineering and Technology (23%) and Natural Sciences (22%). A similar trend in students' participation in further studies in various fields was observed in all types of school (Table 14).



Source: Table 13

Table 14: Percentage of Students Desirous of Furthering their Education by Fields of Study and Type of School

Field of study	Type of school			
	Total	Government	Government - assisted	Private
	(1)	(2)	(3)	(4)
	(percentage of students)			
Total	100	100	100	100
Mathematics and Computing	7	8	6	9
Natural Sciences	20	20	21	20
Engineering and Technology	13	11	15	12
Medical Sciences	11	8	15	12
Social Sciences and Humanities	40	43	37	39
Undecided	2	2	3	2
Not stated	6	7	4	6



Table 15: Factors that Influenced Students' Decision to Further their Studies

Factor	Influence							
	Scale: 1 = no influence to 5 = great influence							
	Total	1	2	3	4	5	Do not know	Not stated
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	(percentage of students)							
1 I like to study and gain knowledge	100	3	3	19	23	41	1	11
2 I like the subject (field of study from Table 14) outlines	100	3	3	8	19	51	5	13
3 When I have a degree I can focus on what I like doing and pursue a fulfilling career	100	2	1	4	14	66	2	11
4 I will be able to earn money	100	2	1	4	13	70	1	11
5 I will be able to get a job	100	2	1	3	13	68	1	11
6 I will gain prestige	100	3	4	13	24	36	6	13
7 I will be able to express my creativity	100	4	5	13	20	44	3	12
8 My parents' opinion	100	16	9	16	16	27	5	12
9 My friends' opinion	100	30	13	15	11	13	7	11
10 The motivation received from teachers	100	9	8	21	24	3	12	23
11 I have friends who are also furthering their studies	100	9	8	15	20	32	4	12
12 I'm going into scientific research	100	25	10	13	11	19	9	13
13 I would like to construct (buildings, bridges, tools, etc.)	100	43	11	9	6	9	9	13
14 I want to invent technology (computers, programmes, etc.)	100	35	10	11	9	16	7	12
15 I would like to discover new medicines and treatments to improve the health of others	100	26	10	12	10	24	7	12
16 I would like to find new solutions to environmental problems	100	22	12	17	13	18	6	12
17 I would like to contribute to my community's development	100	11	9	18	18	28	5	12
18 I would like to contribute to society's development	100	9	8	15	19	30	5	13
19 Other	100	1	0	1	1	16	14	67

Table 15 represents the sample of form 3 students who responded to factors that influenced their decision to further their studies. Two-thirds and more of the students stated that the ability to earn money (70%), getting a job (68%) and focusing on what they like doing and pursue a fulfilling career (66%), greatly influenced (5) their decision to further their studies. Additionally, a substantial percentage of students reported that the following factors greatly influenced their decision to further their studies: subject outlines (51%), ability to express creativity (44%), gain knowledge (41%), prestige (36%), friends furthering their studies (32%) and contribution to society's development (30%). The factors that least influenced students decision to further their studies were a desire to construct buildings, bridges and tools (43%), invent technology (computers and programmes) (35%) and friends' opinion (30%).

Table 16: Factors that Influenced Students' Decision not to Further their Studies

Factor	Influence						
	Scale: 1 = no influence to 5 = great influence						
	Total	1	2	3	4	5	Not stated
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	(percentage of students)						
1 My parents do not consider studying as very important	100	60	8	8	3	22	0
2 I will have to work right after school	100	25	14	20	14	26	1
3 My family does not have money for me to continue studying	100	50	8	11	11	11	8
4 I'm not interested in furthering my education	100	37	11	19	8	25	0
5 I do not need to study to get a good job	100	47	10	11	11	18	2
6 I'm not good at studying	100	31	13	25	9	21	0
7 My friends will not continue their studies	100	39	8	10	7	16	21
8 My parents did not study and life turned out well for them	100	41	12	13	12	11	10
9 Even if I study I will not get a good job	100	40	8	17	8	9	18
10 I do not like to study	100	26	19	22	14	19	0
11 Secondary education is sufficient	100	22	4	19	19	34	3
12 I do not know what to study	100	37	11	16	9	22	5
13 Other	100	9	1	7	5	9	69

In general, a higher percentage of students who did not wish to further their studies after secondary school indicated that the factors above: especially their parents did not consider studying as very important (60%); their family had no money to continue studying (50%); they did not need to study to get a good job (47%); their parents did not study and life turned out well for them (41%) and; even if they studied they will not get a good job (40%), had no influence on their decision. However, that secondary education was sufficient (34%), having to work right after school (26%), and a lack of interest (25%) were rated as deciding factors of great influence.

Table 17: Percentage of Students Interested in Scientific Professions by Gender

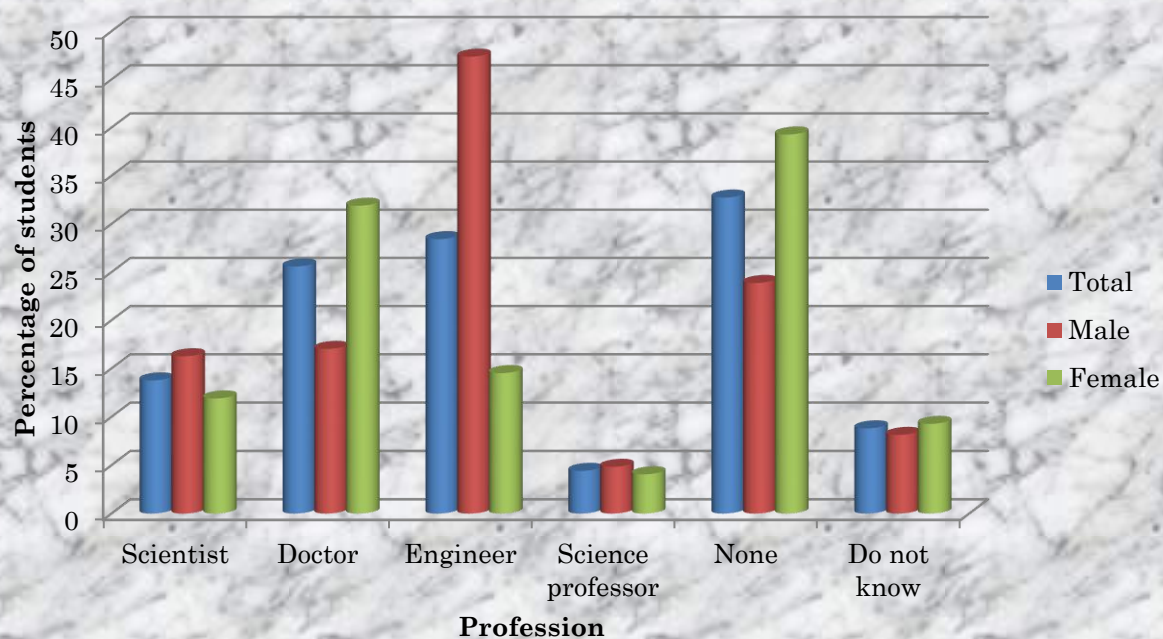
Profession	Gender		
	Total	Male	Female
	(1)	(2)	(3)
	(percentage of students)		
Scientist	14	16	12
Doctor	26	17	32
Engineer	28	47	15
Science professor	4	5	4
None	33	24	39
Do not know	9	8	9

Table 18: Percentage of Students Interested in Scientific Professions by Type of School

Profession	Type of school			
	Total	Government	Government - assisted	Private
	(1)	(2)	(3)	(4)
	(percentage of students)			
Scientist	14	11	17	14
Doctor	26	24	28	26
Engineer	28	26	33	26
Science professor	4	4	5	6
None	33	35	29	35
Do not know	9	9	9	6

The tables above show the percentage of students desirous of furthering their education by their choice of profession. A higher percentage (28%) of students, mainly males (47%), selected engineering while 26%, especially females (32%), wanted to become doctors (Table 17). One third (33%) of the students were not interested in either of the professions as a scientific career. In terms of gender, a substantially larger proportion of the females (39%) expressed this view compared to their male counterparts (24%). By type of school, students in state-assisted schools were generally more interested in becoming scientists (17%), doctors (28%) and engineers (33%) compared to their counterparts in state and private schools (Table 18). A substantial percentage of students did not indicate an area of study for each of the selected professions (Table 19).

**Chart 8: Percentage of Students Interested in Scientific Professions by Gender**



Source: Table 17

Table 19: Scientific Professions by Area of Study

**Scientist**

Area of study	Percentage
	(1)
Total	100
Sciences	23
Biology	10
Physics	8
Bio-chemistry	6
Chemistry	6
Forensic Science	2
Environmental science	2
Geosciences	2
Ecology	1
Information technology	1
Mathematics	1
Not stated	38

**Engineer**

Area of study	Percentage
	(1)
Total	100
Mechanical	16
Sciences	14
Computer	8
Civil	7
Chemical	6
Physics	5
Electrical	4
Petroleum	3
Aeronautical	2
Mathematics	2
Bio-Medical	1
Not stated	31

**Doctor**

Area of study	Percentage
	(1)
Total	100
Sciences	28
Biology	10
Paediatrician	6
Veterinary	3
Chemistry	3
Neurosurgeon	2
Psychiatry	2
Cardiology	2
Gynaecology	1
Surgeon	1
Dentistry	1
Pharmacology	1
Forensic Pathology	1
General Practitioner	1
Other	2
Not stated	37

**Science Professor**

Area of study	Percentage
	(1)
Total	100
Sciences	24
Biology	7
Chemistry	3
Physics	3
Mathematics	2
Information technology	1
Astronomy	1
Not stated	59

Table 20: Characteristics of a Scientist

Characteristic		Total	Yes	No	Not stated
		(1)	(2)	(3)	(4)
		(percentage of students)			
1	Absent minded	100	11	83	6
2	Passionate	100	76	19	5
3	Above average intelligence	100	81	15	4
4	Team player	100	47	47	5
5	Eccentric (weird, strange, odd)	100	47	48	5
6	An ordinary person with special training	100	65	30	5
7	Someone with logical thinking	100	83	12	5
8	Open minded	100	81	14	5
9	Curious	100	86	10	5
10	Meticulous (careful, thorough)	100	78	17	4
11	Works in group	100	61	35	4
12	Do not know	100	3	94	3

Table 20 reveals that over 60% of the students agreed that each of the characteristics listed above, especially curious (86%), open minded (81%) and above average intelligence (81%), described a scientist except being absent minded (11%), eccentric (47%) and a team player (47%).

Table 21: Characteristics of a Scientist Job

Characteristic	Rating							
	Scale: 1 = hardly to 5 = most likely							
	Total	1	2	3	4	5	Do not know	Not stated
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	(percentage of students)							
1 A job that uses theory and mathematics	100	6	4	13	16	55	4	2
2 Observation and lab experiments	100	4	4	6	11	70	3	2
3 A creative and challenging job	100	4	4	12	21	53	4	2
4 A job that demands specialised training	100	4	4	12	19	54	4	2
5 A meticulous job	100	6	5	17	18	38	13	3
6 A tedious job	100	10	8	21	17	26	15	3
7 An independent/ stand alone job	100	20	15	23	13	18	8	3
8 An intense job, with long hours	100	8	7	16	19	41	6	2
9 Teamwork	100	9	9	20	17	35	6	4
10 An isolated/solitary job	100	14	12	22	15	20	13	4
11 A well paid job	100	3	2	7	14	67	6	2
12 A stable job	100	5	5	14	20	45	8	3
13 A job that claims to know the world best	100	6	6	17	20	40	8	3
14 A job with practical results in persons' lives and in society	100	6	7	18	21	36	10	2
15 A job like any other	100	33	15	16	9	14	9	3
16 Other	100	2	1	1	1	5	16	74

Over a half of the form 3 students rated a scientist's job which most likely, entailed observation and laboratory experiments (70%), was well paid (67%), used theory and mathematics (55%), demanded specialised training (54%) and was creative and challenging (53%). One-third (33%) of the students indicated that a scientist's job was hardly one like any other or independent/stand alone (20%).

Table 22: Factors that Motivate a Scientist to do His/Her Job

Factor	Motivation							
	Scale: 1 = low to 5 = high							
	Total	1	2	3	4	5	Do not know	Not stated
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	(percentage of students)							
1 To know how nature or society works	100	5	4	14	18	51	7	3
2 To have a prestigious profession	100	5	6	18	22	37	9	3
3 To solve problems and help humanity	100	3	3	11	18	58	5	3
4 To have an intellectually stimulating job	100	3	4	13	22	47	9	3
5 To earn money	100	4	4	12	15	57	6	3
6 To conduct surveys, interviews or investigations in a lab and discover or invent new things	100	5	4	13	17	50	7	3
7 To win awards	100	10	12	23	17	26	8	4
8 To heighten the scientific reputation among his/her colleagues	100	6	7	22	20	31	10	4
9 To contribute to the advance of knowledge	100	2	3	10	20	56	5	4
10 To progress in his/her professional career	100	3	3	11	20	54	6	4
11 To have power and be famous	100	20	16	21	12	18	10	4
12 To satisfy his/her curiosity	100	4	6	16	22	41	8	4
13 To work with capable persons	100	6	7	20	20	33	10	5
14 Other	100	2	1	2	2	5	16	73

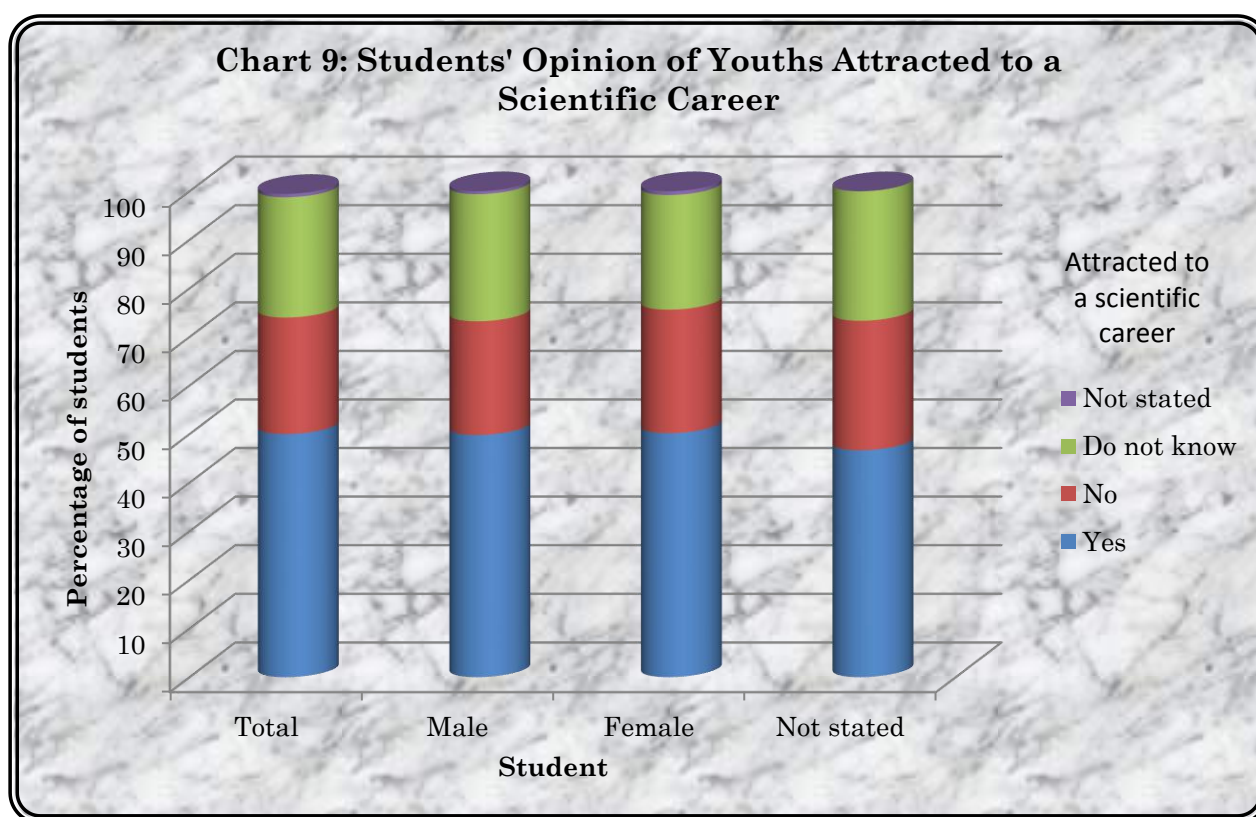
The students were asked to rate how the various factors above motivated a scientist to do his/her job. The majority of students assigned high ratings to each of the factors, except having power and being famous, which scored 4 and 5 from 12% and 18% of the students respectively.



Table 23: Students' Opinion of Youths of their Generation Attracted to a Scientific Career

Students	Youths attracted to a scientific career				
	Total	Yes	No	Do not know	Not stated
	(1)	(2)	(3)	(4)	(5)
	(percentage of students)				
Total	100	50	24	25	1
Male	100	50	23	26	1
Female	100	50	25	24	1
Not stated	100	47	27	27	0

A half (50%) of the sample of form 3 secondary school students who participated in the survey were of the opinion that a scientific career attracted the youths of their generation while a quarter (24%) disagreed and a similar percentage did not know (25%) (Table 23). A similar pattern of responses was recorded within both genders. An examination of the data by type of school shows that a larger percentage (56%) of students in government-assisted schools agreed that a scientific career attracted the youths of their generation compared to their counterparts in the government (47%) and private (44%) schools (Table 24).



Source: Table 23

Table 24: A Scientific Career Attracted the Youths of their Generation by Type of School

Type of school	A scientific career attracted youths				
	Total	Yes	No	Do not know	Not stated
	(1)	(2)	(3)	(4)	(5)
	(percentage of students)				
Total	100	50	25	25	1
Government	100	47	26	26	1
Government-assisted	100	56	20	23	1
Private	100	44	30	24	2

Table 25: Reasons why a Scientific Career was Attractive to Some Youths

Reason	Total	Yes	No	Not stated
	(1)	(2)	(3)	(4)
	(percentage of students)			
1 To travel to other countries	100	87	12	1
2 To work with new technologies	100	94	5	0
3 To increase your knowledge	100	94	5	0
4 To help solve mankind's problems	100	86	13	0
5 To have an intellectually stimulating and not boring job	100	81	18	1
6 To contribute to the advance of knowledge	100	92	7	1
7 To work with highly qualified persons	100	83	16	1
8 To have a socially prestigious job	100	79	20	1
9 To discover or construct new things	100	92	8	0
10 To have a good salary	100	91	9	1
11 To help in the country's development	100	83	16	1
12 Other	100	12	79	9
13 Do not know	100	1	95	4

Of the 50% of the students who agreed that a scientific career was attractive to the youths of their generation, a significant majority responded affirmatively to each of the reasons cited above.

Table 26: Reasons why a Scientific Career was Unattractive to Some Youths

Reason	Total	Yes	No	Not stated
	(1)	(2)	(3)	(4)
	(percentage of students)			
1 They prefer other professional careers	100	89	9	2
2 Science is boring	100	61	37	2
3 Science is too challenging	100	83	15	2
4 They prefer a job with more regular hours	100	76	22	2
5 As a scientist it's hard to become famous	100	44	53	2
6 Scientists do not earn good salaries	100	25	72	3
7 There are few job opportunities as a scientist	100	53	45	2
8 Jobs in this field are not stable	100	41	56	3
9 They would not like to study indefinitely	100	70	27	3
10 They would have to go abroad to get a good job	100	55	43	2
11 Currently scientific investigation is too dependent on economic objectives	100	56	42	2
12 Other	100	9	83	7
13 Do not know	100	1	96	3

The table above shows the students who indicated that a scientific career was unattractive to youths and their responses to a list of reasons. The majority of students gave positive responses to each of the reasons listed above except: as a scientist it was hard to become famous (44%); jobs in this field were not stable (41%) and; scientists did not earn good salaries (25%).

Table 27: Agreement with Statements about Science and Technology (S&amp;T)

Statement	Agree/Disagree							
	Scale: 1 = strongly disagree to 5 = strongly agree							
	Total	1	2	3	4	5	Do not know	Not stated
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	(percentage of students)							
1 S&T are making our lives easier and more comfortable.	100	5	3	11	13	58	5	5
2 Applied S&T contribute to loss of job positions.	100	15	12	25	15	14	16	2
3 S&T will eliminate poverty and hunger in the world.	100	16	11	23	13	15	15	7
4 S&T are responsible for the majority of environmental problems that we face currently.	100	11	11	22	15	20	14	6
5 Thanks to S&T we will have more job opportunities for future generations.	100	7	8	18	19	31	12	6
6 S&T are producing an artificial and inhumane lifestyle.	100	11	9	21	14	22	17	6

A substantial percentage of the sample of form 3 students agreed (4+5) that S&T made their lives easier and more comfortable (71%), and also provided more job opportunities for future generations (50%). A relatively large proportion disagreed that S&T contributed to job losses (27%), and would eliminate poverty and hunger globally (27%).

Table 28: Benefits of Science and Technology (S&amp;T) by Gender

Gender	Benefits of S&T						
	Total	Many benefits	Some benefits	Few benefits	No benefit	Do not know	Not stated
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	(percentage of students)						
Total	100	57	25	5	1	10	3
Male	100	58	24	4	1	10	4
Female	100	55	26	5	1	10	3
Not stated	100	47	40	7	0	7	0

In general, over a half (57%) of the students were of the opinion that S&T brought many benefits while a quarter (25%) believed it brought some benefits. A similar pattern of responses was observed within each gender (Table 28). By type of school a slightly higher percentage of form 3 students in private (62%) and government-assisted (60%) secondary schools indicated that S&T brought many benefits compared to state schools (53%) (Table 29).

Table 29: Benefits of Science and Technology (S&amp;T) by Type of School

Type of school	Benefits of S&T						
	Total	Many benefits	Some benefits	Few benefits	No benefit	Do not know	Not stated
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	(percentage of students)						
Total	100	57	25	5	1	10	3
Government	100	53	25	5	1	12	4
Government-assisted	100	60	26	4	1	7	2
Private	100	62	22	4	0	8	3

Table 30: Risks of S&amp;T

Students	Risks of S&T						
	Total	Many risks	Some risks	Few risks	No risk	Do not know	Not stated
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	(percentage of students)						
Total	100	28	32	20	2	14	4
Male	100	29	33	19	2	13	4
Female	100	28	32	20	1	14	4
Not stated	100	33	27	0	7	33	0

One-third (32%) of the students were of the opinion that S&T brought some risks while 28% and 20% indicated that it brought many risks and few risks respectively; a negligible 2% believed that it brought no risk. This pattern of response was observed within both gender (Table 30) and by type of school (Table 31).

Table 31: Risks of S&amp;T by Type of School

Type of school	Risks of S&T						
	Total	Many risks	Some risks	Few risks	No risk	Do not know	Not stated
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	(percentage of students)						
Total	100	28	32	20	2	14	4
Government	100	28	29	21	2	16	5
Government-assisted	100	31	36	18	2	11	3
Private	100	24	37	22	2	11	4

Table 32: Students' Activities Outside School Hours

Activity	Participation							
	Scale: 1 = never to 5 = always							
	Total	1	2	3	4	5	Do not know	Not stated
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	(percentage of students)							
1 I look at programmes and documentaries on S&T	100	29	15	21	12	16	4	4
2 I listen to radio programmes on S&T	100	47	18	14	6	8	4	3
3 I read scientific news in the daily papers	100	43	16	17	8	9	3	4
4 I read science magazines	100	43	14	16	10	11	3	3
5 I read scientific books	100	31	13	18	14	17	3	4
6 I look at nature or animal life programmes or TV documentaries	100	13	10	19	19	33	3	4
7 I use the Internet to find scientific information	100	20	13	19	16	24	3	4
8 I visit museums, centres or expos on S&T	100	34	19	17	10	13	4	4
9 I discuss science related topics with my friends	100	34	17	18	12	12	3	4
10 I participate in science fairs, clubs and Olympiads	100	45	14	14	8	11	3	4
11 I visit zoos and botanical gardens	100	11	11	20	19	32	3	4
12 I discuss environmental topics with my friends	100	32	18	19	11	13	4	4
13 I watch movies or read books and or magazines (comic strips, comics etc) on science fiction	100	21	12	16	14	30	4	4

One-third of the sample of secondary school form 3 students stated that outside of school hours they always looked at nature or animal life programmes or television documentaries (33%), visited zoos and botanical gardens (32%) and watched movies or read books and or magazines (comic strips, comics etc) on science fiction (30%) while a quarter (24%) always used the Internet to find scientific information. A large proportion of students never listened to radio programmes on S&T (47%), participated in science fairs, clubs and Olympiads (45%), read scientific news in the daily papers (43%) or read science magazines (43%).



Table 33: Percentage of Students by Subjects and Performance in the Last Academic Year

Subject	Performance						
	Scale: 1 = very bad to 5 = excellent						
	Total	1	2	3	4	5	Not stated
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	(percentage of students)						
English Language	100	4	7	29	34	23	3
Mathematics	100	9	16	27	23	21	3
Physics	100	12	16	27	21	19	5
Chemistry	100	13	15	25	22	20	5
Biology	100	10	13	24	24	23	6
Information Technology (IT)	100	9	11	22	24	29	5
Geography	100	9	13	25	25	21	6
History	100	12	13	25	22	23	5
Arts (visual and performing arts)	100	8	11	22	25	30	5

Table 33 shows the performance of the sample of form 3 students in various subjects for the last academic year. Over a half of the students who studied English Language (57%), Art (55%) and IT (53%) indicated a 4 or 5 performance on the Likert scale. One-fifth (21%) of the students stated that they performed excellent (5) in Mathematics while 23% and 27% assigned ratings of 4 and 3 respectively. With regards to the natural sciences, students stated that they performed relatively better in Biology with 47% assigning scores of 4 and 5 compared to Chemistry (42%) and Physics (40%). Students' performance rating in natural sciences was comparable to social sciences.

Table 34: Agreement with Statements Regarding Mathematics and Science Subjects

Statement	Agree/Disagree							
	Scale: 1 = strongly disagree to 5 = strongly agree							
	Total	1	2	3	4	5	Do not know	Not stated
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	(percentage of students)							
1 The school's science subjects are easy for me.	100	16	13	31	19	13	4	4
2 They are interesting.	100	9	9	20	21	34	3	4
3 They increase my appreciation for nature.	100	11	13	23	20	24	5	4
4 They help me in my daily life.	100	11	14	23	20	23	4	4
5 They make me think about how to better care for my health.	100	8	3	19	23	34	4	10
6 They make me think about how to better care for the environment.	100	9	10	22	22	29	4	4
7 The majority of students can understand science topics if they are well explained.	100	7	8	18	21	38	5	4
8 Science classes increase my liking to study.	100	16	13	20	17	24	5	5
9 They help to clarify which profession I would like to pursue in the future.	100	14	9	16	16	34	7	5

A half or more of the form 3 students who participated in the survey agreed(4+5) with the following statements on mathematics and science subjects: the majority of students could understand science topics if they were well explained (59%); mathematics and science made students think about how to better care for their health (57%); they were interesting (55%); they made them think about how to better care for the environment (51%); and they helped to clarify which profession to pursue in the future (50%). One-third (31%) of the students were neutral to the statement on the school's science subjects were easy.

Table 35: Activities Performed in Mathematics and Science Classes

Activity	Performance							
	Scale: 1 = never to 5 = always							
	Total	1	2	3	4	5	Do not know	Not stated
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	(percentage of students)							
1 Use the library	100	28	14	22	13	17	2	4
2 Use labs	100	22	15	21	15	18	3	5
3 Conduct experiments	100	29	16	22	16	16	3	1
4 Use computers	100	18	10	14	15	35	3	5
5 View film projections	100	23	14	19	16	19	3	6
6 Visit museums, go on excursions or study trips	100	39	15	15	10	13	3	5
7 Visit a lab or institution of scientific investigation	100	39	15	16	9	11	4	6
8 Make presentations on how S&T affect society	100	38	15	17	10	10	5	5
9 Prepare displays for science fairs	100	45	15	13	9	11	4	3
10 Use newspaper articles on S&T to work on topics in class	100	45	13	12	8	11	5	6

Table 35 shows a list of activities and the frequency at which they were performed in form 3 mathematics and science classes. The majority of students never performed any of the above activities in their mathematics and science classes except using computers where accumulatively 50% (4+5) indicated that they used it frequently. In addition, 30% and more of the students also assigned a combined rating of 4 and 5 to: view film projections (35%); use laboratories (33%); conduct experiments (32%); and use the library (30%).

Table 36: Importance of Various Activities in Mathematics and Science Classes

Activity	Importance							
	Scale: 1 = not important to 5 = very important							
	Total	1	2	3	4	5	Do not know	Not stated
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	(percentage of students)							
1 Use the library	100	19	10	19	13	26	4	10
2 Use labs	100	11	9	15	16	35	4	10
3 Conduct experiments	100	11	8	16	15	36	4	10
4 Use computers	100	9	7	15	16	39	4	10
5 View film projections	100	14	10	19	17	26	5	11
6 Visit museums, go on excursions or study trips	100	17	10	16	15	27	5	11
7 Visit a lab or institution of scientific investigation	100	17	9	16	14	28	5	11
8 Make presentations on how S&T affect society	100	18	11	18	15	21	6	11
9 Prepare displays for science fairs	100	21	11	16	14	21	6	11
10 Use newspaper articles on S&T to work on topics in class	100	22	11	16	12	21	7	11

Students were asked to rate the importance of the activities listed above in their mathematics and science classes on a five point scale where 1 indicated not important and 5 indicated very important. A substantial percentage of students stated that using computers (55%), conducting experiments (51%) and laboratories (51%) were important (4 + 5) activities in their mathematics and science classes. Additionally, a relatively large proportion of the students rated viewing film projections (43%), visiting museums, and excursions or study trips (42%), visiting a laboratory or institution of scientific investigation (42%) and the library (39%) as important activities.

Table 37: Name of a Local or Foreign S&amp;T Institution by Gender

Student	Name of S&T institution			
	Total	Yes	No	Not stated
	(1)	(2)	(3)	(4)
	(percentage of students)			
Total	100	15	81	4
Male	100	15	81	5
Female	100	16	81	3
Not stated	100	13	87	0

Table 38: Name of a Local or Foreign S&amp;T Institution by Type of School

Type of school	Name of S&T institution			
	Total	Yes	No	Not stated
	(1)	(2)	(3)	(4)
	(percentage of students)			
Total	100	15	81	4
Government	100	11	85	4
Government - assisted	100	21	76	3
Private	100	20	76	4

The survey results reveal that only a small percentage (15%) of the students was able to name a local or foreign S&T institution. A similar pattern of responses was observed by gender (Table 37). A further review of the data by type of school shows that one-fifth of the students in government-assisted (21%) and private (20%) schools were able to recall the name of an S&T institution compared to 11% in government schools (Table 38). The local institutions mainly identified were The University of the West Indies (UWI), The University of Trinidad and Tobago (UTT) and National Institute of Higher Education, Research, Science and Technology (NIHERST) while the most cited foreign S&T institutions were National Aeronautics and Space Administration (NASA), Massachusetts Institute of Technology (MIT) and ITT Technical Institute.

Table 39: Name of a Local or Foreign Scientist

Student	Name of a scientist			
	Total	Yes	No	Not stated
	(1)	(2)	(3)	(4)
	(percentage of students)			
Total	100	10	86	4
Male	100	10	85	5
Female	100	10	87	3
Not stated	100	7	93	0

Table 40: Name of a Local or Foreign Scientist by Type of School

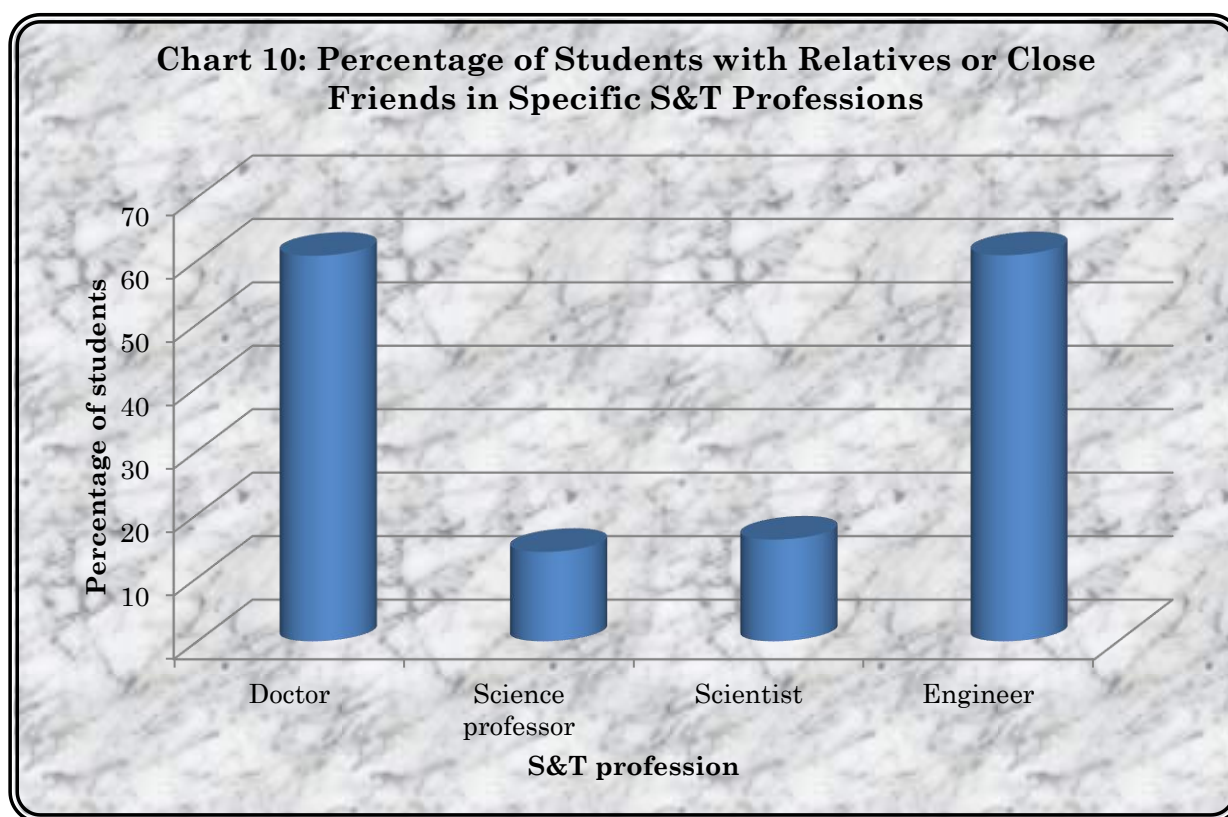
Type of school	Name of a scientist			
	Total	Yes	No	Not stated
	(1)	(2)	(3)	(4)
	(percentage of students)			
Total	100	10	86	4
Government	100	6	90	4
Government - assisted	100	16	81	3
Private	100	12	84	4

The data show that only 10% of the sample of form three students were able to recall the name of a local or foreign scientist. A similar pattern of responses was observed by gender (Table 39). Data by type of school reveal a higher percentage of students in government-assisted (16%) and private (12%) schools who were able to name a scientist compared to students in government schools (6%) (Table 40). The local scientists mainly identified were Dr. Joseph Lennox Pawan, Dr. Rudranath Capildeo and Professor Courtenay Bartholomew while the most cited foreign scientists were Albert Einstein, Sir Isaac Newton and Stephen William Hawking.

Table 41: Relatives or Close Friends in Specific S&T Professions

S&T profession	Have relatives or close friends				
	Total	Yes	No	Do not know	Not stated
	(1)	(2)	(3)	(4)	(5)
	(percentage of students)				
Doctor	100	61	21	12	6
Science professor	100	14	60	20	6
Scientist	100	16	58	20	6
Engineer	100	61	20	13	6

The table above shows the percentage of students with relatives or close friends in the S&T occupations. Three-fifths of the students had relatives or close friends who were doctors (61%) and engineers (61%). A smaller proportion of students had relatives or close friends who were scientists (16%) and science professors (14%).

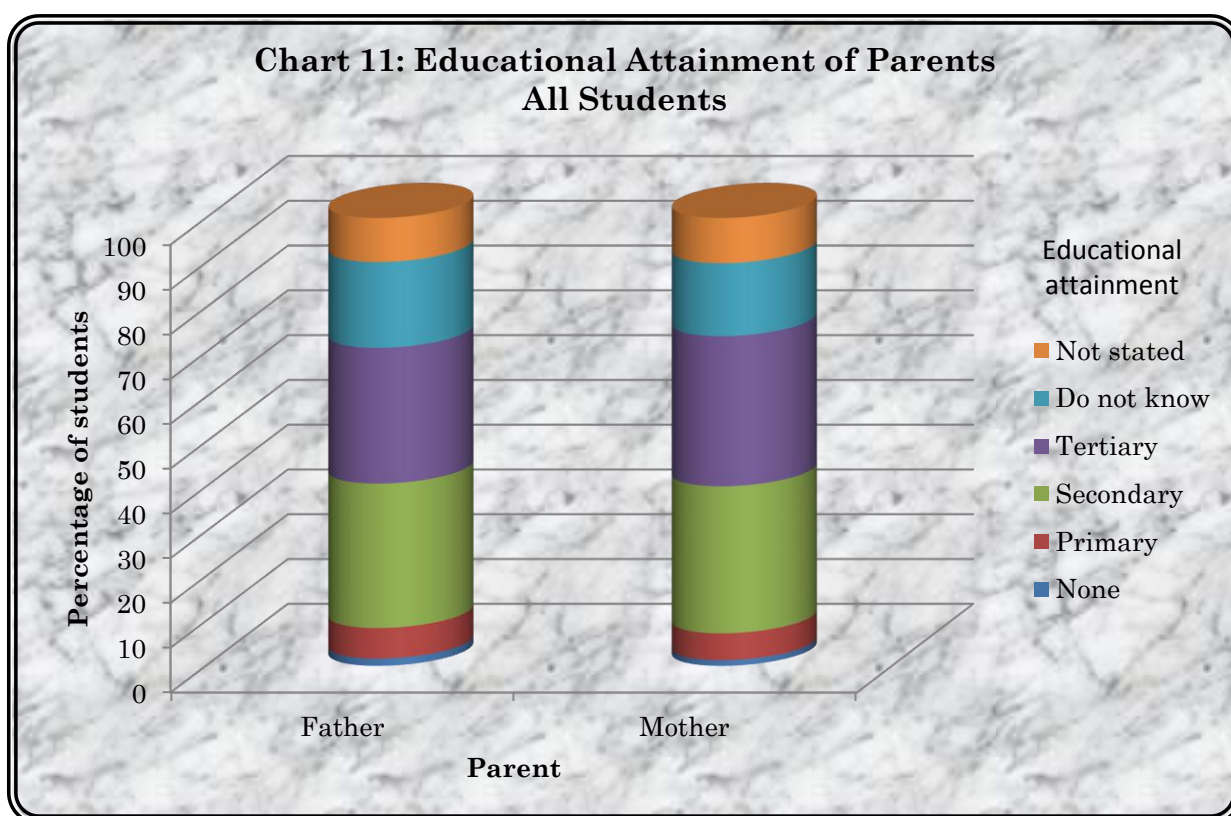


Source: Table 41

Table 42: Educational Attainment of Parents by Type of School

Educational attainment	Type of school							
	Total		Government		Government - assisted		Private	
	Father	Mother	Father	Mother	Father	Mother	Father	Mother
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	(percentage)							
Total	100	100	100	100	100	100	100	100
None	2	1	2	1	1	1	3	2
Primary	7	6	9	8	4	4	6	4
Secondary	32	33	33	33	31	33	32	30
Tertiary	30	34	25	28	39	40	33	40
Do not know	19	16	21	18	16	14	19	16
Not stated	10	10	11	11	9	9	7	8

One-third (32%) of the parents of form 3 students in all schools attained secondary education as their highest level of educational attainment. Thirty percent (30%) of the parents had achieved tertiary education, especially parents of students in government-assisted schools where two-fifths of the fathers (39%) and mothers (40%) attained this level of education.



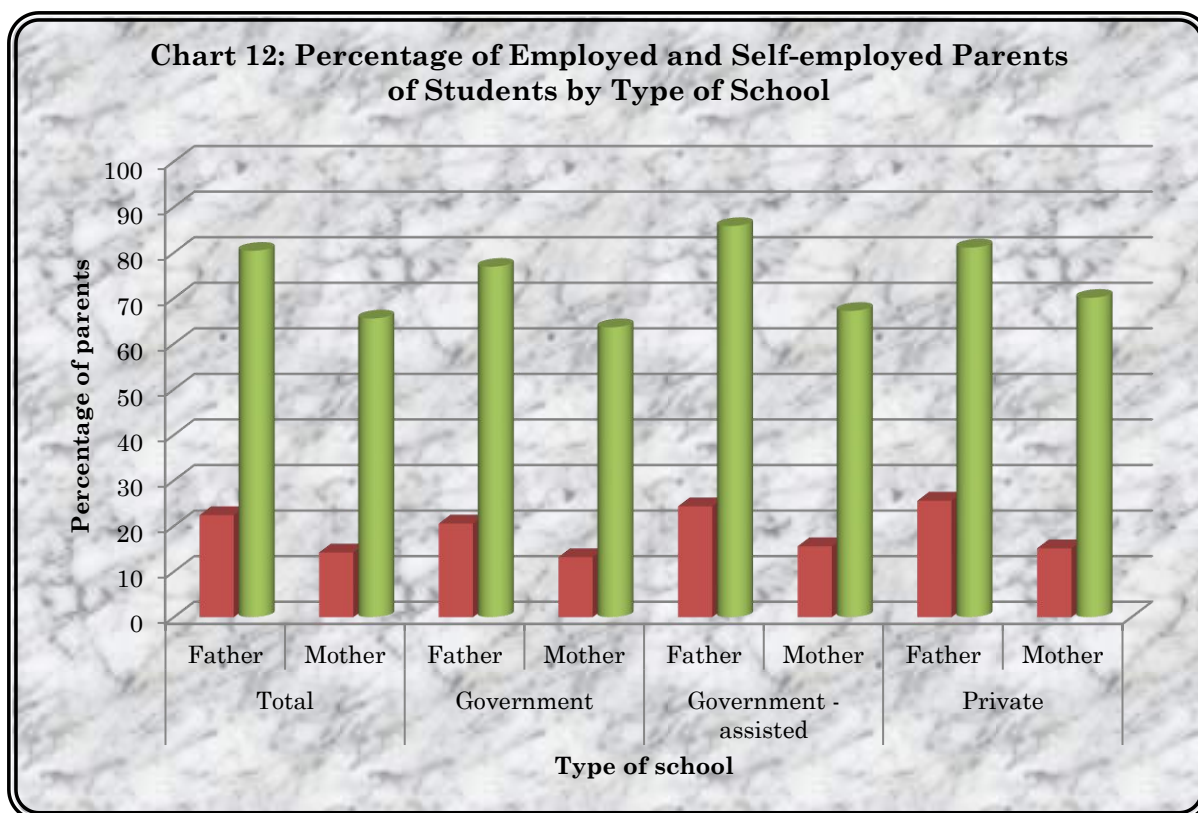
Source: Table 42



Table 43: Employment Status of Parents by Type of School

Employment status	Type of school							
	Total		Government		Government - assisted		Private	
	Father	Mother	Father	Mother	Father	Mother	Father	Mother
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	(percentage)							
Total	100	100	100	100	100	100	100	100
Employed	58	51	56	50	62	52	56	55
Self-employed	22	14	21	13	24	16	26	15
Unemployed	1	0	2	0	1	0	2	1
Student	0	1	0	1	0	1	0	1
Retired	2	1	2	1	2	1	3	0
Home duties	0	20	1	19	0	22	0	18
Do not know	6	4	8	5	3	2	6	2
Not stated	10	9	11	11	8	8	8	7

Table 43 shows the distribution of parents of the form 3 students who participated in the survey by type of school and employment status. A significant majority (80%) of parents, especially fathers of students in government-assisted schools (86%), was employed while a negligible 1% was unemployed. One-fifth (20%) of the students in all schools reported that their mothers were engaged in home duties.



Source: Table 43

Table 44: Occupational Group of Parents by Type of School

Occupational group	Type of school							
	Total		Government		Government-assisted		Private	
	Father	Mother	Father	Mother	Father	Mother	Father	Mother
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	(percentage)							
Total	100	100	100	100	100	100	100	100
Legislators, senior officials and managers	8	7	5	5	12	10	10	8
Professionals	14	20	10	14	21	30	16	19
Technicians and associate professionals	10	5	10	5	12	5	9	8
Clerks	0	5	1	4	1	6	0	7
Service workers (including defence force) and shop service workers	10	16	9	17	10	15	11	17
Agricultural, forestry and fishery workers	2	1	2	1	2	1	2	1
Craft and related workers	5	0	6	0	4	1	6	0
Plant and machine operators and assemblers	0	0	0	0	1	0	1	0
Elementary occupations	12	7	12	8	12	5	11	8
Not stated	38	38	45	46	26	27	34	32

A substantial percentage (38%) of the sample of form 3 students whose parents were employed did not state their parents' occupations. With regards to the fathers, 14% were professionals while 12% were engaged in elementary occupations and 10% in each case were technicians and associate professionals, and service workers and shop service workers. A larger proportion (21%) of fathers of students in government-assisted schools were professionals compared to fathers of students in private (16%) and government (10%) secondary schools. The data also reveal that one-fifth (20%) of all mothers, especially in government-assisted schools (30%), were professionals while 16% were service workers and shop service workers. The percentage of both fathers (12%) and mothers (10%) of students in the government-assisted schools who were legislators, senior officials and managers, doubled the percentage in government schools (5%).

Table 45: Ownership of Household Items

Item	Ownership			
	Total	Yes	No	Not stated
	(1)	(2)	(3)	(4)
	(percentage of students)			
Hot water(water, heater, immersion heater, etc.)	100	75	19	6
Refrigerator	100	92	2	6
Washing machine	100	92	2	6
Microwave	100	85	8	6
Dishwater	100	35	58	7
Air condition	100	49	44	7
Television(not a high definition plasma television)	100	76	17	8
High-definition plasma television	100	63	30	7
Cable/Satellite dish	100	74	19	7
DVD player	100	88	6	6
Video recorder	100	61	32	7
Desktop computer	100	72	21	7
Laptop/Notebook	100	87	6	6
Internet connection	100	79	15	6
Telephone line	100	64	30	7
Digital camcorder	100	59	34	7
Car	100	76	18	6

In general, the majority of form three students surveyed indicated that their households possessed all of the items listed above except a dishwasher (35%). With respect to ICT, the data show that a significant percentage of the students indicated that their households had a laptop/notebook (87%), internet connection (79%) and desktop computer (72%).