THE NATIONAL INSTITUTE OF HIGHER EDUCATION, RESEARCH, SCIENCE AND TECHNOLOGY (NIHERST)

NIHERST

NATIONAL INSTITUTE
OF HIGHER EDUCATION
RESEARCH SCIENCE AND TECHNOLOGY

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Survey on the Public Perception of Science, 2005

Foreword

In this publication, the National Institute of Higher Education, Research, Science and Technology (NIHERST) presents the results of the Survey on the Public Perception of Science, 2005. This study is the first of its kind to be conducted by NIHERST and is a follow-up to a workshop held in St Lucia in March, 2005 on the public perception of science for Caribbean member states. The workshop was hosted by NIHERST and the Caribbean Council on Science and Technology (CCST) in collaboration with the Organisation of American States and Ibero-American Network on Science and Technology Indicators (RICYT), the regional co-ordinator of science and technology indicators. The aim of the workshop was to examine the relevance and importance of understanding public perception of science and to review the theories and definitions of scientific literacy and the statistical methodologies used to gauge public attitudes, perceptions, interest and knowledge.

This survey was designed to determine the information needs of the public and provide indicators of public attitudes towards science and included data on the level of scientific awareness and literacy; the sources, interest and consumption of information and the popularisation of science and scientific research in Trinidad and Tobago. In addition, information was obtained on several key social characteristics of respondents. The study provides a benchmark against which changes in attitudes to science can be monitored over time.

In keeping with NIHERST's support for the overall development of science and technology in Trinidad and Tobago, this study aims to promote the measurement and analysis of public awareness and understanding of science for the purpose of guiding science and technology policy. This information can, therefore, assist researchers, decision-makers and science communicators in formulating and evaluating policies.

NIHERST wishes to thank RICYT for its kind support in this study. We also acknowledge the assistance of the Central Statistical Office and members of households that willingly provided the data collated in this report.

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Executive Summary

- Of the total sample of 1595 respondents, 45% were males and 55% were females. The response to the survey was similar to the distribution of the population of Trinidad and Tobago by the age cohorts.

- Respondents expressed a substantial level of interest in religion (76%), sports (62%) and economics (58%). Forty five percent (45%) of the respondents sampled showed a high level of interest in science while 55% indicated little or no interest. Politics inspired the least degree of interest amongst respondents as 80% were 'a little interested' or 'not interested' in this area.

- A relatively large proportion of the survey respondents (74%) felt that they were informed with respect to science and technology while one quarter (26%) considered themselves not informed. The proportion of respondents who considered themselves informed about science and technology increased in relationship to educational attainment.

- The areas that inspired a high level of interest were: Medicine and health (82%), Environment (79%), Computers and IT (57%) and Agriculture (57%).

- The majority of respondents (91%) was of the opinion that scientific knowledge could improve one's ability to make decisions.

- Three quarters (75%) and more of the respondents with educational attainment indicated that scientific developments were beneficial to everyone. A substantial percentage (42%) of those with no educational attainment stated that the benefits of scientific developments would accrue to only a few individuals.

- The majority of respondents agreed with the statements: 'the government should increase investment in science and technology' (83%) and 'the benefits of science and technology are greater than the negative effects' (81%). On the other hand, a substantial percentage agreed that, 'society should use expenditure for science in more urgent activities' (73%).

- Over seventy five percent of the survey participants knew that 'high blood pressure is also called hypertension' (89%), 'plants produce oxygen' (87%), 'the centre of the earth is very hot' (79%) and 'light travels faster than sound' (79%); one half (53%) indicated it was not the mother's gene that decided the baby's gender.

- The majority of respondents (83%) was of the opinion that the media did not provide enough information on science; only 14% agreed.

- 'Television' was identified by 43% of the survey participants as their main source of science information, followed by books (19%) and newspapers (13%).

- Of the total respondents, two-thirds (68%) read the newspapers 'daily' or 'almost daily' while 27% were occasional 'once a week' or 'seldom' readers. However, only 15% read scientific articles 'regularly'.

- Less than half of the sample of respondents (43%) read books on science, while a substantial percentage (61%) never read science magazines and over forty percent (44%) never listened to science programmes on the radio. Of the respondents engaged

in television viewing one quarter in each case accessed scientific information 'regularly' (24%) and 'once in a while' (26%).

- Most respondents (70%) did not use the internet as a source of information on science.

- One half of the survey participants (50%) agreed that the quality of science and mathematics education in our schools was adequate while a substantial 43% disagreed or strongly disagreed, especially amongst respondents with technical education (51%), bachelor's degree and above (48%), associate degree (47%) and commercial education (63%).

- Almost all of the respondents (92%) was of the opinion that food containing Genetically Modified Organisms (GMOs) should be so labelled.

- Approximately half of the respondents (48%) was aware of their blood type. The majority of respondents with higher levels of educational attainment knew their blood type, while those with primary (65%) and no educational attainment (83%) recorded the highest percentages where the blood type was not known.

- A relatively large proportion of the survey respondents (45%) was of the opinion that HIV/AIDS resulted from 'change in people's sexual habits', while two fifths were evenly divided between 'a scientist's experiment' (20%) and 'people's ignorance' (20%).

- Most of the survey participants (71%) were of the opinion that scientific and technological research was conducted in Trinidad and Tobago, especially amongst those informed on such activities. The majority of respondents (88%) who were of this view stated that such undertaking was useful.

- 'Government' was identified as the main source of research funding by over one half of the respondents (56%) who thought research was conducted locally.

- Only an extremely small percentage of the sample (3%) had participated in protest action or had made complaints about problems stemming from science and technology. However, the majority of respondents (87%) believed that it was important to take part in these issues.

- Overall, the participants of the survey demonstrated positive attitudes towards the subject of the enquiry. The majority (62%) stated that the study was 'interesting' and one quarter (24%) found it useful.

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Methodology

Introduction

The empirical results of this initial study on the public perception of science are intended to assist in monitoring knowledge, awareness and sources of science through a number of key indicators. The undertaking will also facilitate and inform the development of science policy, communication and popularisation. This methodology describes the objectives, scope, coverage, data collection and processing of the results of the survey.

Objectives

The objectives of the survey are to determine the information needs of the public and provide indicators of public attitudes towards science including:

- scientific awareness and literacy,

- sources, interest and consumption of information,

- the popularisation of science,

- scientific research in Trinidad and Tobago and

- benchmarks against which to measure change in attitudes to science over time.

Scope

The scope of this study included information on the demographic and social characteristics of the respondents such as age, gender, educational attainment and employment status. Public perception towards science and technology was measured by examining the survey participants' knowledge, interest and attitudes towards science and technology. The enquiry also incorporated data on the sources of information on science and technology and scientific research in Trinidad and Tobago.

Coverage

The sample design of the survey was based on the approach used by the Central Statistical Office (CSO) in the conduct of its quarterly household surveys to generate labour force statistics. Basically, the design consists of a two-stage sampling procedure in which enumeration districts (E.Ds. - small geographic areas) are selected at the first stage,

followed by a random selection of a cluster of households within each E.D. at the second stage. At each stage, the sampling units are selected with probability proportional to size.

A representative sample of one thousand, six hundred and three households (1603) from all administrative areas of Trinidad and Tobago was obtained from the CSO. From each of the selected household a respondent was chosen on the basis of having attained the age of sixteen or over and was the last household member to celebrate his/her birthday. In order to maintain the sample size of the survey vacant and close buildings and refusals were replaced. Of the total completed questionnaires, eight were excluded from the tabulated results due to inconsistency in the data reported. The following table shows the number of respondents by administrative areas.

Distribution of Respondents by Administrative Areas

Administrative Area	Number of Respondents	Percentage
Port of Spain	64	4
San Fernando	66	4
Arima	44	3
Point Fortin	28	2
Chaguanas	85	5
Diego Martin	132	8
St Ann's	225	14
Tacarigua	170	11
Rest of St George	87	5
Caroni	138	9
Victoria	214	13
St Patrick	137	9
St Andrew/St David	64	4
Nariva/Mayaro	40	3
Tobago	101	6
Total	1595	100

Data Collection

A draft questionnaire was designed to include the underlying objectives and a pilot survey was conducted. Data were subsequently collected by a group of experienced interviewers and supervisors who were trained in administering the survey questionnaire.

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 captured in the Statistical Package for the Social Sciences (SPSS) version 11.0 software which was used to produce the tabulations in this report.

Results

The results of the survey are necessarily presented in percentages of the sample of respondents (1595) in the various tabulations and graphics which follow. Generally, the responses of the study were similar when analysed by gender which was therefore not shown as an indicator in cross-tabulating the results. In addition, data were not analysed by administrative areas due to the small sample size but tabulations can be generated upon request for these geographical areas.

Table 1: Distribution of Respondents by Gender within Age Group

Age group (yrs.)	Gender - percentage		
	Total	Male	Female
	(1)	(2)	(3)
Total	100	45	55
16 - 19	100	45	55
20 - 29	100	42	58
30 - 39	100	43	57
40 - 49	100	49	51
50 and over	100	47	53

Chart 1: Distribution of Respondents by Gender within Age Group
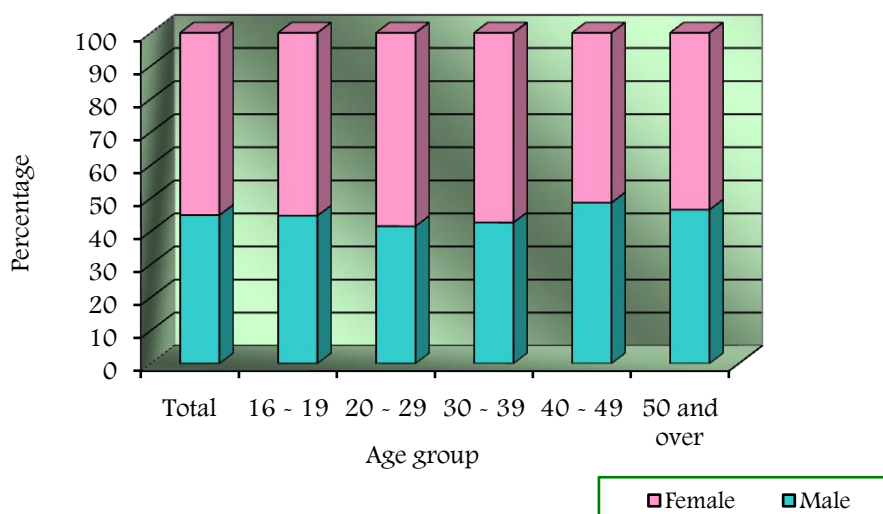
Table 1 shows the distribution of respondents by age group and gender. Of the total respondents 45% were males and 55% were females. In terms of age, a relatively large proportion (30%) of the survey respondents was 50 years and over (Table 1a and Chart 1a). The response to the survey and the distribution of the population of Trinidad and Tobago by the age cohorts as shown in Table 1a were similar.

Table 1a: Distribution of Respondents by Age Group within Gender

Gender	Age group (yrs.) - percentage					
	Total	16 - 19	20 - 29	30 - 39	40 - 49	50 and over
	(1)	(2)	(3)	(4)	(5)	(6)
Total	100	10	20	21	18	30
Male	100	10	19	20	20	31
Female	100	10	22	22	17	29

Chart 1a: Distribution of Respondents by Age Group within Gender

Age group: ■ 16 - 19 ■ 20 - 29 ■ 30 - 39 ■ 40 - 49 ■ 50 and over
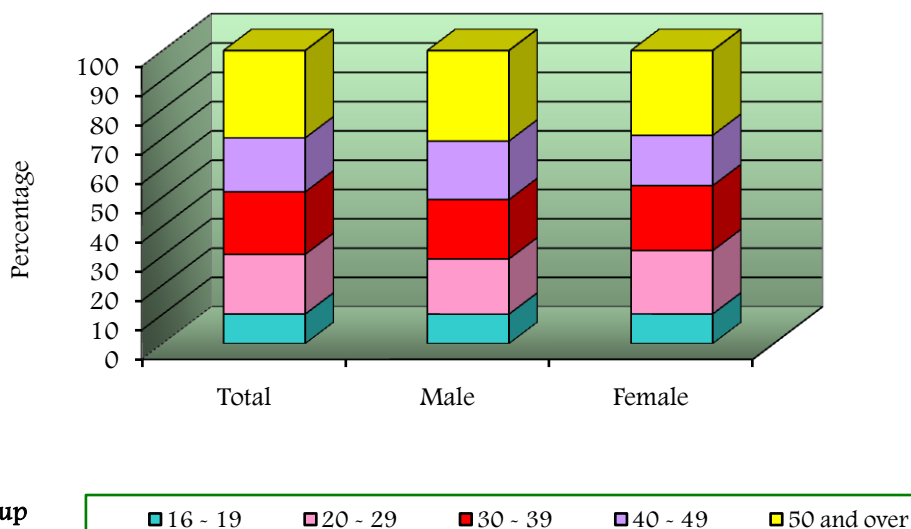
Table 2: Distribution of Respondents by Educational Attainment within Age Group

Age group (yrs.)	Educational attainment - percentage						
	Total	Primary	Secondary	Technical	Associate degree	Bachelor's degree and above	Other*	None
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Total	100	31	48	8	3	5	4	1
16 - 19	100	2	86	6	2	2	1	1
20 - 29	100	14	62	10	3	6	4	0
30 - 39	100	19	55	11	4	5	5	1
40 - 49	100	37	41	9	4	5	4	0
50 and over	100	58	24	5	2	5	5	2

*Commercial

Chart 2: Distribution of Respondents by Educational Attainment - All Age Groups
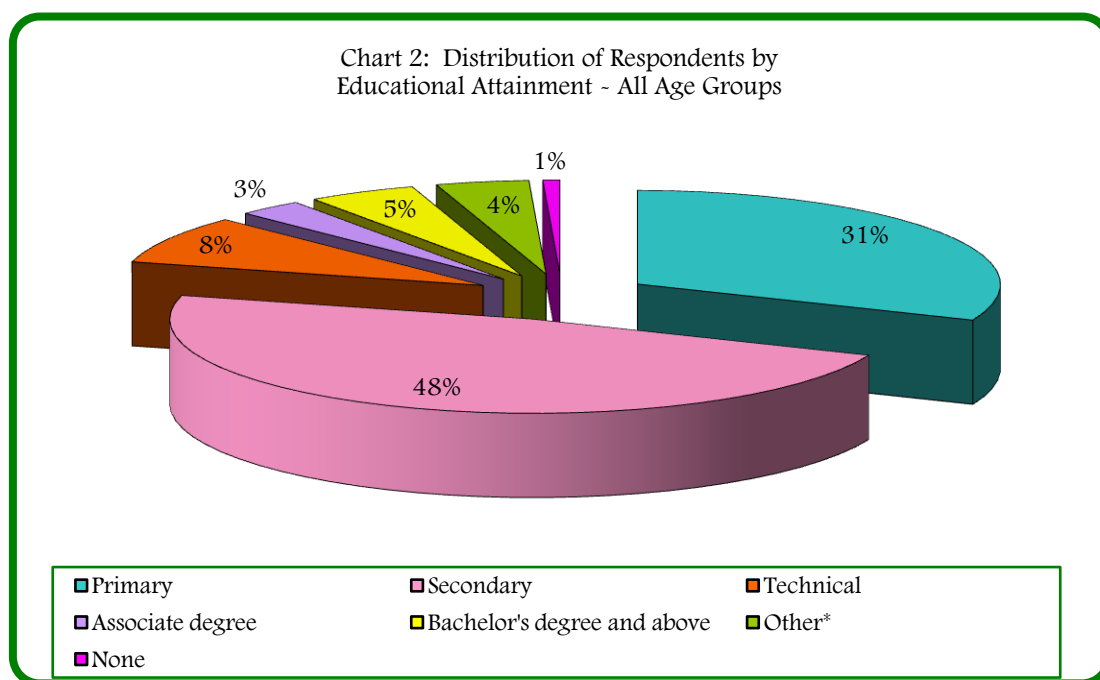
The majority of respondents reported their highest level of educational attainment as secondary (48%), followed by primary education (31%) (Table 2). A further review of the data by age within educational attainment shows the largest proportions with primary education (56%), bachelor's degree and above (30%) and no education (67%) in the 50 years and over age group (Table 2a).

Table 2a: Distribution of Respondents by Age Group within Educational Attainment

Age group (yrs.)	Educational attainment - percentage							
	Total	Primary	Secondary	Technical	Associate degree	Bachelor's degree and above	Other*	None
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Total	100	100	100	100	100	100	100	100
16 ~ 19	10	1	18	7	9	4	3	8
20 ~ 29	20	9	26	26	24	25	21	0
30 ~ 39	21	13	25	29	26	23	24	17
40 ~ 49	18	22	16	20	24	18	18	8
50 and over	30	56	15	19	17	30	33	67

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Chart 2a: Distribution of Respondents by Age Group within Educational Attainment
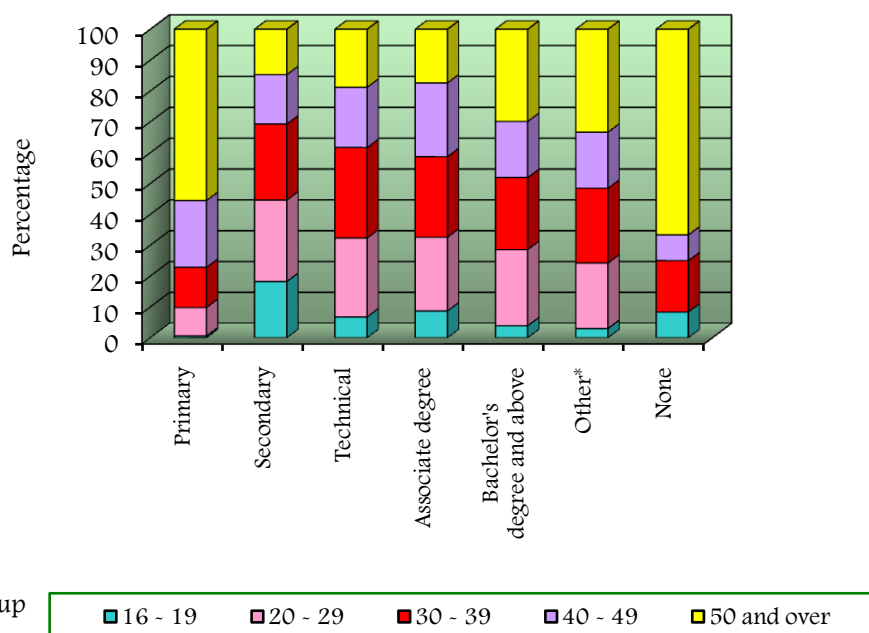
Table 3: Distribution of Respondents by Employment Status within Age Group

Age group (yrs.)	Employment status - percentage						
	Total	Employed	Self-employed	Unemployed	Student	Retired	Home duties
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
All ages	100	45	13	12	7	11	12
16 ~ 19	100	25	2	20	53	0	0
20 ~ 29	100	57	11	17	7	0	8
30 ~ 39	100	59	18	9	1	0	12
40 ~ 49	100	59	18	13	0	1	9
50 and over	100	25	11	8	0	35	21

Chart 3: Distribution of Respondents by Employment Status All Age Groups
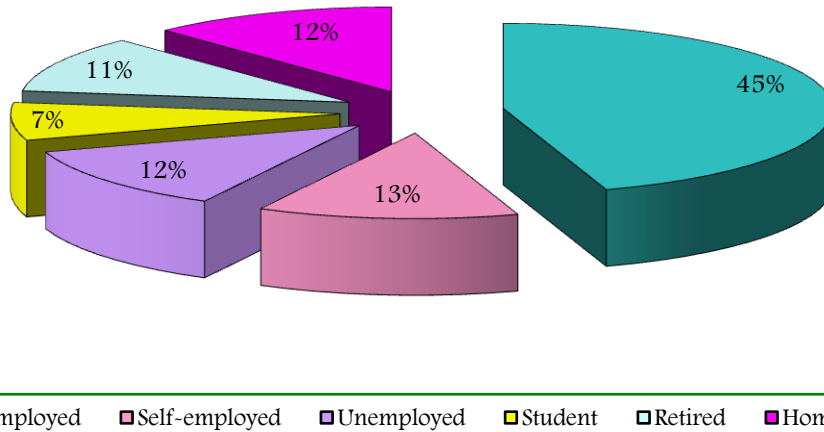
Table 3 shows the distribution of respondents by age and employment status. The majority of respondents (58%) were employed while 12% were unemployed. The highest level of unemployment (20%) was observed in the 16 ~ 19 age group which also reflected the largest proportion of students (53%).

Table 4: Distribution of Respondents by Educational Attainment and
Gross Monthly Income of Household

Educational attainment	Gross monthly income of household - percentage								
	Total	<$2000	$2000 - $4999	$5000 - $9999	$10000 - 14999	$15000 - $19999	$20000 and over	Refused	Do not know
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
All levels	100	25	40	16	4	1	1	8	4
Primary	100	44	39	7	2	0	0	5	3
Secondary	100	19	45	15	3	1	1	9	6
Technical	100	8	38	30	9	2	2	8	4
Associate degree	100	9	24	26	9	13	7	11	2
Bachelor's degree and above	100	0	10	35	18	6	8	19	3
Other*	100	14	30	30	9	3	2	12	0
None	100	92	8	0	0	0	0	0	0

*Commercial

Chart 4: Distribution of Respondents by Gross Monthly Income of Household

Legend:
- <$2000
- $2000 - $4999
- $5000 - $9999
- $10000 - 14999
- $15000 - $19999
- $20000 and over
- Refused
- Do not know
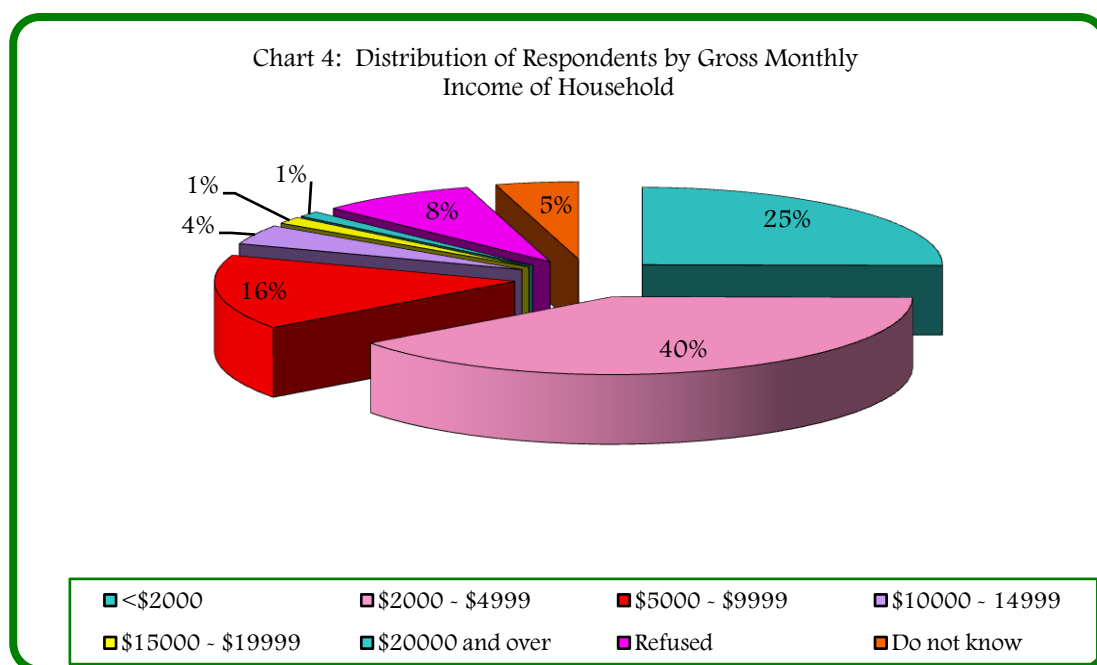
A significant proportion of the sample of respondents (40%) reported gross monthly household incomes in the range of $2,000 - $4,999; one quarter (25%) of the gross monthly household incomes was under $2,000, especially amongst respondents with primary level education (44%) and those with no educational attainment (92%).

Table 5: Interest in Topical Areas
Percentage

Areas	Total	Very interested	Quite interested	A little interested	Not interested
	(1)	(2)	(3)	(4)	(5)
Politics	100	11	9	32	48
Arts and entertainment	100	27	24	28	21
Fashion	100	26	20	28	27
Science	100	21	24	32	23
Sports	100	39	23	23	15
Religion	100	52	24	17	8
Economics	100	29	29	25	18

Chart 5: Interest in Topical Areas
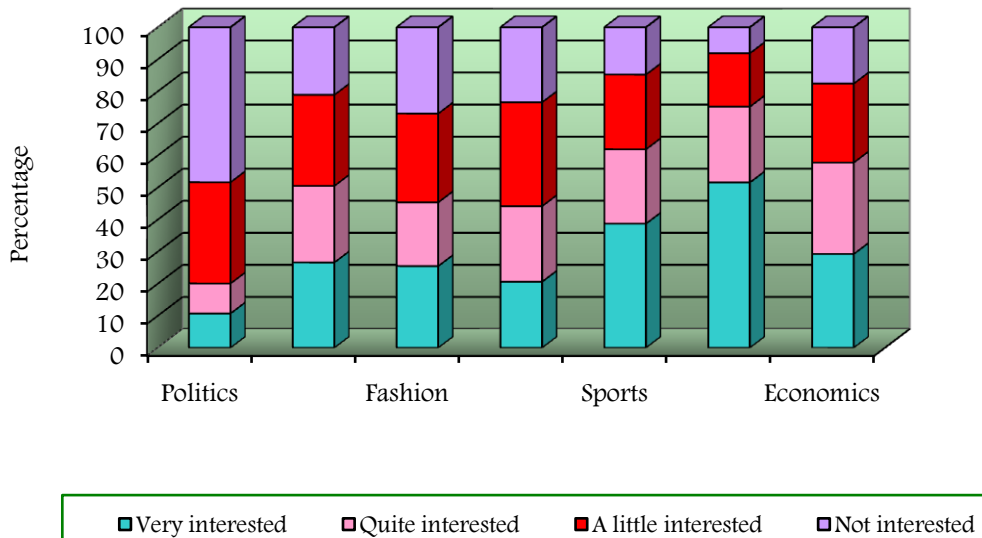
Respondents were asked how interested they were in the above topical areas. Response data reveal a substantial level of interest including, 'very interested' and 'quite interested' in religion (76%), sports (62%) and economics (58%). Forty five percent (45%) of the respondents sampled showed a high level of interest in science while 55% indicated little or no interest. Politics inspired the least degree of interest amongst respondents as 80% were 'a little interested' or 'not interested' in this area.

Table 6: Informed about Science and Technology by Age Group
Percentage

Age group (yrs.)	Total	Very well-informed	Well informed	Informed	Not informed	Informed cols (2)+(3)+(4)
	(1)	(2)	(3)	(4)	(5)	(6)
Total	100	6	14	54	26	74
16 - 19	100	7	27	47	19	81
20 - 29	100	7	16	57	20	80
30 - 39	100	6	14	62	19	81
40 - 49	100	6	11	59	24	76
50 and over	100	4	9	46	41	59

Chart 6: Informed about Science and Technology by Age Group
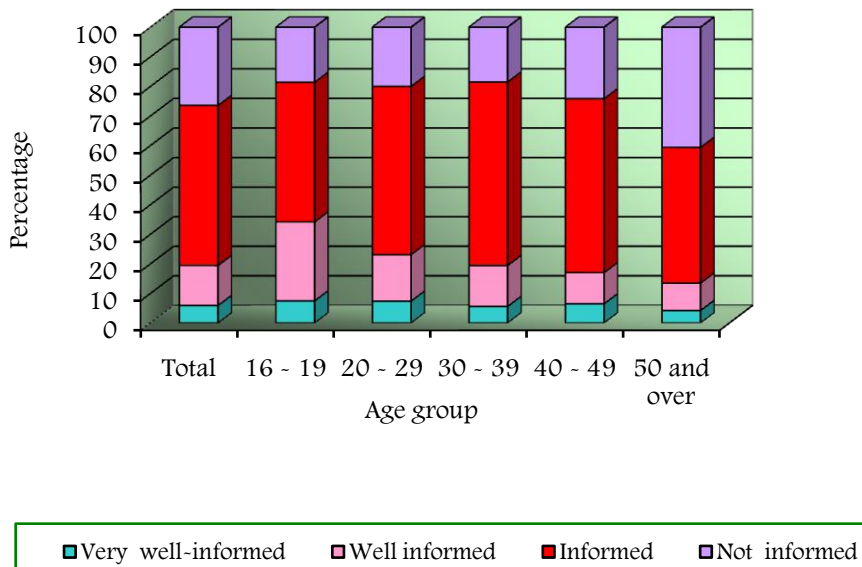
A relatively large proportion of the survey respondents (74%) felt that they were informed with respect to science and technology while one quarter (26%) considered themselves not informed. Within the age groups the highest percentage of respondents (41%) that were 'not informed' was 50 years old and over.

Table 7: Informed about Science and Technology by Educational Attainment
Percentage

Educational attainment	Total	Very well-informed	Well informed	Informed	Not informed	Informed cols. (2)+(3)+(4)
	(1)	(2)	(3)	(4)	(5)	(5)
Total	100	6	14	54	26	74
Primary	100	2	6	45	47	53
Secondary	100	5	14	61	20	80
Technical	100	9	24	56	11	89
Associate degree	100	17	28	48	7	93
Bachelor's degree and above	100	27	34	36	3	97
Other*	100	6	14	65	15	85
None	100	0	0	33	67	33

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Table 7: Informed about Science and Technology by Educational Attainment
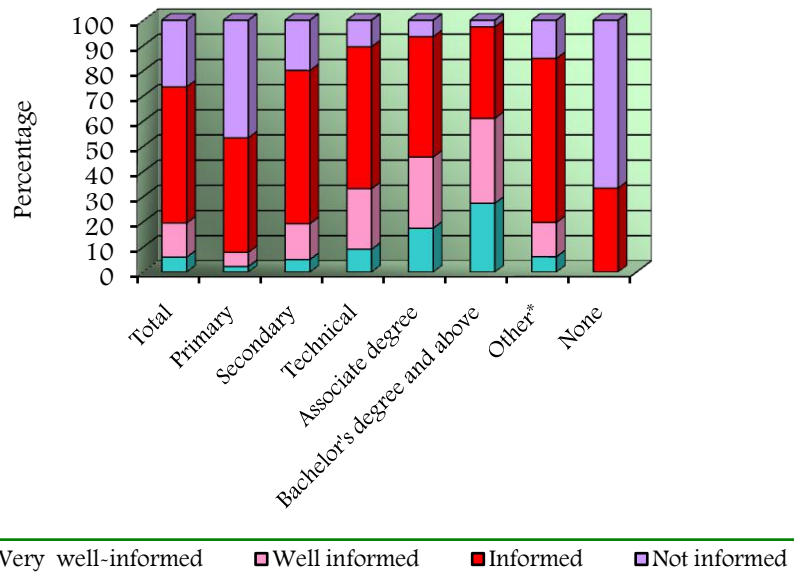
The survey results show that the proportion of respondents who considered themselves informed about science and technology increased in relationship to educational attainment. Fifty three percent (53%) of the sample with primary education considered themselves informed with respect to science and technology compared with 97% with a bachelor's degree and above.

Table 8: Reason for Finding out about Scientific Issues by Age Group

Age group (yrs.)	Reason - percentage						
	Total	Personal interest	To keep abreast of important developments	To make personal decisions	These are controversial issues for society	I need to do this for my job	Do not find out
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Total	100	52	30	6	1	0	11
16 - 19	100	54	29	11	2	1	2
20 - 29	100	53	30	7	2	0	7
30 - 39	100	54	31	7	1	0	6
40 - 49	100	50	31	6	0	0	12
50 and over	100	50	28	4	0	0	18

Chart 8: Reason for Finding out about Scientific Issues by Age Group
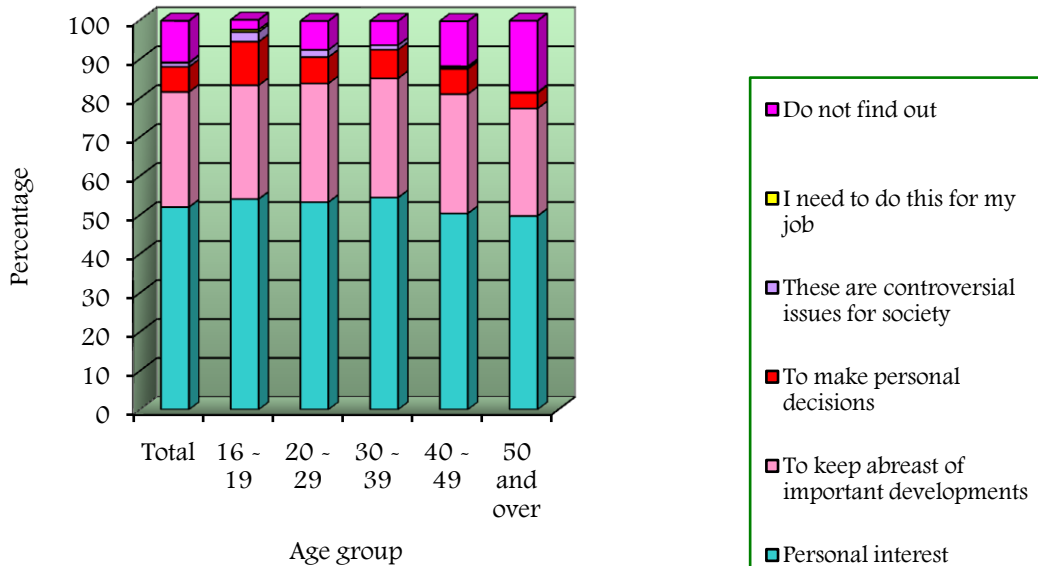
Most respondents (52%) stated that 'personal interest' was the main reason for seeking information about scientific issues, followed by, 'to keep abreast of important developments' (30%). This order of response was recorded for all age groups.

Table 9: Interest in Areas of Science and Technology

Area	Level of interest - percentage					
	Total	Very interested	Quite interested	A little interested	Not interested	Highly interested cols (2) + (3)
	(1)	(2)	(3)	(4)	(5)	(6)
Medicine and health	100	61	21	12	5	82
Archaeology	100	5	9	27	59	14
Environment	100	47	32	16	6	79
Computers and IT	100	35	22	19	23	57
Astronomy and space	100	8	11	26	55	19
Geology	100	8	12	25	55	20
Engineering	100	15	13	28	44	28
Agriculture	100	33	24	28	15	57
Psychology	100	21	19	25	35	40

Chart 9: Interest in Areas of Science and Technology
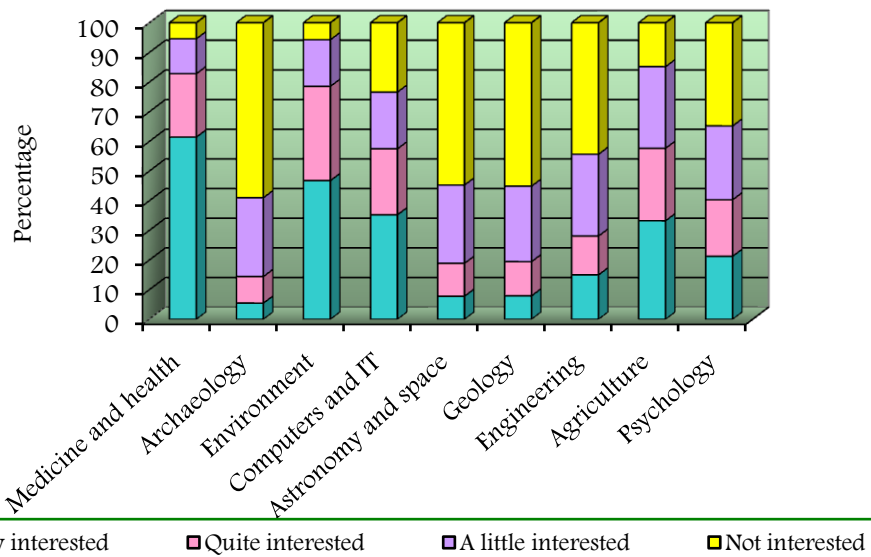
The areas that inspired a high level of interest were: Medicine and health (82%), Environment (79%), Computers and IT (57%) and Agriculture (57%). A significant proportion of the respondents indicated little or no interest in Archaeology (86%), Astronomy and space (81%), Geology (80%), and Psychology (60%).

Table 10: Impact of Scientific Knowledge on Decision Making by Age Group

Age group(yrs.)	Improvement - percentage			
	Total	Yes	No	Do not know
	(1)	(2)	(3)	(4)
Total	100	91	8	2
16 ~ 19	100	91	9	1
20 ~ 29	100	91	8	1
30 ~ 39	100	93	6	1
40 ~ 49	100	91	8	1
50 and over	100	89	8	3

Chart 10: Impact of Scientific Knowledge on Decision Making by Age Group
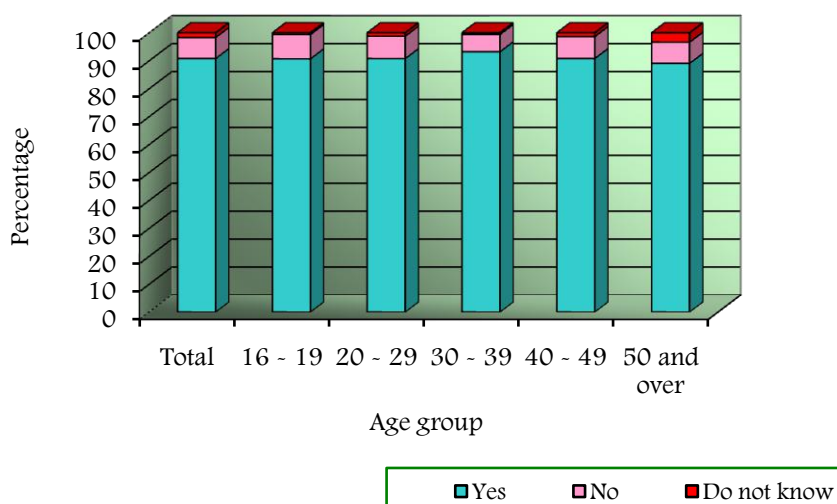
The majority of respondents (91%) was of the opinion that scientific knowledge could improve one's ability to make decisions.

Table 11: Effect of Science and Technology on Work Opportunities by Employment Status

Employment status	Change - percentage				
	Total	Change positively	Change negatively	No change	Do not know
	(1)	(2)	(3)	(4)	(5)
Total	100	86	5	7	2
Employed	100	88	5	6	1
Self-employed	100	88	4	6	2
Unemployed	100	82	9	9	1
Student	100	89	3	8	0
Retired	100	81	6	8	5
Home duties	100	82	4	9	4

Chart 11: Effect of Science and Technology on Work Opportunities by Employment Status
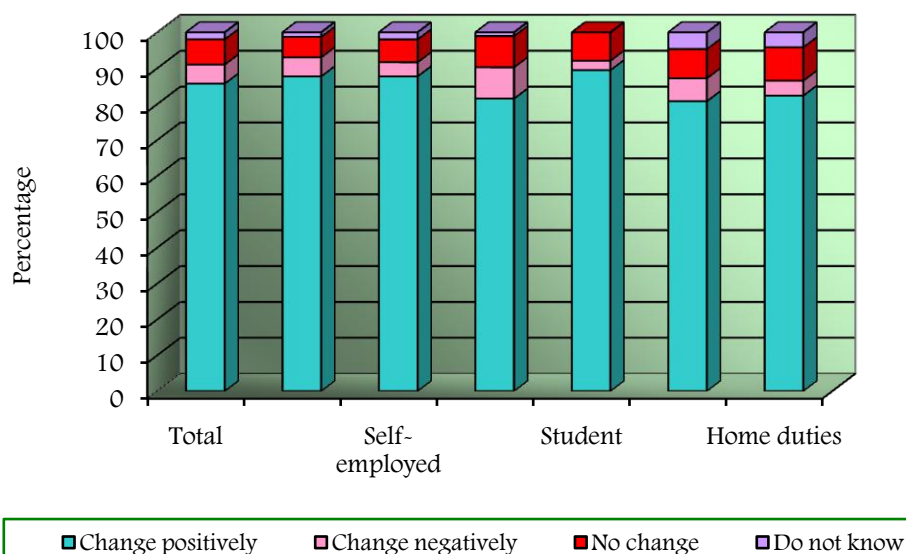
Over four fifths (86%) of the total sample of respondents by employment status agreed that the application of science and technology would change work opportunities positively; less than 10% were of the contrary opinion or that science and technology application would provide no change.

Table 12: Who Benefits from Scientific Developments by Educational Attainment

Educational attainment	Benefit of scientific developments - percentage					
	Total	Everyone	Almost everyone	Only a few individuals	No one	Everyone cols (2) + (3)
	(1)	(2)	(3)	(4)	(5)	(6)
Total	100	53	30	17	1	83
Primary	100	41	34	24	1	75
Secondary	100	53	31	15	1	84
Technical	100	72	17	11	0	89
Associate degree	100	72	22	7	0	94
Bachelor's degree and above	100	73	25	3	0	98
Other*	100	70	26	5	0	96
None	100	17	42	42	0	59

*Commercial

Chart 12: Who Benefits from Scientific Developments by Educational Attainment
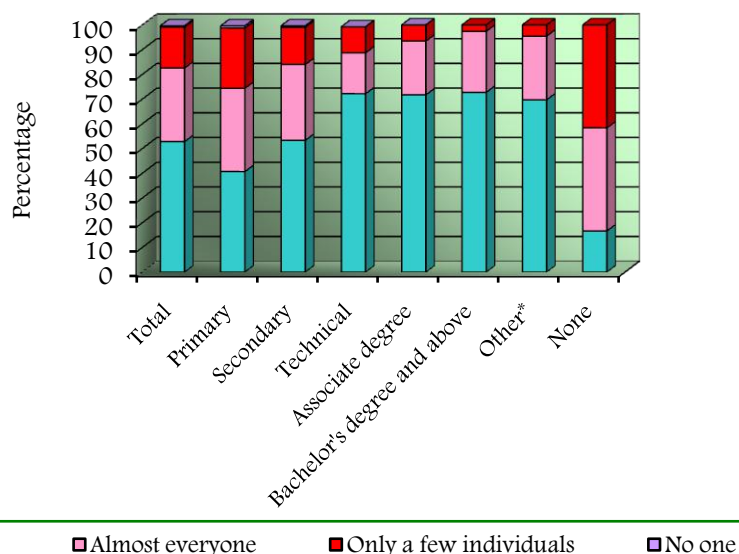
The survey results reveal that three quarters (75%) and more of the respondents with educational attainment indicated that scientific developments were beneficial to everyone. A substantial percentage (42%) of those with no educational attainment stated that the benefits of scientific developments would accrue to only a few individuals.

Table 13: Statements on Science and Technology
Percentage

Statement	Total	Strongly Agree	Agree	Disagree	Strongly Disagree	Do not know	Agree cols (2) + (3)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1 The world of science cannot be understood by ordinary people.	100	9	35	46	9	1	44
2 Scientific and technological advances will help cure illnesses such as AIDS, cancer, etc.	100	32	50	14	3	2	82
3 The benefits of science and technology are greater than the negative effects.	100	21	60	12	2	4	81
4 Science is the best way to get accurate knowledge about the world.	100	26	52	19	2	2	78
5 Because of technological development science will dehumanise life.	100	10	36	44	6	4	46
6 Science and technology cause problems for humankind.	100	11	46	35	6	3	57
7 The government should increase investment in science and technology.	100	30	53	13	2	2	83
8 Society should use expenditure for science in more "urgent" activities.	100	22	51	22	3	3	73

Chart 13: Statements on Science and Technology
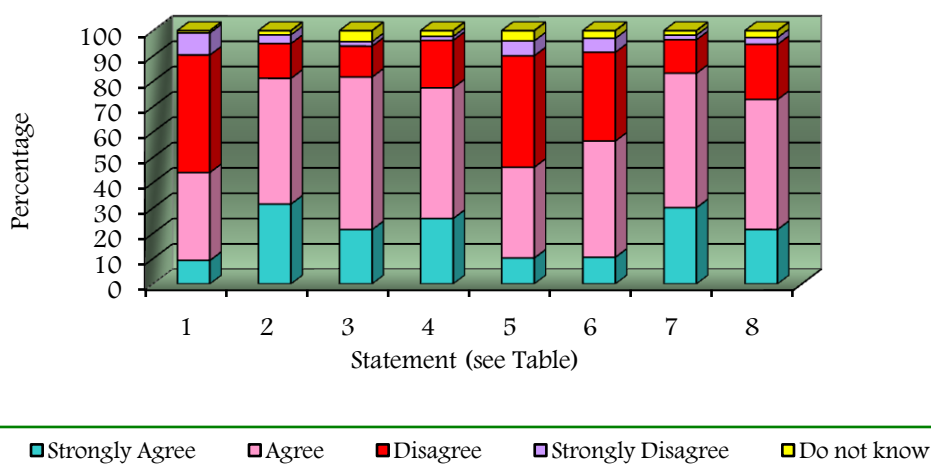
An analysis of the variations in responses to the series of statements above indicates significant agreement on the positive impact of science and technology. The majority of respondents agreed with the statements: 'the government should increase investment in science and technology' (83%), 'scientific and technological advances will help cure illnesses such as AIDS, cancer, etc' (82%), 'the benefits of science and technology are greater than the negative effects' (81%) and 'science is the best way to get accurate knowledge about the world' (78%). On the other hand, a substantial percentage agreed that, 'society should use expenditure for science in more urgent activities' (73%), but were more divided on the statements 'science and technology cause problems for humankind' (57%), 'because of technological development science will dehumanise life' (46%) and 'the world of science cannot be understood by ordinary people' (44%).

Statement		Total	True	False	Do not know
		(1)	(2)	(3)	(4)
1	It is the mother's gene that decides whether the baby is a boy or a girl.	100	19	53	28
2	Antibiotics kill both viruses and bacteria.	100	54	30	16
3	The continents have changed their positions over long periods of time.	100	58	16	26
4	The centre of the earth is very hot.	100	79	5	16
5	Light travels faster than sound.	100	79	11	11
6	Genetically modified crops are the only crops that have genes.	100	14	41	45
7	Electrons are smaller than atoms.	100	28	21	51
8	Plants produce oxygen.	100	87	7	6
9	All radioactivity is produced by man.	100	39	35	25
10	The ozone layer absorbs ultraviolet radiation.	100	59	6	34
11	White blood cells help the body fight infection and other diseases.	100	72	9	20
12	High blood pressure is also called hypertension.	100	89	1	10

Chart 14: Knowledge of Science
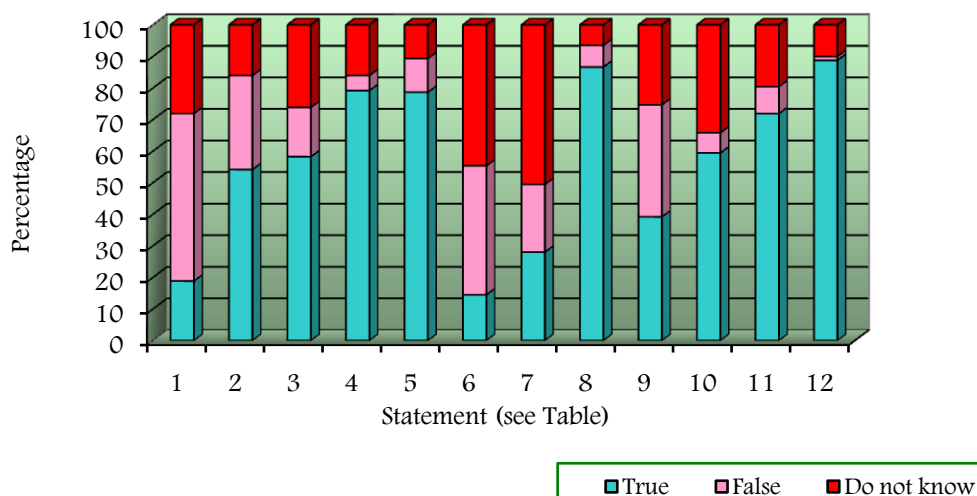
The statements above tested the respondents' knowledge of science and technology. Correct responses of over seventy percent were recorded for the following five statements: 'high blood pressure is also called hypertension' (89%); 'plants produce oxygen' (87%); 'the centre of the earth is very hot' (79%); 'light travels faster than sound' (79%); and 'white blood cells help fight infection and other diseases' (72%). Over one half of the respondents knew that: 'the ozone layer absorbs ultraviolet radiation' (59%); 'the continents have changed their positions over long periods of time' (58%); and it was not the mother's gene that decided the baby's gender (53%).   Less than a half of the respondents answered the following statements correctly: 'genetically modified crops are the only crops that have genes' (41%); 'all radioactivity is produced by man' (35%); 'antibiotics kill both viruses and bacteria' (30%) and 'electrons are smaller than atoms' (28%).

The cumulative frequency of the scores of the twelve statements shows that 2%, 29% and 75% of the sample obtained 100%, 75% and above, and 50% and above of the correct responses respectively.

Table 15: Source of Information on Science by Age Group

Age group (yrs.)	Source of information on science - percentage							
	Total	Newspapers	Books	Magazines	Radio	Television	Internet	Other
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Total	100	13	19	3	4	43	10	7
16 - 19	100	6	27	2	0	34	20	11
20 - 29	100	12	21	2	2	42	15	5
30 - 39	100	11	19	4	4	45	12	4
40 - 49	100	14	16	3	5	48	7	6
50 and over	100	16	18	2	7	43	5	9

Chart 15: Source of Information on Science by Age Group
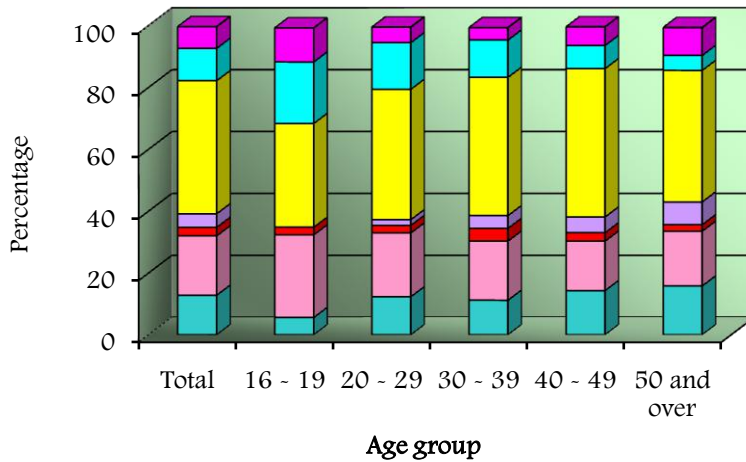
When asked about the source of most of their information on science, a significant proportion of the survey participants stated 'television' (43%), followed by 'books' (19%) and 'newspapers' (13%).

Table 16: Enough Media Information on Science by Age Group

Age group (yrs.)	Enough media information on science - percentage			
	Total	Yes	No	Do not know
	(1)	(2)	(3)	(4)
Total	100	14	83	3
16 ~ 19	100	11	88	1
20 ~ 29	100	13	86	0
30 ~ 39	100	17	81	2
40 ~ 49	100	14	83	2
50 and over	100	14	80	5

Chart 16: Enough Media Information on Science by Age Group
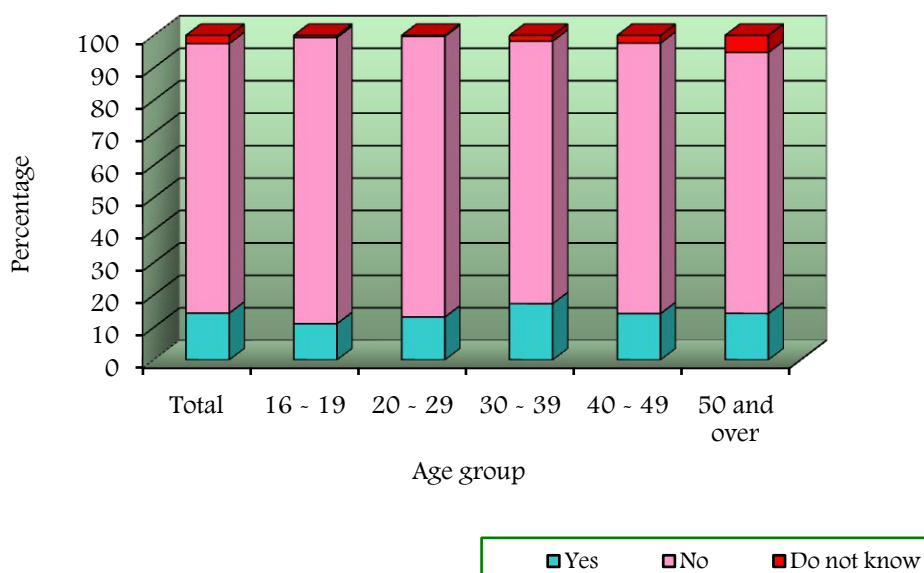
The majority of respondents (83%) was of the opinion that the media did not provide enough information on science; only 14% agreed.

Table 17: Reading of Newspapers by Age Group

Age group(yrs.)	Read newspapers - percentage					
	Total	Daily	Almost daily	Once a week	Seldom	Never
	(1)	(2)	(3)	(4)	(5)	(6)
Total	100	40	28	10	17	5
16 - 19	100	34	28	15	22	1
20 - 29	100	35	34	11	18	2
30 - 39	100	41	33	9	14	3
40 - 49	100	46	26	9	16	3
50 and over	100	41	23	9	17	9

Chart 17: Reading of Newspapers by Age Group
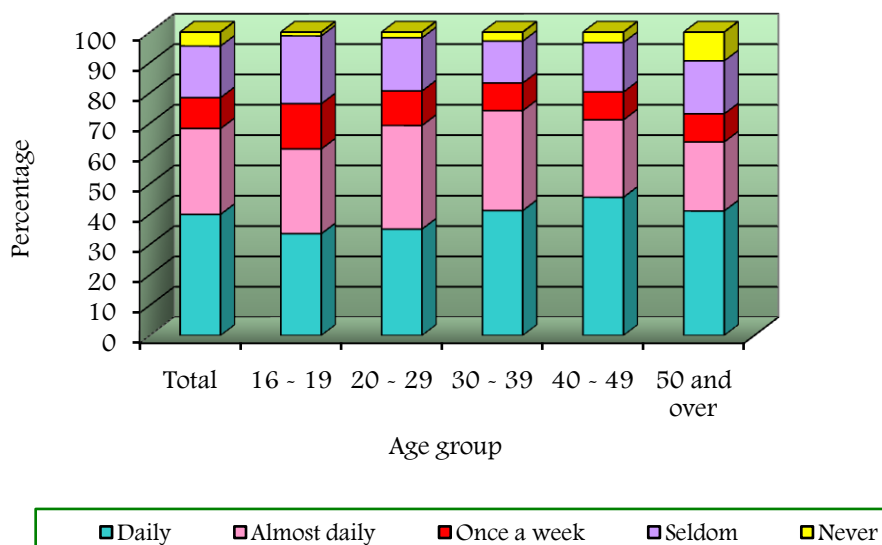
Table 17 shows that of the total respondents, two-thirds (68%) read the newspapers 'daily' or 'almost daily' while 27% were occasional 'once a week' or 'seldom' readers.

Table 18: Reading of Newspapers by Educational Attainment

Educational attainment	Reading the newspapers - percentage					
	Total	Daily	Almost daily	Once a week	Seldom	Never
	(1)	(2)	(3)	(4)	(5)	(6)
Total	100	40	28	10	17	5
Primary	100	29	24	13	23	10
Secondary	100	42	31	10	16	1
Technical	100	45	31	10	11	3
Associate degree	100	57	35	4	4	0
Bachelor's degree and above	100	61	25	8	6	0
Other*	100	55	29	5	12	0
None	100	17	0	0	17	67

*Commercial

Chart 18: Reading of Newspapers by Educational Attainment
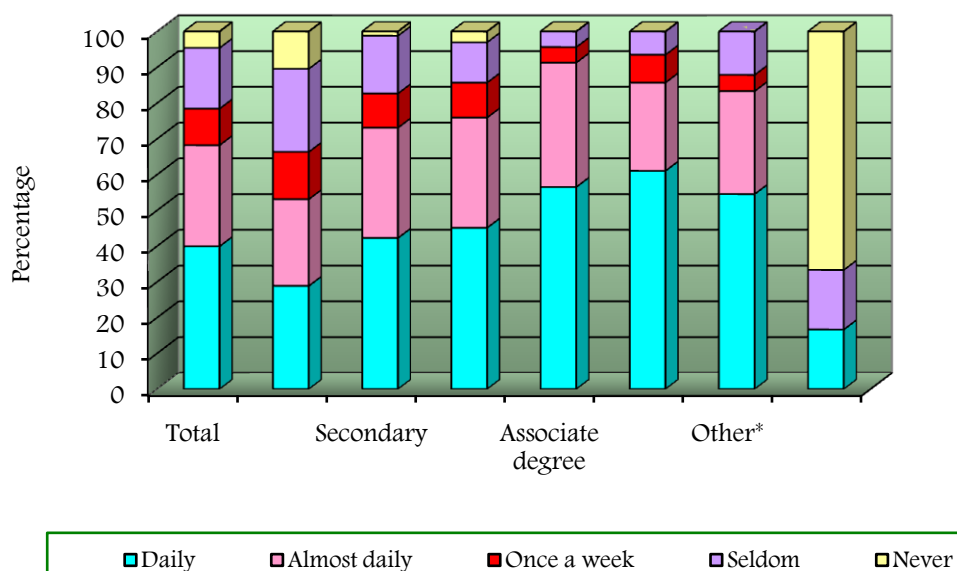
The survey results reveal that the majority of respondents with educational attainment read the newspapers 'daily' or 'almost daily'. A substantial percentage (67%) of those with no educational attainment never read the newspapers.

Table 19: Listening to Radio by Age Group

Age group (yrs.)	Listening to radio - percentage					
	Total	Three or more hours daily	Less than three hours daily	Some days in the week	Seldom	Never
	(1)	(2)	(3)	(4)	(5)	(6)
Total	100	50	25	13	10	2
16 ~ 19	100	52	20	16	10	1
20 ~ 29	100	54	24	14	6	2
30 ~ 39	100	51	25	15	8	1
40 ~ 49	100	53	24	9	11	2
50 and over	100	45	27	12	13	3

Chart 19: Listening to Radio by Age Group
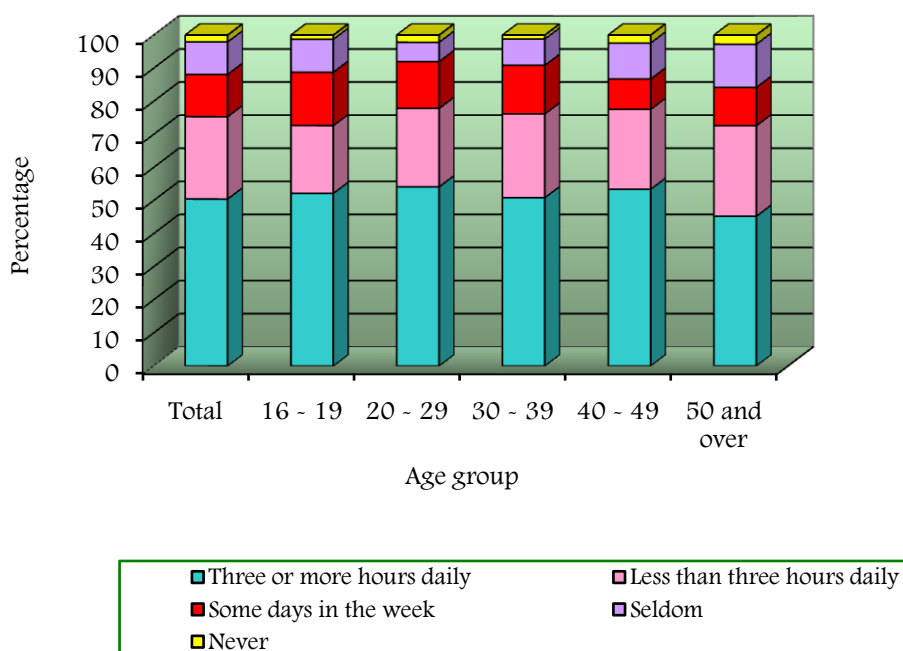
Fifty percent (50%) of the total respondents indicated that they listened to the radio 'three or more hours daily' and one quarter (25%) listened 'less than three hours daily'.

Table 20: Television Viewing by Age Group

Age group (yrs.)	Television viewing - percentage					
	Total	Three or more hours daily	Less than three hours daily	Some days in the week	Seldom	Never
	(1)	(2)	(3)	(4)	(5)	(6)
Total	100	41	35	12	9	3
16 - 19	100	47	22	20	9	1
20 - 29	100	45	37	11	6	1
30 - 39	100	41	35	12	9	2
40 - 49	100	40	35	11	12	3
50 and over	100	38	38	10	10	4

Chart 20: Television Viewing by Age Group
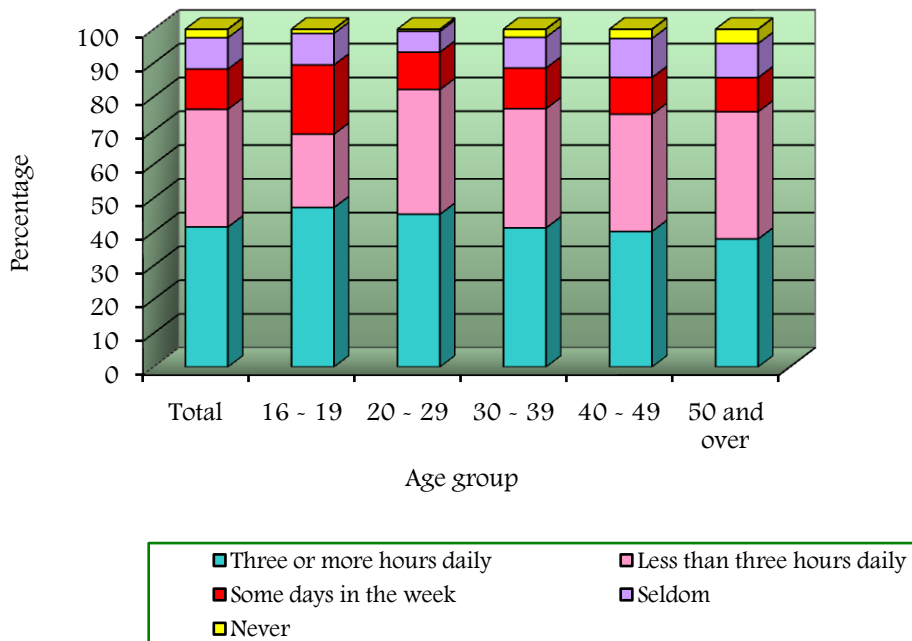
A substantial proportion of the sample of respondents (41%) reported television viewing of 'three or more hours daily' and one third (35%) stated that they watched television, 'less than three hours daily'. Less than five percent of the respondents (3%) never watched television (Table 20).

Table 21: Accessing Scientific Information by Age Group and Type of Media

Age group (yrs.)	Media type	Accessing scientific information - percentage				
		Total	Regularly	Once in a while	Only when I find something interesting	Never
		(1)	(2)	(3)	(4)	(5)
Total	Newspaper	100	15	19	43	23
	Radio	100	4	18	33	45
	Television	100	24	26	35	15
	Internet	100	7	8	15	70
16-19	Newspaper	100	4	19	28	48
	Radio	100	4	19	27	48
	Television	100	30	26	31	13
	Internet	100	12	12	29	47
20 - 29	Newspaper	100	17	19	45	19
	Radio	100	6	19	28	47
	Television	100	28	26	34	12
	Internet	100	10	11	21	58
30 - 39	Newspaper	100	14	24	46	16
	Radio	100	4	16	33	46
	Television	100	26	28	36	10
	Internet	100	8	8	17	67
40 - 49	Newspaper	100	16	19	42	23
	Radio	100	3	20	34	43
	Television	100	28	28	31	12
	Internet	100	6	6	11	78
50 and over	Newspaper	100	13	16	41	30
	Radio	100	4	17	38	42
	Television	100	17	23	38	22
	Internet	100	3	5	8	84

Table 21 presents a summary of the frequencies with which respondents accessed scientific information from various types of media. Television was identified as the main source of scientific information by all age groups (Table 21). Of the respondents engaged in television viewing one quarter in each case accessed scientific information 'regularly' (24%) and 'once in a while' (26%); one third (35%) did so only when they found some area of interest. Seventy percent (70%) of the sample never used the internet for scientific information. By educational attainment, however, one third of the respondents with associate degree (37%) and bachelor's degree (34%) used the internet regularly for scientific information (Table 22).

Chart 21: Accessing Scientific Information by Media Type - All Age Groups

☐ Regularly ☐ Once in a while ☐ Only when I find something interesting ☐ Never
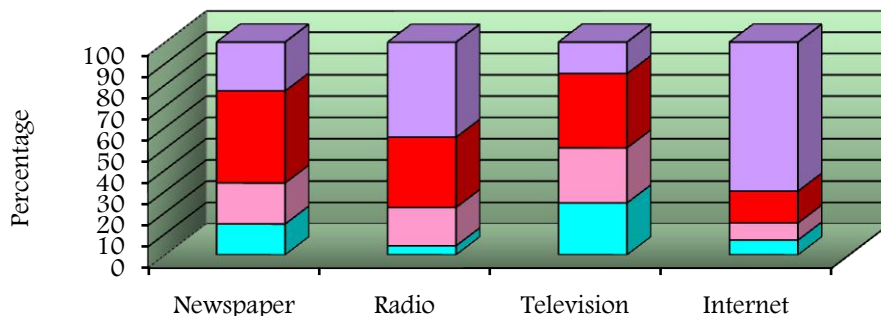
Chart 21a: Accessing Scientific Information by Newspaper and Age Group

☐ Regularly ☐ Once in a while ☐ Only when I find something interesting ☐ Never

Chart 21b: Accessing Scientific Information by Radio and Age Group

☐ Regularly ☐ Once in a while ☐ Only when I find something interesting ☐ Never
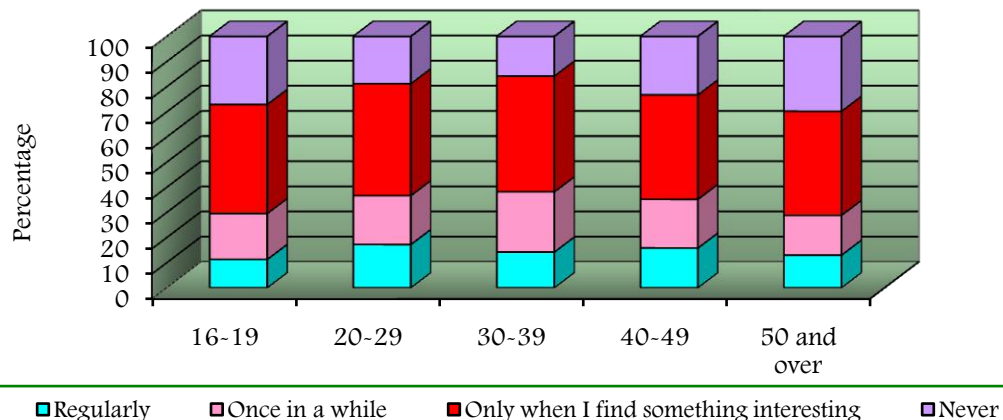
Chart 21c: Accessing Scientific Information by Television and Age Group

Percentage

| 16-19 | 20-29 | 30-39 | 40-49 | 50 and over |

■Regularly   ■Once in a while   ■Only when I find something interesting   ■Never
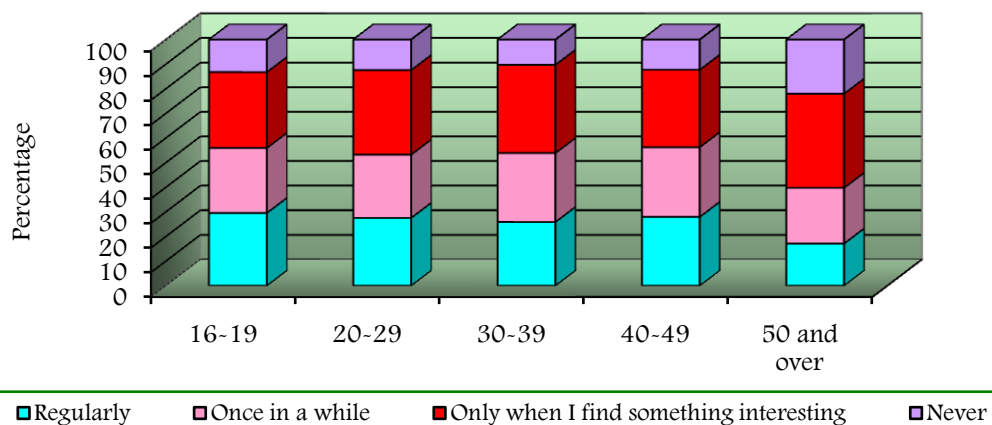
Chart 21d: Accessing Scientific Information by Internet and Age Group

Percentage

| 16-19 | 20-29 | 30-39 | 40-49 | 50 and over |

■Regularly   ■Once in a while   ■Only when I find something interesting   ■Never

Table 22: Accessing Scientific Information by Educational Attainment and Type of Media

Educational attainment	Media type	Accessing scientific information - percentage				
		Total	Regularly	Once in a while	Only when I find something interesting	Never
		(1)	(2)	(3)	(4)	(5)
Total	Newspaper	100	15	19	43	23
	Radio	100	4	18	33	45
	Television	100	24	26	35	15
	Internet	100	7	8	15	70
Primary	Newspaper	100	6	17	38	38
	Radio	100	3	15	36	45
	Television	100	14	24	39	23
	Internet	100	1	2	4	93
Secondary	Newspaper	100	16	21	45	18
	Radio	100	4	19	32	45
	Television	100	27	27	33	13
	Internet	100	6	9	17	68
Technical	Newspaper	100	21	20	43	16
	Radio	100	5	21	29	45
	Television	100	38	26	28	8
	Internet	100	11	13	29	47
Associate degree	Newspaper	100	28	17	48	7
	Radio	100	7	17	26	50
	Television	100	26	30	43	0
	Internet	100	37	15	24	24
Bachelor's degree	Newspaper	100	31	13	55	1
	Radio	100	11	17	29	43
	Television	100	38	25	35	3
	Internet	100	34	17	31	18
Other*	Newspaper	100	12	23	47	18
	Radio	100	3	23	35	38
	Television	100	30	27	35	8
	Internet	100	14	6	26	55
None	Newspaper	100	0	0	25	75
	Radio	100	9	18	36	36
	Television	100	17	8	25	50
	Internet	100	0	0	0	0

*Commercial

Chart 22: Accessing Scientific Information by Media Type
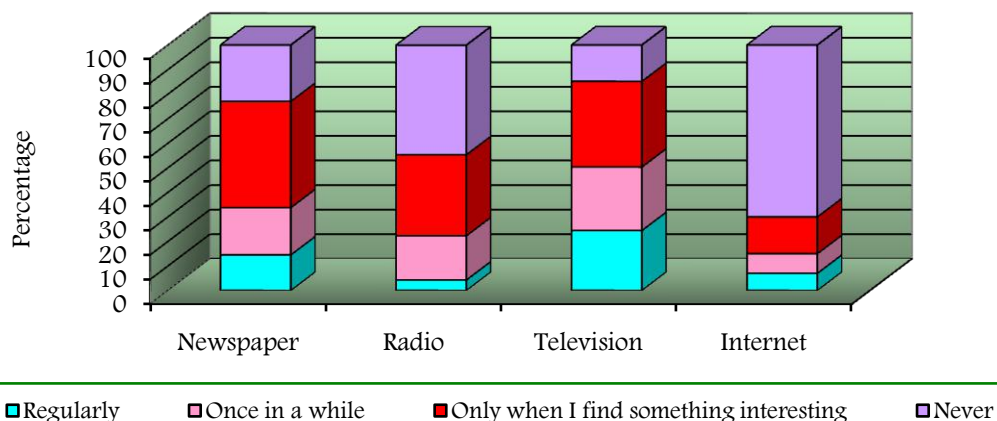
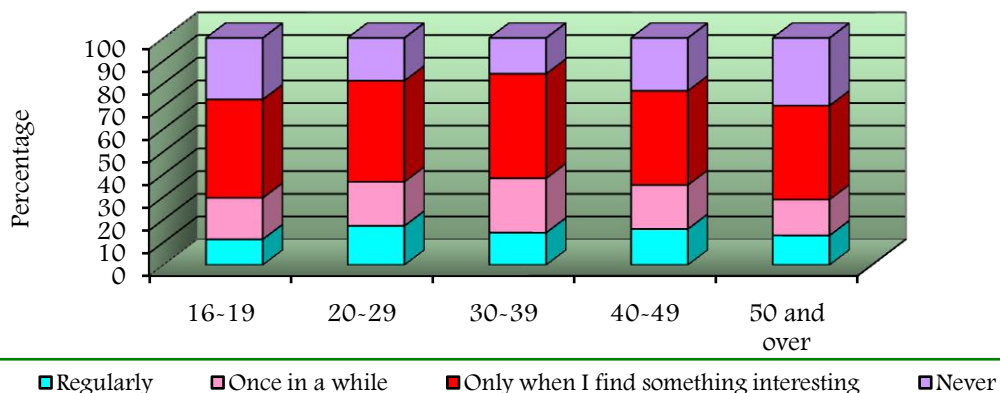Chart 22a: Accessing Scientific Information by Newspaper and Educational Attainment
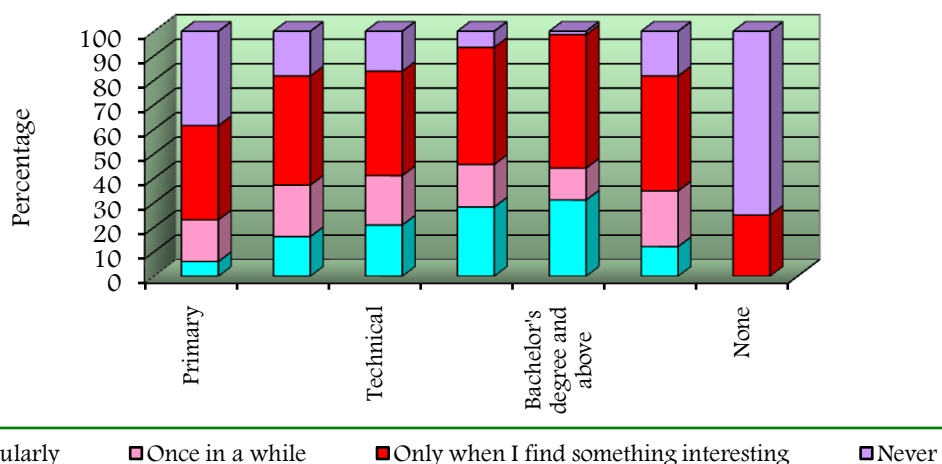
Chart 22b: Accessing Scientific Information by Radio and Educational Attainment

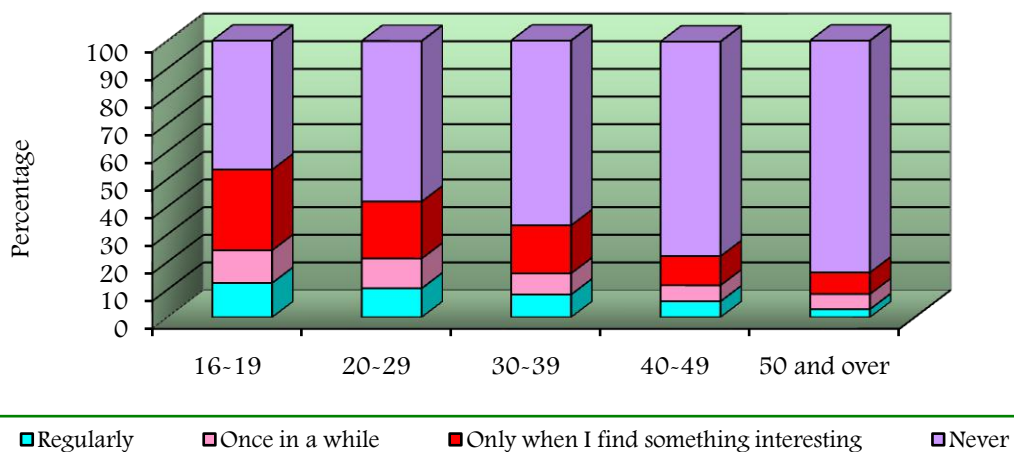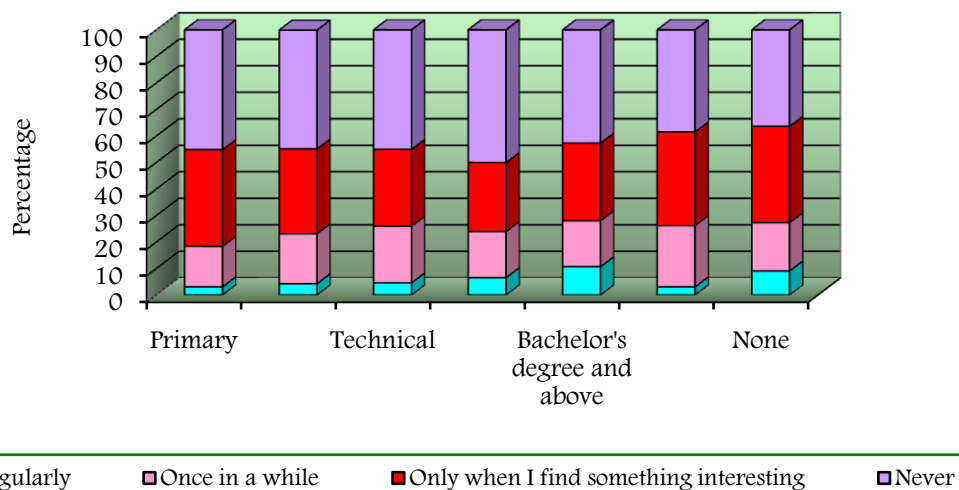## Chart 22c: Accessing Scientific Information by Television and Educational Attainment

Legend: ▪ Regularly ▪ Once in a while ▪ Only when I find something interesting ▪ Never
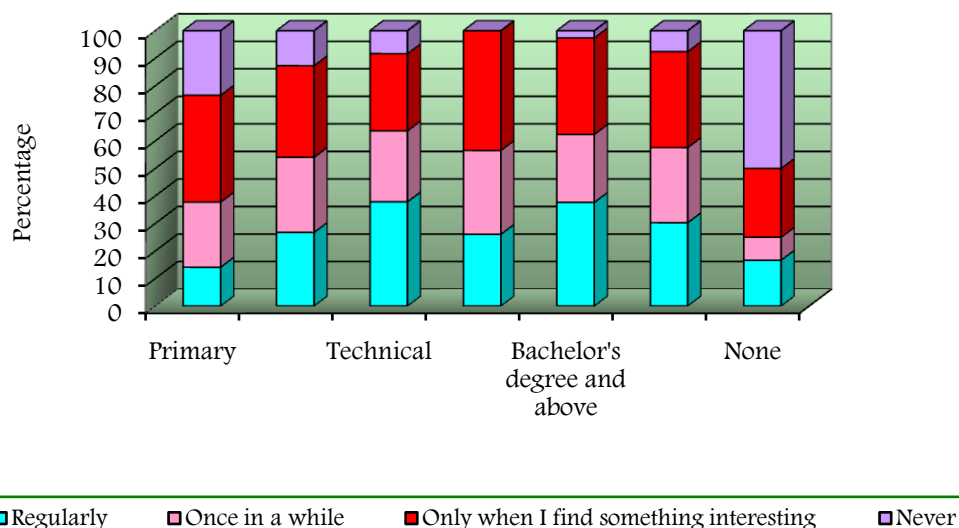
Chart 22d: Accessing Scientific Information by Internet and Educational Attainment

Legend: ▪ Regularly ▪ Once in a while ▪ Only when I find something interesting ▪ Never
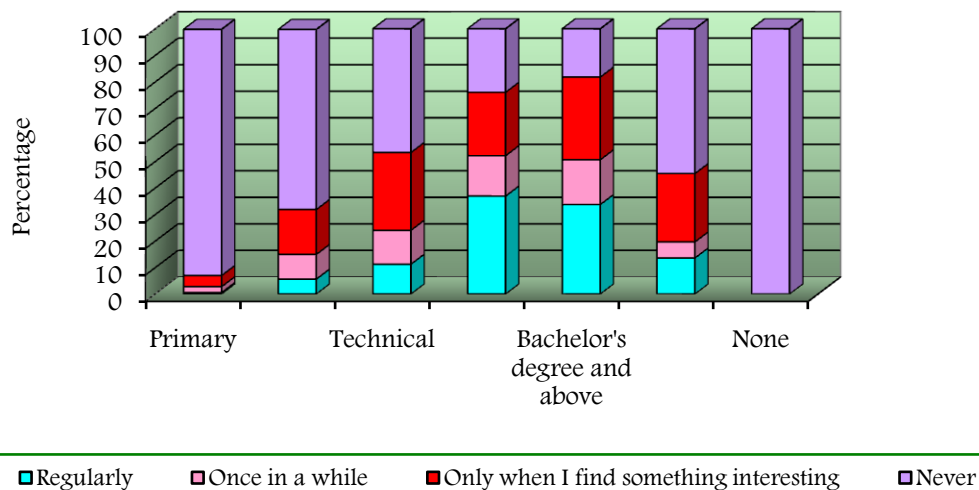
Table 23: Reading of Books on Science by Age Group

Age group (yrs.)	Reading books on science - percentage		
	Total	Yes	No
	(1)	(2)	(3)
Total	100	43	57
16 - 19	100	56	44
20 - 29	100	50	50
30 - 39	100	46	54
40 - 49	100	39	61
50 and over	100	33	67

Chart 23: Reading of Books on Science by Age Group
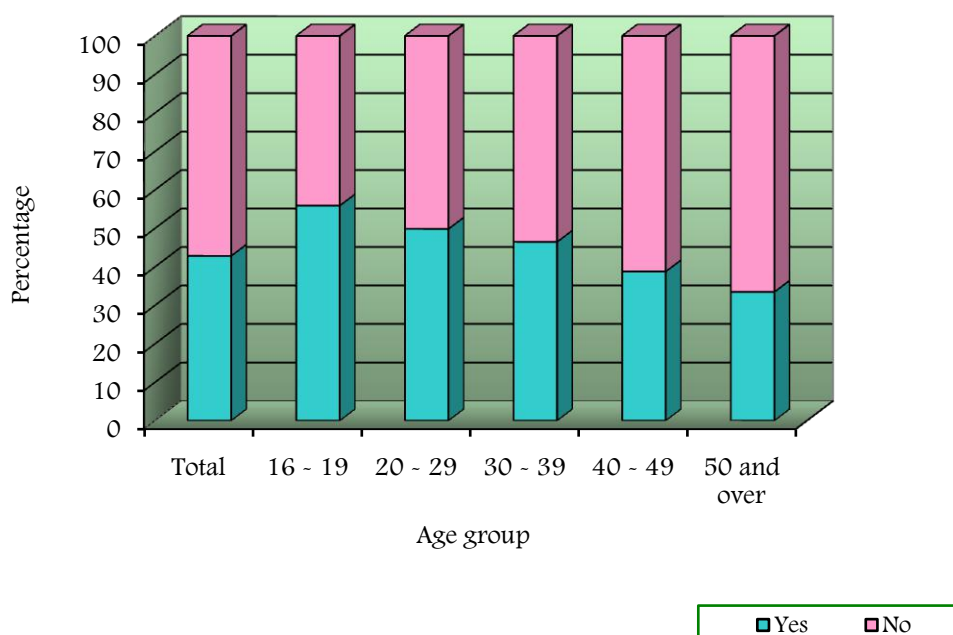
The above table shows that less than half of the sample of respondents (43%) read books on science. The highest percentage of respondents (56%) that read books on science was observed in the 16-19 age group which was also the age group with the largest proportion of students (Table 3). The 50 years and over age cohort had the highest percentage of survey respondents (30%) (Table 1), but only one third (33%) read books on science. It is important to note that the data reveal an inverse relationship between the age cohorts and the proportion of respondents that read books on science.

Table 24: Reading of Books on Science by Educational Attainment

Educational attainment	Reading of books on science		
	Total	Yes	No
	(1)	(2)	(3)
Total	100	43	57
Primary	100	21	79
Secondary	100	48	52
Technical	100	61	39
Associate degree	100	70	30
Bachelor's degree and above	100	75	25
Other*	100	56	44
None	100	0	100

*Commercial

Chart 24: Reading of Book on Science by Educational Attainment
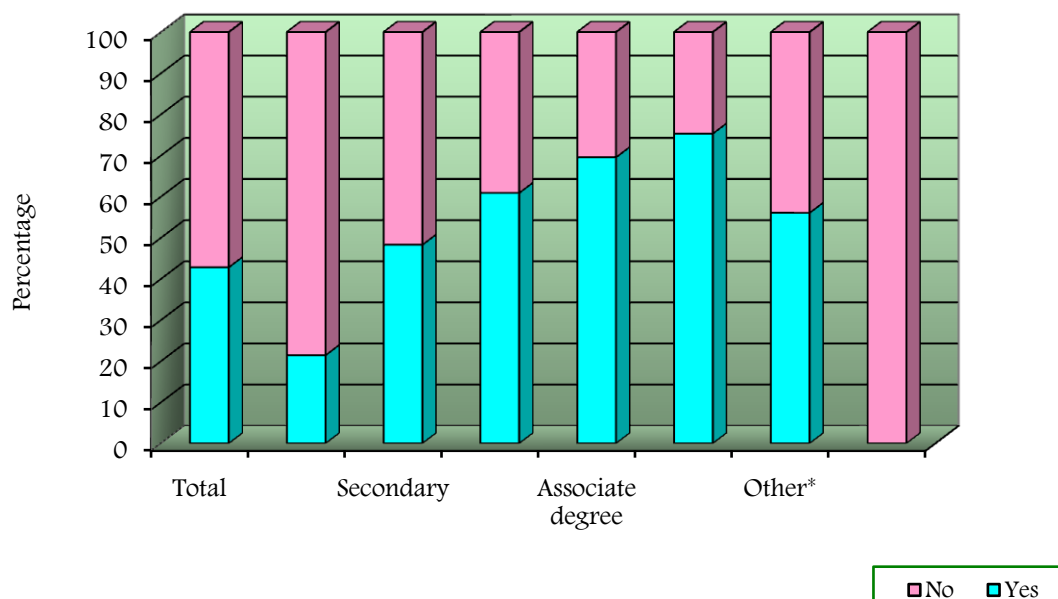
Table 24 shows that the proportion of respondents that read books on science increased in relation to educational attainment. One fifth of the respondents (21%) with primary education read books on science compared with seventy five percent (75%) with bachelor's degree and above.

Table 25: Reading of Science Magazines by Age Group

Age group (yrs.)	Reading of science magazines - percentage				
	Total	Regularly	Once in a while	I used to	Never
	(1)	(2)	(3)	(4)	(5)
Total	100	6	24	9	61
16 - 19	100	4	22	12	61
20 - 29	100	7	27	9	58
30 - 39	100	7	31	7	55
40 - 49	100	6	24	9	60
50 and over	100	5	18	8	69

Chart 25: Reading of Science Magazines by Age Group
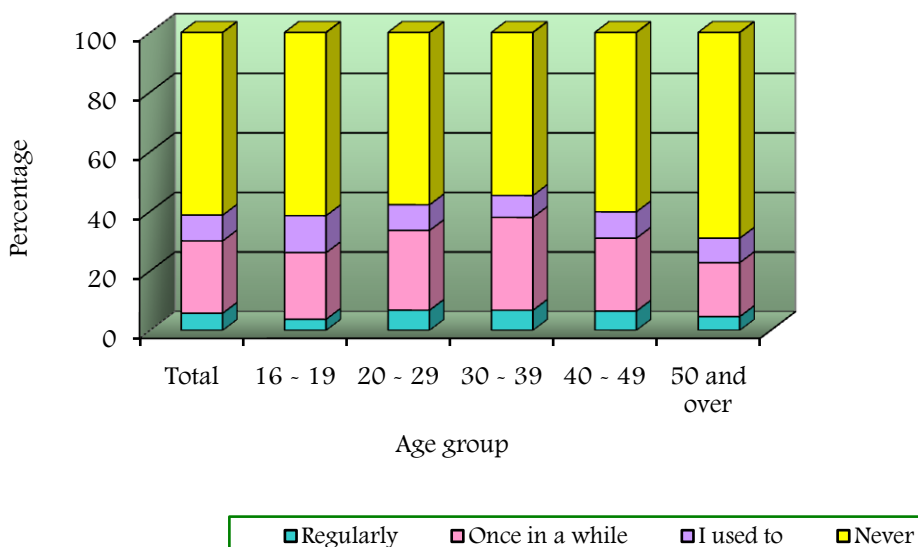
A substantial percentage of the respondents (61%) never read science magazines. Approximately one quarter (24%) indicated that they read science magazines 'once in a while' and only 6% read them 'regularly'. National Geographic was identified as the most widely read science magazine.

Table 26: Quality of Science and Mathematics Education in Schools by Age Group

Age (yrs.)	Quality of mathematics and science education - percentage						
	Total	Strongly agree	Agree	Disagree	Strongly disagree	Do not know	Agree cols (2) + (3)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Total	100	10	40	32	11	7	50
16 - 19	100	18	40	30	11	2	58
20 - 29	100	11	39	35	11	4	50
30 - 39	100	10	36	34	13	7	56
40 - 49	100	6	39	37	13	4	45
50 and over	100	8	45	27	7	13	53

Chart 26: Quality of Science and Mathematics Education in Schools by Age Group
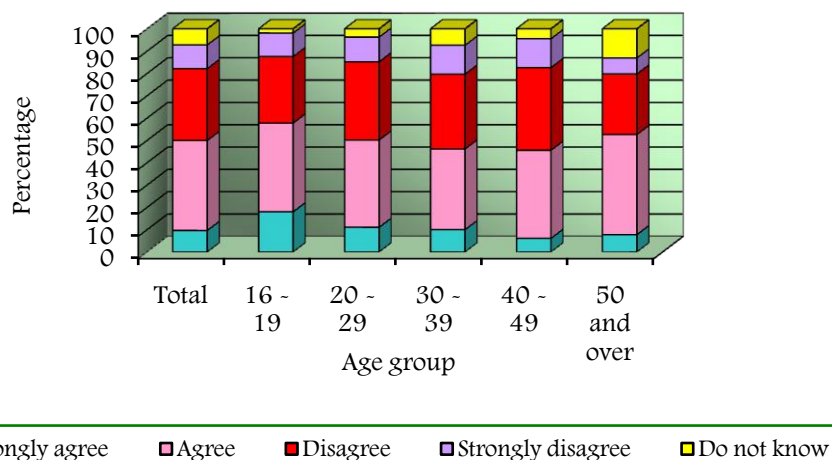
Table 26 shows that one half of the respondents (50%) agreed that the quality of science and mathematics education in our schools was adequate while a substantial 43% disagreed or strongly disagreed. The 40-49 age group was the only cohort where less than half of the respondents (45%) agreed with the quality of science and mathematics education in schools. The highest percentage of agreement (58%) was observed in the 16-19 age group.

Educational attainment	Quality of science and mathematics education						
	Total	Strongly agree	Agree	Disagree	Strongly disagree	Do not know	Disagree cols (4) + (5)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Total	100	10	40	32	11	7	43
Primary	100	8	46	24	9	13	33
Secondary	100	11	40	34	11	4	45
Technical	100	7	34	44	7	9	51
Associate degree	100	9	41	30	17	2	47
Bachelor's degree and above	100	10	32	31	17	9	48
Other*	100	9	26	48	15	2	63
None	100	17	42	25	17	0	42

*Commercial

Chart 27: Quality of Science and Mathematics Education by Educational Attainment
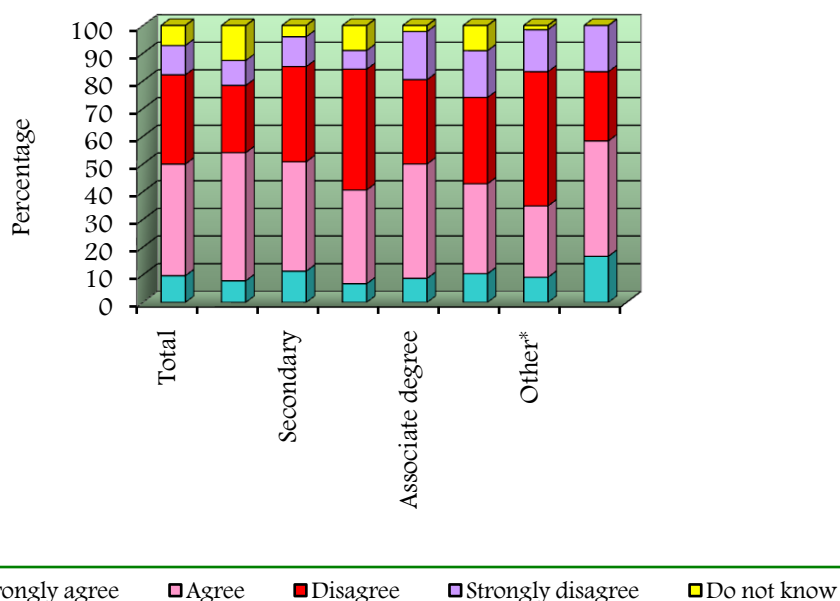
A further review of the data by educational attainment indicates a significant degree of disagreement with the quality of science and mathematics education in our schools, especially amongst respondents with technical education (51%), bachelor's degree and above (48%), associate degree (47%) and other education (63%). Least disagreement was registered by the sample of respondents with primary education (33%) which also showed the highest proportion of 'do not know' (13%).

Table 28: Read Food Labels by Educational Attainment

Educational attainment	Read food labels - percentage				
	Total	Always	Always when I buy a new product	Sometimes	Never
	(1)	(2)	(3)	(4)	(5)
Total	100	43	14	38	5
Primary	100	34	13	45	8
Secondary	100	46	14	37	3
Technical	100	44	17	35	5
Associate degree	100	65	13	17	4
Bachelor's degree and above	100	48	12	39	1
Other*	100	58	18	23	2
None	100	17	0	0	83

*Commercial

Chart 28: Read Food Labels by Educational Attainment
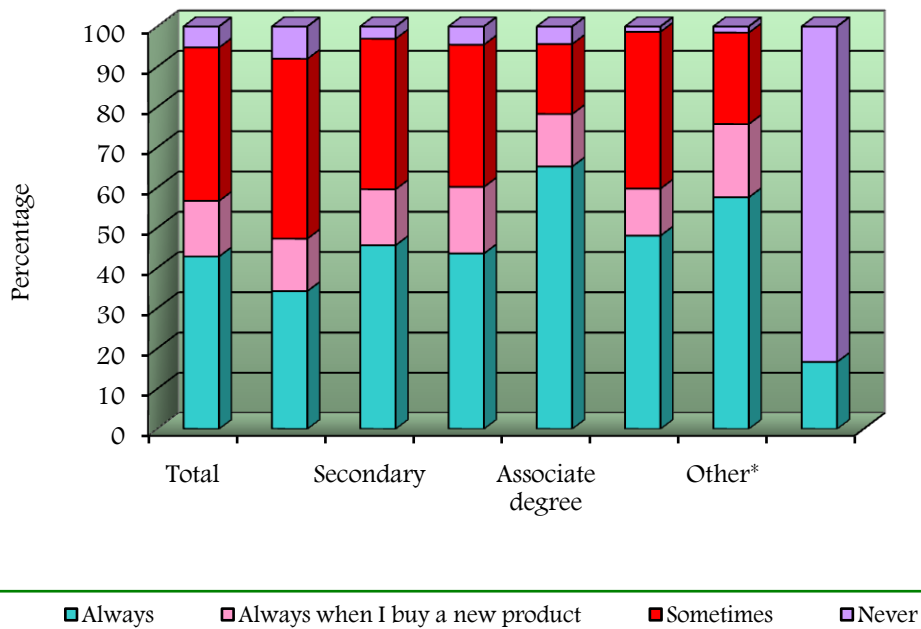
The majority of respondents (43%) indicated that they always read food labels; 38% read them sometimes and 5% never read them. More than half of the sample with an associate degree (65%) and other education (58%) always read food labels. The highest percentage (83%) that never read food labels comprised the respondents with no educational attainment and they constituted only 1% of the total sample.

Table 29: Labelling of Foods Containing Genetically Modified Organisms (GMOs) by Educational Attainment

Educational attainment	Label foods with GMOs - percentage			
	Total	Yes	No	Do not know
	(1)	(2)	(3)	(4)
Total	100	92	6	2
Primary	100	86	10	5
Secondary	100	93	6	1
Technical	100	98	2	0
Associate degree	100	93	4	2
Bachelor's degree and above	100	99	1	0
Other*	100	95	3	2
None	100	83	0	17

*Commercial

Chart 29: Labelling of Foods Containing GMOs by Educational Attainment
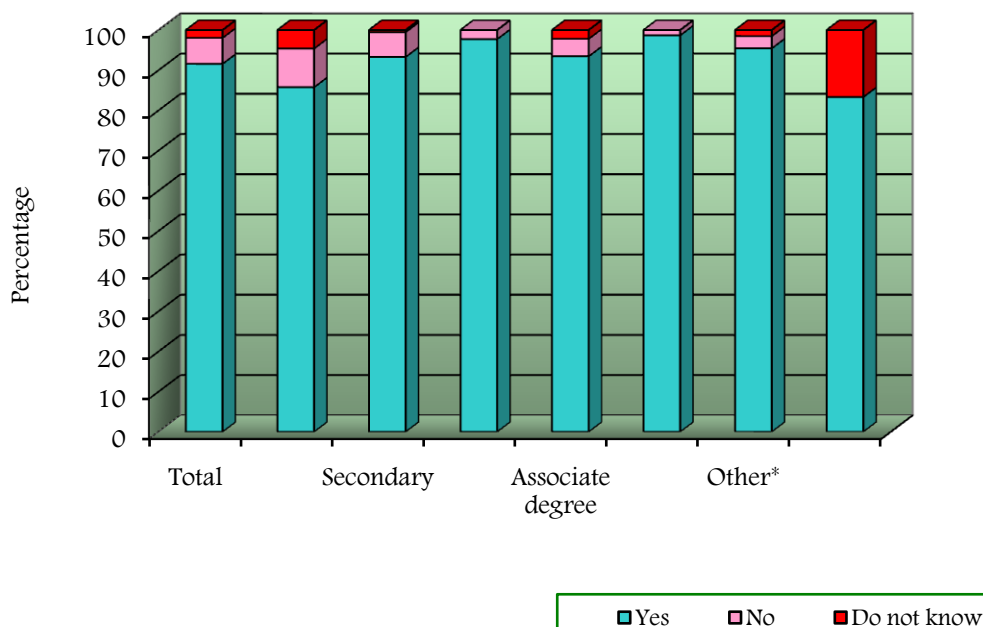
Almost all of the respondents (92%) was of the opinion that foods containing GMOs should be so labelled.

Table 30: Blood Type Known by Educational Attainment

Educational attainment	Blood type known - percentage		
	Total	Yes	No
	(1)	(2)	(3)
Total	100	48	52
Primary	100	35	65
Secondary	100	50	50
Technical	100	63	37
Associate degree	100	74	26
Bachelor's degree and above	100	71	29
Other*	100	65	35
None	100	17	83

*Commercial

Chart 30: Blood Type Known by Educational Attainment
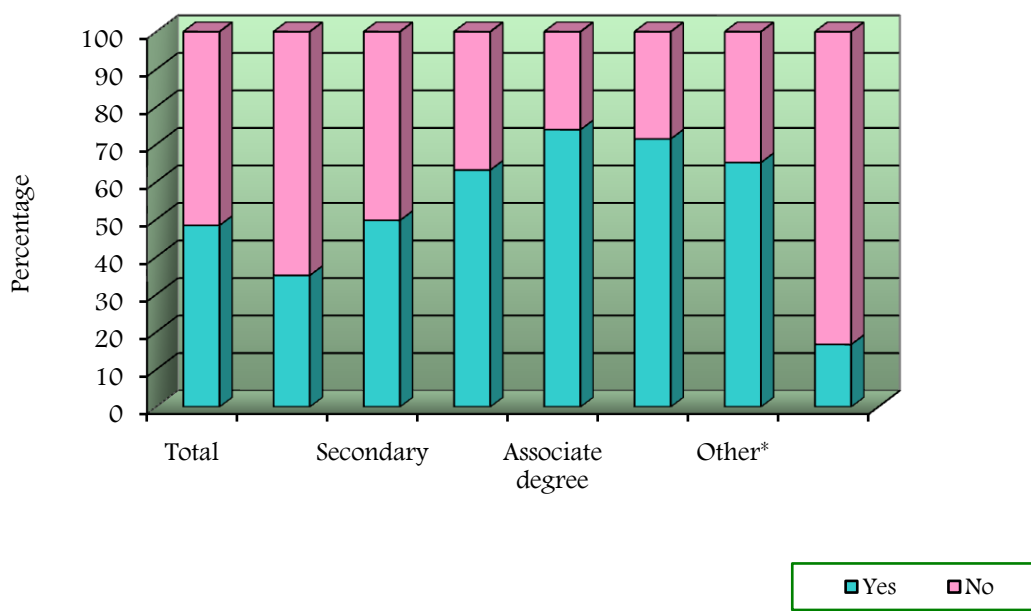
The survey results reveal that approximately half of the respondents (48%) knew their blood type. The majority of respondents with an associate degree (74%), bachelor's degree and above (71%), other (65%) and technical (63%) educational attainment were aware of their blood type. Those with primary (65%) and no educational attainment (83%) recorded the highest percentages where the blood type was not known.

Table 31: Illness and Treatment

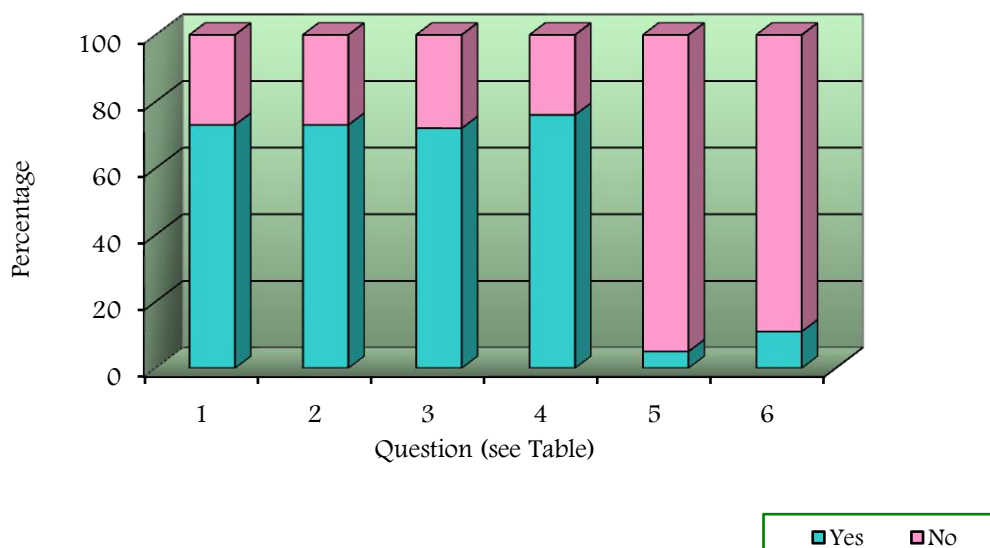| Question put to doctor	Percentage		
	Total	Yes	No
	(1)	(2)	(3)
1 How to follow instructions for treatment	100	73	27
2 What are the negative effects of the illness	100	73	27
3 What causes the illness	100	72	28
4 What are the side effects of treatment	100	76	24
5 No questions	100	5	95
6 Other	100	11	89

Chart 31: Illness and Treatment

Respondents were asked to select from a list of options what kind of questions they would ask when a doctor told them about certain medication or treatment. Over seventy percent selected the following options:

    what are the side effects of treatment (76%),
    how to follow instructions for treatment (73%),
    what are the negative effects of the illness (73%) and
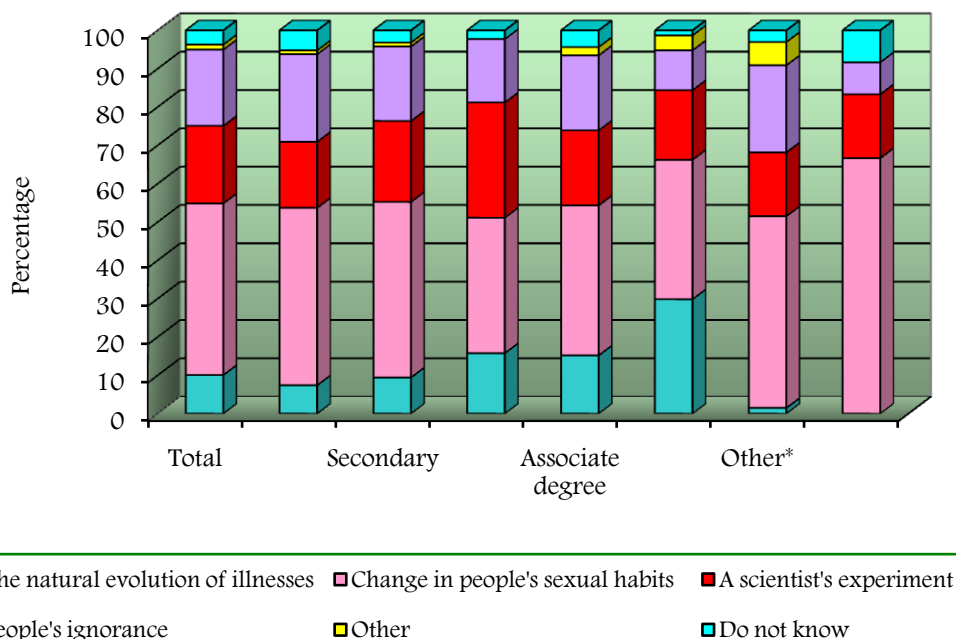   what causes the illness (72%).

Only five percent indicated that they would not ask the doctor any questions.

Table 32: Cause of HIV/AIDS by Educational Attainment

Educational attainment	Cause of HIV/AIDS - percentage						
	Total	The natural evolution of illnesses	Change in people's sexual habits	A scientist's experiment	People's ignorance	Other	Do not know
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Total	100	10	45	20	20	1	4
Primary	100	7	46	17	23	1	5
Secondary	100	9	46	21	19	1	3
Technical	100	16	35	30	17		2
Associate degree	100	15	39	20	20	2	4
Bachelor's degree and above	100	30	36	18	10	4	1
Other*	100	2	50	17	23	6	3
None	100		67	17	8		8

*Commercial

Chart 32: Cause of HIV/AIDS by Educational Attainment

Legend:
- The natural evolution of illnesses
- Change in people's sexual habits
- A scientist's experiment
- People's ignorance
- Other
- Do not know

Less than half of the survey respondents (45%) was of the opinion that HIV/AIDS resulted from 'change in people's sexual habits', while two fifths indicated 'a scientist's experiment' (20%) and 'people's ignorance' (20%). A review of the data by educational attainment also reveal 'change in people's sexual habits' as the modal cause, especially amongst respondents with primary and secondary education compared to those with tertiary level education. Approximately one third (30%) of the respondents with a bachelor's degree and above stated 'the natural evolution of illnesses' as the cause of HIV/AIDS; a similar percentage within the sample with technical education advanced 'a scientist's experiment'.

Table 33: Familiarity with Selected Scientific Terms

Scientific term	Familiarity - percentage					
	Total	Very familiar	Familiar	Vaguely familiar	Not familiar	Familiar cols (2) + (3)
	(1)	(2)	(3)	(4)	(5)	(6)
Catalyst	100	10	17	17	56	24
Chlorophyll	100	19	25	16	40	44
Hormone	100	32	39	14	15	71
Thermostat	100	27	31	14	29	58
Gene	100	32	40	12	16	72

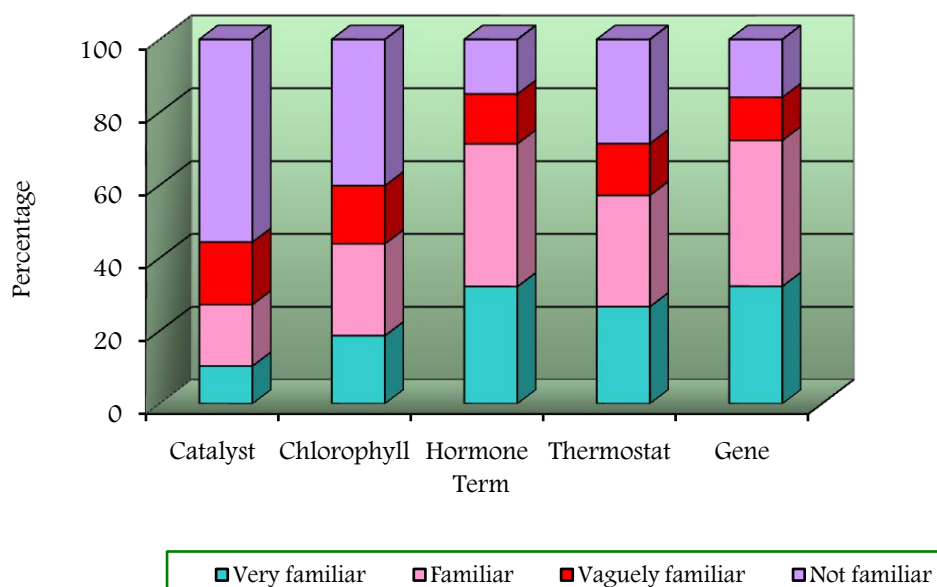Chart 33: Familiarity with Selected Scientific Terms

Table 33 shows the level of familiarity with selected scientific terms. The survey participants were mostly familiar with the terms 'gene' (72%), 'hormone' (71%) and 'thermostat' (58%). Fifty six and forty percent were not familiar with the terms 'catalyst' and 'chlorophyll' respectively.

Table 34: Work Abroad to Become Scientist

Informed on science and technology	Scientist work abroad - percentage						
	Total	Strongly agree	Agree	Disagree	Strongly disagree	Do not know	Agree cols (2) + (3)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Total	100	17	34	39	8	2	51
Very well-informed	100	24	18	43	14	1	42
Well-informed	100	18	37	35	9	1	55
Informed	100	15	35	43	6	1	50
Not informed	100	18	35	31	11	5	53

Chart 34: Work Abroad to Become Scientist
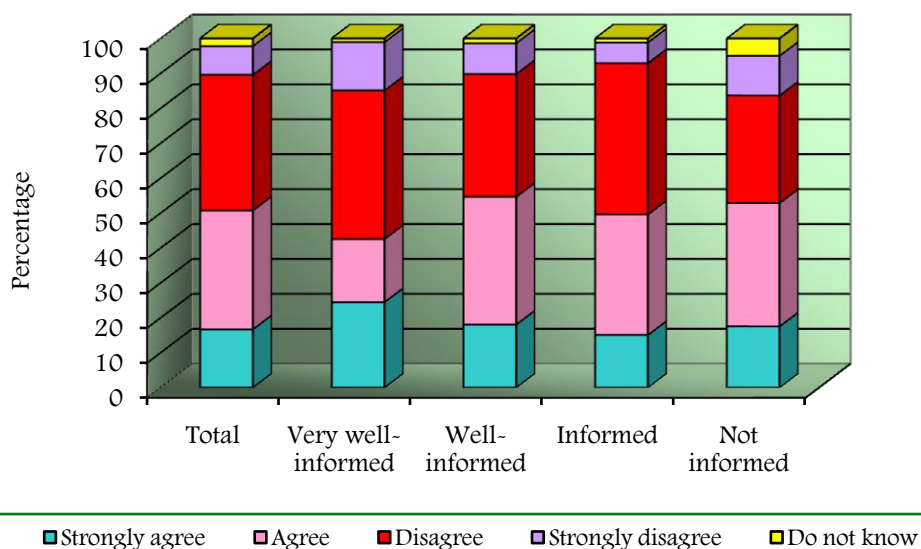
Opinions were divided on the issue that, 'in Trinidad and Tobago, people who want to be scientists have to work abroad'; 51% agreed while 47% disagreed. The highest percentage that disagreed (57%) was recorded amongst the respondents who stated that they were 'very well informed' on science and technology.

Table 35: Scientist's Reason for Choice of Profession

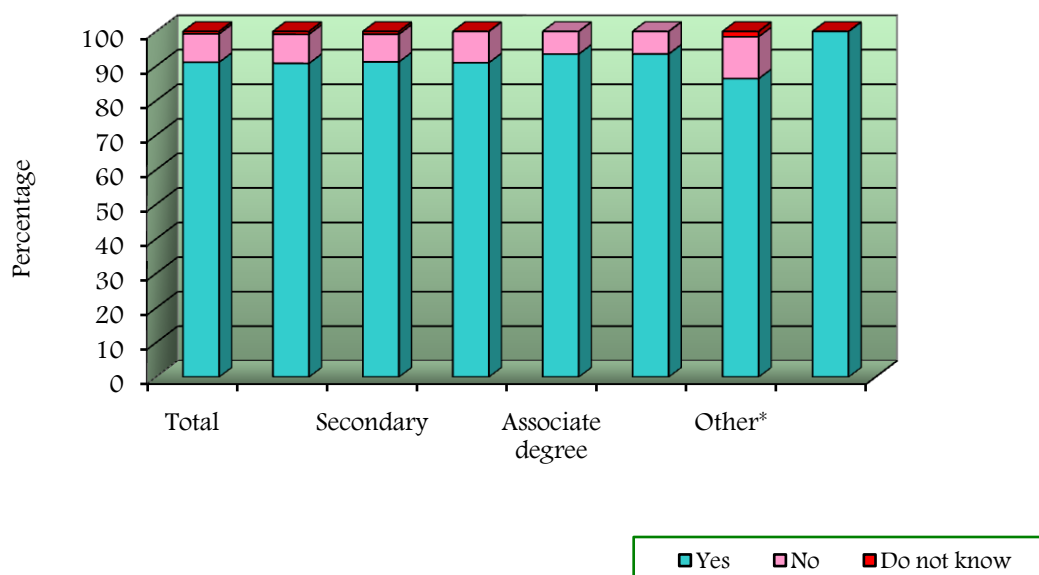| Informed on science and technology	Main reason for choice of profession - percentage									
	Total	To make money	For prestige	To do good	To solve people's problems	Quest for knowledge	To win an important prize	To gain power	Other	Do not know
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Total	100	12	2	10	24	48	1	2	1	1
Very well - informed	100	11	0	5	19	63	1	1	0	0
Well-informed	100	10	2	8	24	52	0	1	2	0
Informed	100	9	1	11	25	51	0	1	1	1
Not informed	100	18	6	10	23	34	1	4	1	2

A relatively large proportion of the respondents, especially amongst those informed on science and technology, indicated that a scientist's main reason for his/her choice of profession was 'quest for knowledge' (48%); 'to solve people's problems' (24%) was next in ranking.

Table 36: Encourage Child to Pursue Scientific Career by Educational Attainment

Educational attainment	Encourage child - percentage			
	Total	Yes	No	Do not know
	(1)	(2)	(3)	(4)
Total	100	91	8	1
Primary	100	91	8	1
Secondary	100	91	8	1
Technical	100	91	9	0
Associate degree	100	93	7	0
Bachelor's degree and above	100	94	6	0
Other*	100	86	12	2
None	100	100	0	0

*Commercial

Chart 35: Encourage Child to Pursue Scientific Career by Educational Attainment

Results of the study indicate that almost all respondents (91%) would encourage their child/children to pursue a scientific career.

Table 37: Name Local Scientist

Informed on science and technology	Name local scientist - percentage		
	Total	Yes	No
	(1)	(2)	(3)
Total	100	13	87
Very well-informed	100	30	70
Well-informed	100	24	76
Informed	100	12	88
Not informed	100	6	94

Chart 36: Name Local Scientist
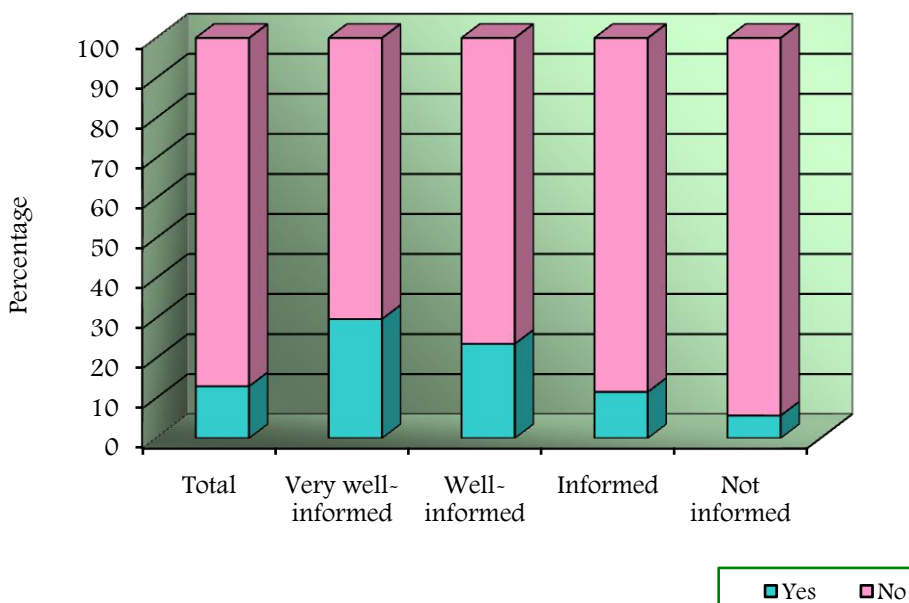
The data reveal that only a small percentage of the respondents (13%) could recall the name of a local scientist.

Table 38: Science and Technology Research in Trinidad and Tobago

Informed on science and technology	Science and technology research - percentage			
	Total	Yes	No	Do not know
	(1)	(2)	(3)	(4)
Total	100	71	28	1
Very well-informed	100	79	21	0
Well-informed	100	76	23	0
Informed	100	78	21	1
Not informed	100	54	44	2

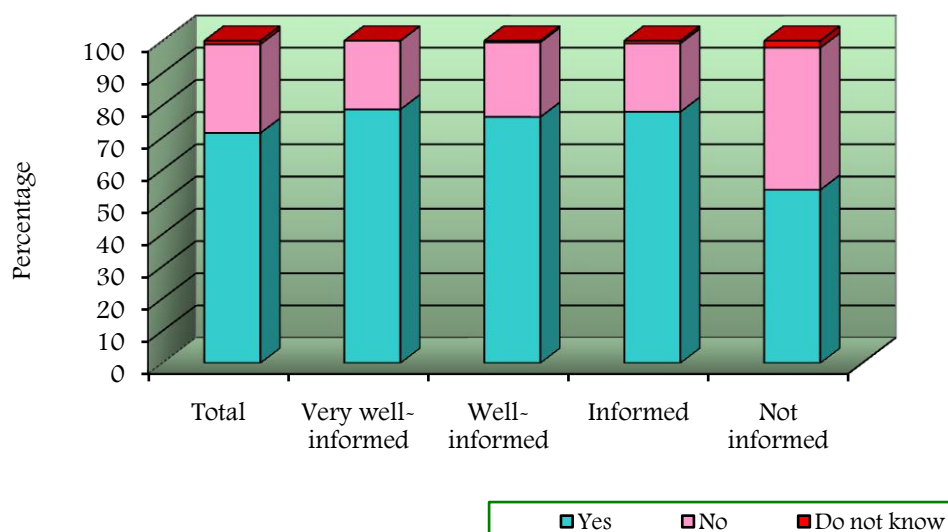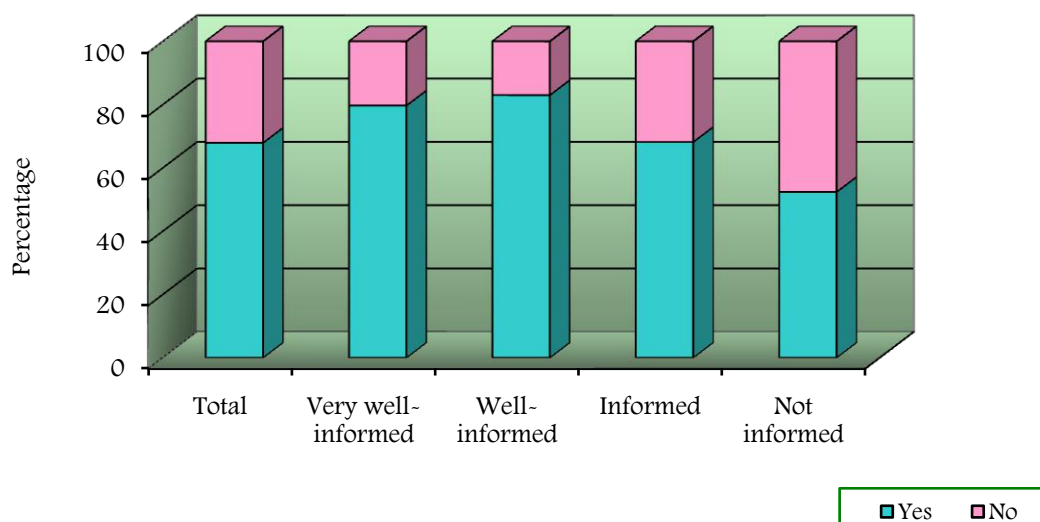Chart 37: Science and Technology Research

Table 38 shows that most of the survey participants (71%) was of the opinion that scientific and technological research was conducted in Trinidad and Tobago, especially amongst those informed about such activities.

Table 39: Name Science and Technology Institution

Informed on science and technology	Name institution - percentage		
	Total	Yes	No
	(1)	(2)	(3)
Total	100	68	32
Very well-informed	100	80	20
Well-informed	100	83	17
Informed	100	68	32
Not informed	100	52	48

Chart 38: Name Science and Technology Institution

Two thirds (68%) of the survey respondents that were of the opinion that scientific and technological research was undertaken in Trinidad and Tobago were able to name an institution where such activity was conducted. The institutions mainly identified were: The University of the West Indies, National Institution of Higher Education Research Science and Technology, Caribbean Industrial Research Institute and Caribbean Epidemiology Centre.

Table 40: Usefulness of Research

Informed on science and technology	Research useful - percentage			
	Total	Yes	No	Do not know
	(1)	(2)	(3)	(4)
Total	100	88	8	4
Very well-informed	100	92	7	1
Well-informed	100	88	8	4
Informed	100	90	5	5
Not informed	100	80	15	4

Chart 39: Usefulness of Research
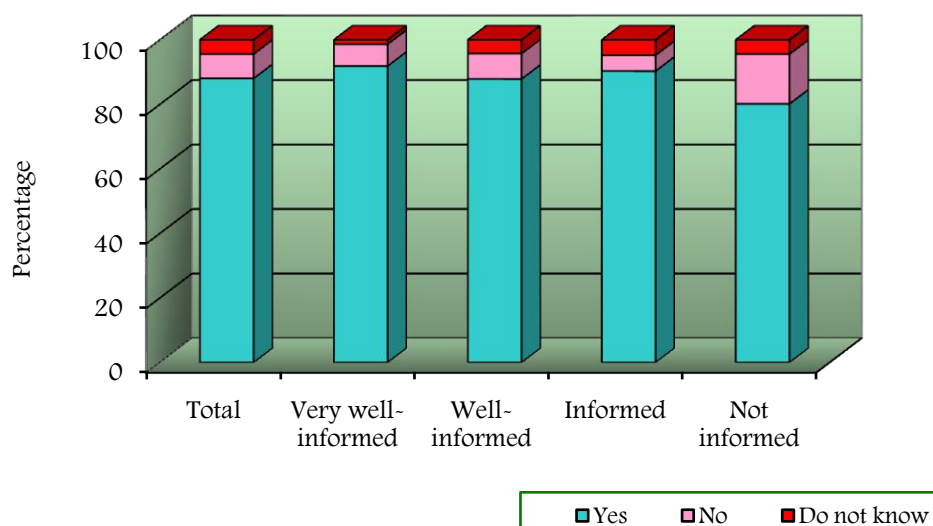
Of the respondents who were of the view that scientific and technological research was being done in Trinidad and Tobago, an overwhelming majority (88%) stated that such undertaking was useful.

Table 41: Source of Science and Technology Financing

Source of financing	Percentage
Total	100
Scientists	4
Private enterprises	6
Private foundations	6
Foreign countries	4
Government	56
International organisations	14
Do not know	10

Chart 40: Source of Science and Technology Financing
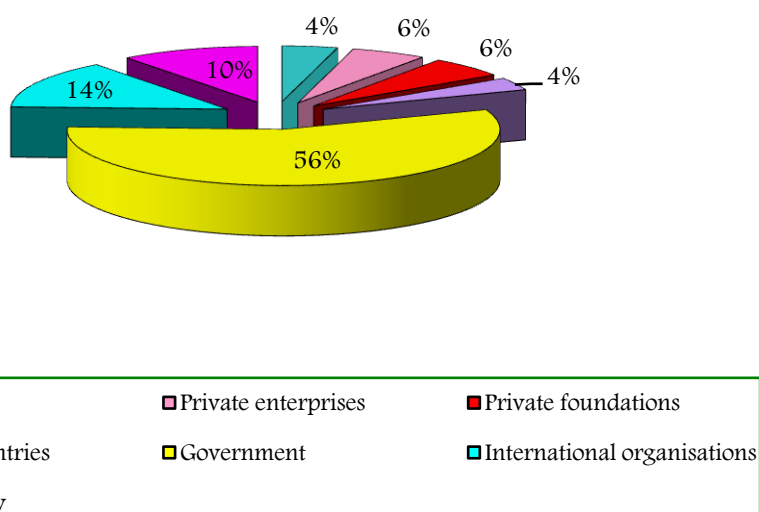
'Government' was identified as the main source of research funding by over one half of the respondents (56%) who thought research was conducted locally.

Table 42: Protest Action Concerning Science and Technology

Protest action	Participation - percentage			Important to participate - percentage			
	Total	Yes	No	Total	Yes	No	Do not know
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	100	3	97	100	87	12	2

Table 43: Type of Protest Action

Type of action	Participation - percentage		
	Total	Yes	No
	(1)	(2)	(3)
Protest rally	100	39	61
Public forum	100	31	69
Written petition	100	27	73
Other	100	8	92

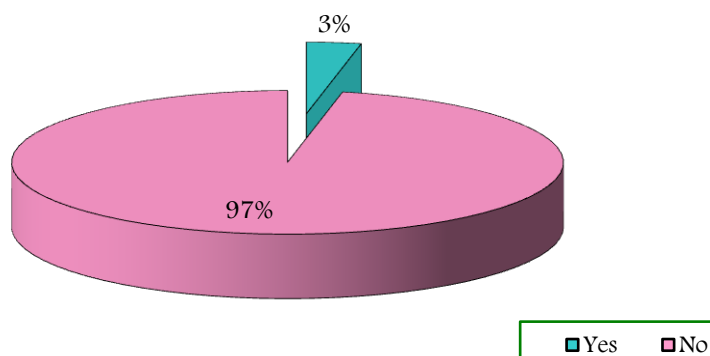Chart 41: Participation in Protest Action

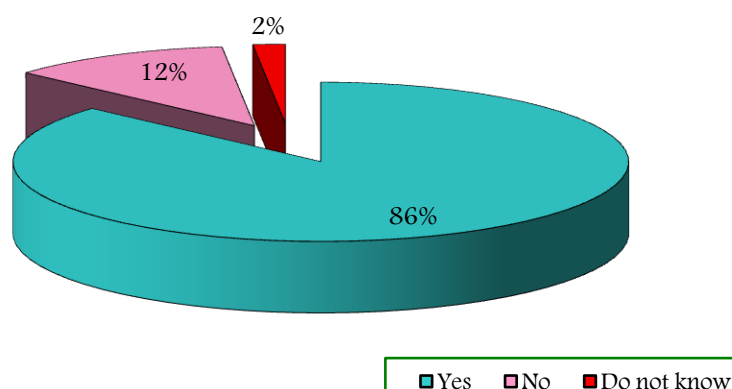Chart 42: Important to Participate in Protest Action

Table 42 shows that an extremely small percentage of the sample (3%) had participated in protest action or made complaints about problems stemming from science and technology. However, when asked if it was important to take part in these issues the majority of respondents (87%) replied in the affirmative. The main form of protest action included protest rally, public forum and written petition (Table 43).

Table 44: Main Obstacles to Participating in Issues of Science and Technology

Main obstacle	Percentage
Total	100
People are not interested	25
People have more important problems to complain about	15
There are no channels for participation	12
Complaints do not produce results	16
People are not knowledgeable enough to participate	29
Other	1
Do not know	2

The above table reveals that, 'people are not knowledgeable enough to participate' (29%) and 'people are not interested' (25%) were the two main obstacles to participating in the issues of science and technology.

Table 45: Comments on Survey by Age Group

Age group (yrs.)	Comments - percentage					
	Total	Interesting	Useful	Difficult	Boring	Other
	(1)	(2)	(3)	(4)	(5)	(6)
All ages	100	62	24	7	2	5
16 - 19	100	61	24	4	4	6
20 - 29	100	67	22	6	2	3
30 - 39	100	68	21	4	1	7
40 - 49	100	66	23	6	1	4
50 and over	100	51	29	12	2	6

Chart 43: Comments on Survey by Age Group
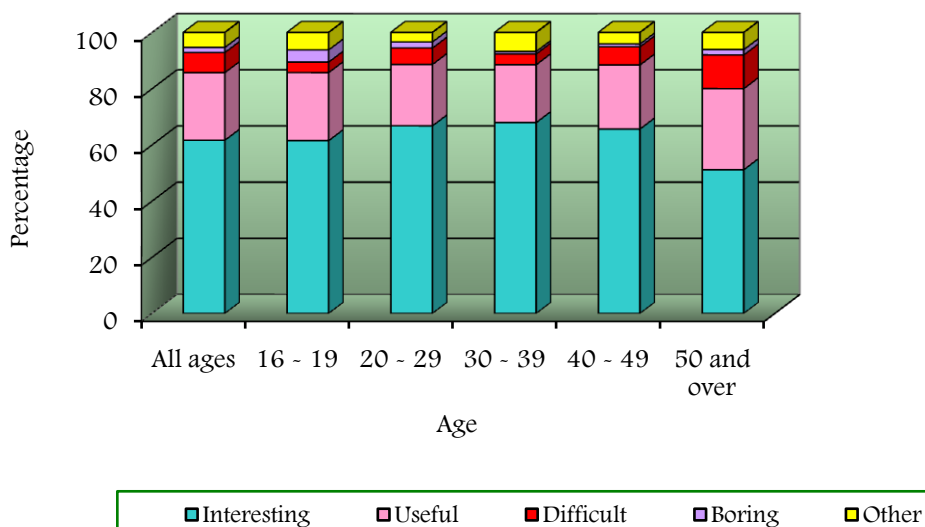
Overall, the participants of the survey by various age groups demonstrated positive attitudes towards the subject of the enquiry. The majority (62%) stated that the study was 'interesting' and one quarter (24%) found it 'useful'.