Tracing CSEC students who attended La Vega Secondary School for the period 2008-2013 and who pursued the vocational area of Technical Drawing, to learn about their further education development in TD as well as the value of TD in the workplace.

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Keywords: Technical Vocational Education and Training, tracer study, quantitative research, Technical Drawing

Word Count (Main Content including Tables and Figures): 19,317

Abstract

This paper aims to trace the students who attended La Vega Secondary School for the period 2008-2013 who pursued the vocational area of Technical Drawing (TD), to learn about their further education development in TD as well as the value of TD in the workplace. The data from this research informed the researcher if the skills and knowledge gained from TD were being utilized in higher education development or in the workplace. A quantitative research design was implemented using a 16-item questionnaire survey. From this research it was found that 70.70% of the graduates used the elements of TD to furthered their education at institutions and that 43.61% were employed in a TD related workplace.

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Abbreviations

TVET	Technical Vocational Education and Training
VET	Vocational Education Training
TD	Technical Drawing
MIC	Metal Industries Company limited
TEST	Ministry of Tertiary Education and Skills Training
UWI	University of the West Indies
UTT	University of Trinidad and Tobago
NESC	National Energy Skills Center
SEMP	Secondary Education Modernization Programme
SEA	Secondary Entrance Assessment
CXC	Caribbean Examination Council
CSEC	Caribbean Secondary Examination Certificate
EET	Electrical and Electronics Technology
MOE	Ministry of Education
CAD	Computer Aided Draughting
ICT	Information and Communication Technology
NPE	National Policy on Education
CVQ	Caribbean Vocational Qualification
CDD	Curriculum Development Division
NTA	National Training Agency
IIEP	International Institute for Educational Planning
SWT	School-to-Work Transition
CTC	Computer Training Centre

Chapter 1

Background to the Study

This research was designed to trace students' who attended La Vega Secondary School for the period 2008-2013and pursued the vocational area of Technical Drawing (TD), to learn about their further education development in TD as well the value of TD in the workplace. The topic under investigation was based from the observation that the post-secondary TD students were utilizing the knowledge and skills learnt from TD in higher education development as well as in the workplace.

This chapter focuses on the factors which prompted the tracer study. These factors included the history of La Vega Secondary School, the curriculum offerings at the school with specific reference to the Technical and Vocational areas, what TD entails and its importance to society, the learning theories guiding the TD curriculum, the researcher's informal observations about the post-school experiences of some graduates, the need for a more diversified school curriculum and the value of tracer studies globally, regionally and nationally. It also addresses the statement of the problem, the purpose of the study, the research questions which guided the study, the significance of the study and the expected outcomes from the study.

1.1.0 The History of La Vega Secondary

La Vega Secondary School is situated in the Caroni Educational District of Trinidad in close proximity to the Point Lisas Industrial Estate. It is considered a new sector school because it was built under the Secondary Education Modernization Programme (SEMP) in 2003and is often referred to as a SEMP school. This means that it adheres to the Ministry of Education policy offering of eight core subjects from Forms One to Three (Mathematics, English Language, Spanish, Science, Social Studies, Physical Education, Visual and Performing Arts and Technology Education). In Form Four to Five, students select subject group clusters based on their perceived career path.

The school was opened in 2003 and the school's student intake comprised of Form Four Students and Form One Students. The Form Four students came from three selected Caroni Junior Secondary Schools and the Form One students were those placed at the school after the 2003 Secondary Examination Assessment (SEA). Junior Secondary Schools catered to students up to the Form Three level at the end of which the students were required to take an examination commonly called the 14+ examination. Following this examination, the students were then placed into the Senior Comprehensive Schools to complete their forms four to six level of education. The Junior Secondary and Senior Comprehensive schools de-shifted in 2005 and catered to Forms 4 and 5 students and Forms 4, 5

and 6 students respectively. Generally the students attending La Vega secondary school reside in the county of Caroni and its environs.

The school population in 2003 was Form Four classes (ninety-two students) and ten Form One classes (two hundred and ninety-two students), making a total of three hundred and eighty-four students. This study will only include the Form One students entering the school in 2003 and the subsequent years up to 2013.

La Vega Secondary School enrolls students from Forms 1 to Form 5 level offering both Academic and Technical Vocational subjects. The school has been existence for ten (10) years and at present (2014) has a population of seven hundred and twenty (720) students and forty-five (42) teachers exclusive of the administration.

The school caters to the multiethnic, multi-religious, mixed abilities and varied socioeconomic background of the students. The students placed at La Vega Secondary come from the 30-60 percentile of the SEA. Hence, there are students who may have undiagnosed as well as those diagnosed with learning disabilities, for example, dyslexia. In 2003, two of the ten Form One classes were classified as remedial classes and were assigned remedial Mathematics and English Language teachers. Diagnostic testing was done so as to cater the curricula to these students' needs. However, the lack of remedial instructors since 2006 places students at the lower percentile of the SEA at a disadvantage as the majority of class sizes are

thirty-five on average, exceeding the stipulated amount stated by the Ministry of Education (MOE) and therefore would not be able to get personalized instruction.

1.1.1 The Curriculum Offerings at the School

La Vega Secondary curriculum is mainly academic, in alignment with the SEMP curriculum. As with other SEMP schools, at La Vega Secondary there are three Technical and Vocational subject areas offered to the students. These are Technical Drawing, Home Economics and Agricultural Science. The school's infrastructure was designed to include laboratories for the mentioned Technical and Vocational Areas. The school's teaching establishment had these teaching posts assigned. In 2004, a remedial Mathematics teacher was assigned to the school. The teacher was qualified to teach Electrical and Electronics Technology (EET) and was allowed to do so at the Form 4/5 level. There was a 100% pass rate in 2008 at the CSEC EET examination. The school's management sought to increase the Technical and Vocational offerings but an EET teaching post was not on the school's establishment. In 2010, an EET teacher from the San Fernando Technical Institute was assigned to the school with the post.

At La Vega Secondary School there are twenty-four (24) Caribbean Secondary Examination Certificate (CSEC) subjects offered at the Form Four and Five levels, inclusive of four TVET subjects. The Technical Vocational Education Training (TVET) subjects offered are Technical Drawing (TD), Home Economics (Food and Nutrition and Home Management), Electrical Electronics Technology,

and Agricultural Science. Note that Business Studies (Economics, Principles of Business and Principles of Accounts) is considered to be a part of TVET as it under the TVET Unit in the Curriculum Development Division of the MOE, Trinidad.

This research focuses on the vocational area of TD. In an attempt to meet the increasing demands of the students for TD when selecting their subject groupings, the school's administration and the middle management (Heads of Department and Deans) team have expanded the offering of TD to four out the five subject groupings. These groupings are Science, Business Technical 1, Business Technical 2 and Technical. Within these subject groupings the students range in varying academic abilities. The school's subject prospectus includes at least one of the four mentioned Technical and Vocational areas in four out the five subject groupings stated previously.

1.1.2 Technical Drawing (TD) Curriculum and its Importance to Society

This study focused on students' higher education development in the vocational area of TD as well as in the workplace at La Vega Secondary School for the period 2008-2013. At the school, TD was introduced in 2004. There is one teacher assigned to this post. The teacher is a Teacher Trained Technical Vocational Teacher IV (TVT IV) from the John Donaldson Technical Institute, Port of Spain, Trinidad. The teacher is also an appointed Dean of Discipline.

TD comprises of two separate CSEC options: (1) Mechanical and Geometrical Drawing and (2) Building and Geometrical Drawing. The

Mechanical and Geometrical Option is offered in the Science subject grouping and the Building and Geometrical Drawing option is offered to the Business Technical class and the Technical subject groupings.

The students are instructed to draw using traditional methods (using drawing instruments such as T-squares, set squares, compass, scale rule, pencil, French curves etc.). Although the teacher is trained and qualified in AutoCAD, there is the lack of computer technologies to offer the option of AutoCAD to the students. Even if the option of AutoCAD becomes available, the teacher's timetable will not be able to cater to this demand. It is imperative that the students learn to develop the manual skills of TD before moving to electronic means. This means more timetabled periods if the teacher would have to deliver both manual and electronic methods which at the present time is not possible. The teacher has requested an additional TD teacher be sent to the school so that more students can be offered TD, AutoCAD can be introduced as well as the Advanced Level TD, Geometrical Mechanical Engineering Drawing (GMED). There is the existence of such a post to be filled but the availability of a TD teacher is lacking.

In order to understand the importance of TD as a vocational subject for employment, higher education and its position in the secondary school's subject prospectus, detailed information on TD should be examined. The TD course is an integral component of the Technical Vocational Education and Training (TVET) programme offered by the Caribbean Examination Council (CXC). The subject is done at both General and Basic proficiency level. The Technical Drawing curriculum is designed to be a two (2) year field of study which commences at the

beginning of Form Four (4) at many secondary schools' in Trinidad and Tobago. The TD examination is governed by the Caribbean Examination Council (CXC).

The rationale of the TD curriculum projects the subject as the language of communication of technical vocational occupations that will help individuals in everyday life as consumers. TD will also cater to students' employment in related fields, and to the development of those who will proceed to further their studies at tertiary level (TD CSEC Curriculum, 2005). It is recommended that every secondary school student should have a basic knowledge of TD. The TD CSEC syllabus caters to those students seeking higher education or employment in the related field. The completion of the TD syllabus develops in the students an appreciation of TD in the Caribbean Industrial Society, technical problem solving skills in TD as related to materials and processes, the correct and accepted TD skills as demanded by Industry and an awareness of career opportunities available in TD and its related fields.

TD is a lifelong learning skill. The skills learnt are used in the designs of house plans, cupboards for kitchens, burglarproofing for houses, fences, steel and wooden window and door designs, landscaping, estimates for construction projects etc. and even for mapping out layout of rooms for efficient space management. The skills of TD are not solely learnt for a specific occupation but can be transferred to the life of a consumer on many levels.

This TD curriculum has three areas of studies, Building Drawing, Mechanical Drawing and Geometrical Drawing. There are two options available

to the students; Option One is Building Drawing which is the combination of Building Drawing and Geometrical Drawing. Option Two is Mechanical Drawing which is the combination of Geometrical Drawing and Mechanical Drawing.

The students have the option of using either the Traditional Drawing Method (Tee square, drawing board and set squares and micro point pencil) or Computer-Aided Drafting method/applications (CAD) to complete the objectives of the TD curriculum. During the form five period students must complete a School Based Assessment (SBA) project which is a component of the final examination contributing 20% or sixty marks (60) of the final CSEC mark. At the end of form five, students are required to do a practical examination (Paper Two: Plane and Solid Geometry and Paper Three: Mechanical Drawing option or Building Drawing option) and a theory paper (Paper One: Multiple Choice) examination which contributes to 80% or two hundred and forty marks (240) of the final CSEC mark.

The TD curriculum is divided into three Units; Plane and Solid Geometry (Unit 1), Building Drawing (Unit 2) and Mechanical Engineering Drawing (Unit 3). Each unit comprises of mandatory modules to be completed. The curriculum document also provides other important information such as class size, materials and equipment that are used for TD. The recommendation in the syllabus for time tabling TD must be a minimum of five 40-minutes period per week with no single period allocated to the subject over a two-year period. The TD curriculum recommends that traditional drawing methods class population to

be 20 students whereas the use of Computer- Aided Draughting method would require 10 complete computers systems.

Majumdar (2011) highlighted that teachers are expected to create a new flexible and open learning environment in ICT era. While the use of the AutoCAD software programme is moving students into the 21st century technological era of skills, the use of Information Communication Technologies (ICT) it is imperative that students learn how to draw traditionally (manually) before moving on to the Computer- Aided Draughting method. There are advantages of having manual skills. For example, if while working as a draughtsman for a company an emergency arises where changes need to be made on a drawing and power is not available the software drawing cannot be done. The draughtsman who also possesses manual drawing skills would save the company loss of productivity. The advantage of CAD is that it is quick as opposed to the traditional method of drawing which requires using specified drawing instruments that are very time consuming. The students' with two types of drawing skills, traditional manual method and CAD, will be able to design and to adapt, modify and overcome most situations faced in the world of work. The TD curriculum has the essential ingredient to assist the teachers in the effective delivery of this curriculum.

1.1.3 Learning Theories used in TD for Curriculum Implementation

TD utilizes the learning theories of Constructivism, Brain Based Learning and Multiple Intelligences. John Dewey's (1933/1998) Constructivist theory

supported by JeromeBruner (1990) and Lev Vygotsky (1978) forms the integral part of TD. In TD students are encouraged to use previous knowledge and experiences to construct new knowledge. Active learning as opposed to passive learning occurs in the room and the students are involved in developing the skills of problem solving and decision making. The students are involved in real-life problems that are contextualized in their own experiences.

Brain-Based Learning theory is based on the structure and function of the brain. Instructional theories associated with it are orchestrated immersion, relaxed alertness and active processing. The students of TD are fully immersed in the educational experience (orchestrated immersion). They are free from fear and ridicule in the TD studio although the environment is highly challenging (relaxed alertness) and they are encouraged and allowed to consolidate and internalize information (active processing) as the teacher brings real life experiences and authentic tasks into the classroom. Students are encouraged to peer teach and work in teams at times. They are guided on how to monitor and enhance their own learning processes.

The students in the TD classes have varied learning capabilities and the teacher employs Howard Gardner (1983) Multiple Intelligences Theory to adapt the curriculum to suit the students' way of learning. Many of the students demonstrate Mathematical-Logical Intelligence, Visual-Spatial Intelligence and Bodily-Kinesthetic Intelligences.

The 21st century skills of ways of thinking (creativity, critical thinking, problem-solving, decision-making and learning), ways of working (communication and collaboration), tools for working (Information and Communications technology (ICT) and information literacy- AutoCAD/ edmodo network designed for TD students) and skills for living in the world (citizenship, life and career, and personal and social responsibility) are developed in the TD students.

1.1.4 The Researcher's Informal Observation of Graduates

This research was decided upon after the researcher made observations of post -secondary TD students from La Vega Secondary School who visited their alma mater after graduation informing the researcher that the Technical Vocational courses they were pursuing at National Energy Skills Centre (NESC) had elements of the TD they had been exposed to at school (Building Drawing and Mechanical Drawing). This made the courses easier due to the solid and applicable TD foundation received at La Vega Secondary school.

Another reason for the tracer study was that the researcher is a demonstrator (2005-present) at the University of West Indies (UWI), Trinidad and Tobago in the faculty of Mechanical Engineering. During demonstration, the researcher interfaces with post- secondary TD students from La Vega Secondary School. It is quite evident that these students and those who have done TD at the secondary school level can comprehend and perform well due to their solid foundation in TD as opposed to those students who have no TD pre-knowledge. It

must be noted that the TD curriculum at the Caribbean Secondary Examination Certification (CSEC) level is similar to the TD required in Year One of Mechanical Engineering.

The researcher delivers the TD curriculum at a prestigious male high school in the educational district of St. George as an after-school programme, as the said institution does not have TD offered in the existing school's curriculum. Post-secondary students from this institution who completed the TD CSEC were also interfaced with by the researcher at the Faculty of Mechanical Engineering (UWI). The school's administrators have seen the need to include this vocational area so as to cater to the needs of the students wishing to pursue a career path in Mechanical Engineering.

The researcher also looked at those students who entered Metal Industries Company Limited (MIC) to further their education in TD in the General Draughtsmanship course. This course would facilitate the entry of these students into the teaching profession as TD teachers or as draughtsmen, drawing building plans for clients or working for an architectural company.

This tracer study in following students' higher education development in TD is aligned to the developments taking place in Trinidad and Tobago with regards to TVET. The Ministry of Education of Trinidad and Tobago has listed TVET expansion as the fourth priority out of the stated sixteen priorities. The need for developing TVET in the country is aligned to the Pillar 5 of the seven interconnected pillars for sustainable development of the government of Trinidad

and Tobago which addresses "a more diversified knowledge economy- building on the native genius of our people". This drive of the government to improve TVET has also promoted in the researcher the need to trace the students' higher education development in TD and the results in turn will guide the future development of La Vega Secondary School subject grouping prospectus and by extension other secondary schools so as to cater to the needs of the students in the vocational area of TD.

My thinking was that the research study would indicate those students who are self-employed using the skills of TD, those who are employed using aspects or skills from TD at their workplace, those who are pursuing higher education where the skills from TD are utilized as well as those who did not further or pursue careers in TD. Research findings from other tracer studies globally, regionally and locally provided pertinent information in guiding the study.

1.1.5 The Need for a More Diversified School Curriculum

Secondary level educational institutions offering academic and vocational courses must ensure that these courses provide definite purpose, and meaning to students, by relating to occupations and goals, providing technical knowledge and work skills necessary for employment, and developing abilities, attitudes, work habits and appreciation which contributes to a satisfying and productive life (Bello, Danjuma & Adamu, 2007). Therefore, secondary schools should review their traditional ways of career choice or subject groupings so as to meet the needs

of the students in the schools. Subject groupings should prepare students for building life skills that help foster sustainable development as a major contributor of a country. This is supported by Seiders (1985). Abdullahi (1993) states that vocational education is expected among other things to assist students to acquire relevant occupational and technical skills prepare them for future occupations and assist them in making a successful transition from school to the world of work. Okoro (1993) supported Abdullahi (1993) when he defined vocational education as "any form of education whose primary purpose is to prepare persons for employment in recognized occupations".

There is the need for the diversification of the secondary school curriculum despite considerable evidence that vocational secondary education is struggling to establish itself (Desai & Whiteside, 2000). While the evidence shows that TVET subject offerings have a place in secondary schools, the evidence would also show that the choice by students opting to follow a TVET career path is linked the students' academic abilities. Traditionally students of lower academic ability were given TVET subjects to pursue. However, this study involves students from the Science, Business and Technical groupings and hence a wide range of mixed abilities. The issue at hand is to determine whether TD graduates found the subject to have utility for them, whether in their pursuit of higher education, in TD or otherwise, whether the subject was helpful to them in their jobs, or whether they found it to be useful in everyday life. The study does not focus on those students who utilized TD solely to pursue an Engineering

degree or to become a draughtsman but also those students who may have used some elements form the course of study.

1.1.6 The Value of Tracer Studies

As mentioned before, a tracer study can be defined as a management tool that is used to measure the relevance and effectiveness of vocational training. It is used to follow the path of graduates into the labour market. It is also used to plan and monitor training progrmames, guiding which course should be added, changed, modified or even phased out. Tracer studies provide vital information for curriculum development and reform. In addition they help to monitor the delivery of the training. These studies can also be viewed as marketing tools.

In this research, the tracer study can be referred to as a graduate survey as the target group is former students of La Vega Secondary. This graduate survey allows for the analysis of the relationship between vocational secondary schooling, higher education and work. It provides quantitative –structural data on employment and career, the character of work and related competencies, and information on professional orientation and experiences of the graduates (Millington, 2014).

At a Global Level, tracer studies are carried out extensively across disciplines. For example, tracer studies coordinated by the IIEP (UNESCO's International Institute for Educational Planning, or IIEP) in five countries - Azerbaijan, Chile, Malaysia, Nigeria and South Korea in 2014, indicated that increasing job market demand for flexible skills is the primary driver of the

emerging trend. An online tracer study conducted by the Ministry of Higher Education, Malaysia, in collaboration with all local universities, colleges and polytechnics was carried out via a set of questionnaires to evaluate the responses from Malaysian graduates on the performance of their alma maters. The study indicated that it was gratifying to find that OUM graduates are generally satisfied with the services provided by the university and that the level of satisfaction has improved over the three years. OUM study programmes have had a high impact on the holistic development of graduates, in terms of self-readiness such as maturity, reliance and teamwork. Another example of a tracer study was that of one conducted on the graduates of the University of Malawi who graduated between 1987 and 1995. It was a part of the comparative study on higher education in Africa sponsored by the Association of African Universities, using ten other similar universities in Nigeria, Ghana, Kenya, Uganda and Tanzania (Millington, 2014). This tracer study aimed at investigating the transition process from higher education to shed light on the course of employment and work over a five year period after graduation. The results from the tracer study indicated that the graduates were satisfied with teaching quality, course content and knowledge gained.

Regionally, HEART Trust, National Training Agency in Jamaica did a tracer study on a contribution to the regional discussion on reforming TVET institutions and accreditation systems for improved skills and enhanced employability in Caribbean labour markets.

On a national level, a tracer study was carried out by Theodore Lewis (1986) on "Labour Market Outcomes of Comprehensive Education in Trinidad". He noted that technically skilled people played a key role in any move toward industrialization and that there is a correlation between a technically deficient curricula and a shortage of skilled manpower. This can be remedied by vocationalising the curricula. According to Lewis (1986), in Trinidad vocationalised curricula make a difference when key labour market criteria are considered. He stated that vocational graduates were more apt to be in the labour force, found their first jobs more quickly, remained engaged for a greater percentage of time, were more satisfied with their first jobs, and rated their preparedness more highly than non-vocational graduates.

Also, another vocational tracer study was carried out by Davindranath Maharaj, 2012. This study involved past students of the CVQ (Level 1) on two selected schools in South Trinidad. The study sought to determine stakeholders' perceptions of employment opportunities and professional progress of ex-students of the CVQ. The results of the study indicated that CVQ has not been able to provide the necessary criteria for further skilled training or employment, apprenticeship, or progression through further learning.

This tracer study research paper attempts to find out if the vocational area of TD at La Vega Secondary School assisted the students who did TD in acquiring the relevant and technical skills to prepare them for future occupations involving TD or in higher education development.

1.1.7 Statement of the Problem

There is the need for the diversification of the secondary school curriculum despite considerable evidence that vocational secondary education is struggling to establish itself (Desai & Whiteside, 2000). While the evidence shows that TVET subject offerings have existed in secondary schools, the evidence would also show that the choice by students opting to follow a TVET career path is linked the students' academic abilities. Traditionally, students of lower academic ability were given TVET subjects to pursue. However, this study involves students from the Science, Business and Technical groupings and hence a wide range of mixed abilities. This research was designed to trace students' who attended La Vega Secondary School for the period 2008-2013 and pursued the vocational area of TD, to learn about their further education development in TD as well the value of TD in the workplace.

1.1.8 Purpose of the Study

The purpose of the study was to investigate the extent to which TD students pursue higher education development in the given subject area or used the knowledge and skills learnt from TD in higher education or in the workplace environment.

1.1.9 Research Questions

One main question and five sub-questions were used in this study to address the purpose of the study. The questions were as follows:

Main question:

What was the nature of the post-secondary experiences of graduates, and did they find the curriculum they pursued in school to be beneficial or relevant to these experiences, in terms of further education and training, and in terms of the employment experience?

Sub-questions:

1. To what extent did the graduates pursue higher education development in Technical Drawing?
2. What kinds of higher education programmes did the graduates pursue?
3. What kinds of jobs did the graduates find in the labour market in terms of job-type and salary?
4. To what extent did the graduates use the skills and knowledge from TD in the workplace?
5. Were there any gender differences in the post-school experiences of students?

1.2.0 Significance of the Study

The study was designed to gain first-hand knowledge of the importance of and need for the vocational area of TD in schools subject prospectus. The subject caters to those students who would like to pursue tertiary higher education in Mechanical Engineering, as it is a compulsory course in Year One. Students completing TD at the CSEC level would be more than adequately prepared for the TD course at Year One tertiary education. The study was intended to show if in

fact students completing TD at the CSEC level are adequately prepared for the TD course at Year One Engineering. The study was also intended to examine whether students pursuing higher education in vocational institutions, for example, National Energy Skills Center would use elements of the TD curriculum in their courses and it would also indicate that students leaving secondary school can pursue a Draughtsman certification at Metal Industries Company Limited (MIC) which can lead to occupations in secondary school teaching in TD or as a Draughtsman.

1.2.1 Expected Outcomes

The study was designed to show the importance and need for the vocational area of TD in school curricula. More specifically it was intended to show whether students completing TD at the CSEC level would be adequately prepared for the TD course at Year One Engineering. Further, the study was intended to show whether those students pursuing higher education in vocational institutions, for example, NESC will use elements of the TD curriculum in their courses, and to see whether students leaving secondary school with a TD credential can pursue a Draughtsman certification at Metal Industries Company Limited (MIC) which can lead to occupations in secondary school teaching in TD or as a Draughtsman.

This tracer study will assist the researcher in determining if the curriculum of the vocational area of TD suitably prepares the students for higher education in the area, if it is of use as a component in other courses of study or prepares the

students with knowledge and skills for employment in related fields. The study will also provide feedback on the reasons why the students chose TD as a subject area to pursue for CSEC, if they are pursuing higher education involving knowledge and skills learnt from TD, if in their current employment uses the skills and knowledge of TD and also what they believe may enhance TD curriculum delivery for choosing a career in TD as a post-secondary option.

The study also involved identification of gender when participating in the questionnaire. According to Bello, Danjuma and Adamu (2007) males had a smoother transition to employment, obtaining better employment outcomes when compared to females. From the study it will be determined if the male students had a smoother transition to employment in the area of TD when it came to employment as opposed to the female students.

Bello, Danjuma & Adamu (2007) state that tracking young people, researchers are now able to conclude that vocational education and training assists the transition to work. Note that the smoothness of the transition into the world of work will be dependent on student demographics and the nature of the vocational programme being pursued. Students at the end of form five at La Vega Secondary School completing and passing the CSEC level TD may not in the short term be able to attain employment in the related field without furthering higher education in the related field.

CHAPTER 2

Literature Review

This paper was designed to trace students' who attended La Vega Secondary School for the period 2008-2013 and pursued the vocational area of Technical Drawing (TD), to learn about their further education development in TD as well the value of TD to them in the workplace. In this chapter the review of literature related to the study is presented. It is divided into the following sections: (a) the purpose of TVET education as it relates to the youths of a country, (b) the importance of TVET, (c) the factors affecting students choosing the TVET areas as a career path, (d) the diversification of the secondary school curricula to include the TVET areas and to align with the industry requirements, (e) TVET as it relates to gender, (f) the purpose and value of tracer studies, (g) school to work transition and (h) the methodology and data analysis used in the tracer study.

2.1.0 The Purpose of Education as it Relates to the Youths of a Country

The purpose of education is to enable the society to have a command of knowledge, skills and values for achieving the country's vision of attaining the status of fully developed nation in terms of economic development, social justice and spiritual, moral and ethical strength, towards creating a society that is united, democratic, liberal and dynamic (Bakar, Jani & Zubairi, 2009). Therefore, for a

government to improve the productivity of its workforce, it must strengthen its education sector, with specific emphasis on the secondary school system. Therefore, it is imperative that governments prepare the youths with the appropriate knowledge and skills needed to have a productive society. According to Bello, Danjuma & Adamu (2007), youths represent the future and hope of every country. Youths may be defined as those persons falling between the ages of 15-24 (United Nations, 1985). Bello, Danjuma & Adamu (2007) noted that the high returns on resources invested in youths today have both immediate and long term benefits and that many countries have realized that the development and harnessing the potential of the youths can best be achieved through a sound educational system.

The curricula in secondary schools should include both the academics and the vocational areas. The result of this is an effective workforce that in turn would lead towards sustainable development and hence to the overall progress of the country. Nwogu (2009), states that the wellbeing of any nation depends on its sustainable economic development. This view is supported by the seventh ministerial priority of the Ministry of Education (MOE) of Trinidad and Tobago which promotes that vocational education leads to sustainable development, and also by the National Policy on Education (NPE, 2004) which states that vocational education promotes environmentally sound sustainable development. Amedu (2013) indicated that the development of any nation hinges on the social and economic contributions of her citizens and that vocational and technical education has been identified as a tool for a sustainable, virile and stable

economy. Vocational education promotes environmentally sound sustainable development therefore, governments should ensure that every student have acquired a skill that will make him productive to society. Bello, Danjuma & Adamu (2007) stated that general education provides the society with values, communicative and manipulative skills on which effective vocational education is based.

2.1.1 The Importance of TVET

The academic and vocational courses offered to students should link to occupational goals. They should provide students with the knowledge, skills and attitudes to develop a productive life. This view is supported by the National Policy on Education (NPE, 2004) which states that the aim of secondary school is to make a person to be productive to himself or herself and to the society.

Vocational education guides students to gain relevant occupational and technical skills. These skills prepare them for future occupations, and make a successful transition from school to the world of work. Career and Technical Education (2009) supports this view by stating vocational and technical education is a planned programme of course and learning experiences that begin with the exploration of career options, supports basic, academic and life skills, and enables the achievement of high academic standards, leadership, preparation for industry and continuing education. This view is also supported by Amedu, 2013.

For vocational education to be effective, an acceptable degree of literacy and numeracy among students is required. Okoro (1993) supports this when he

stated that vocational education builds on a foundation of good general education and further states that vocational education is any form of education whose primary purpose is to prepare persons for employment in recognized occupations. Similarly, Okorie (2001) asserts that vocational education can be conceived as a comprehensive term referring to those aspects of the educational process involving the acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life. Specialized skills would lead to the development of a specific occupation. The secondary school curricula must be diversified to cater to the needs of the students; whether they would pursue a career path in the academics, fully vocational or a combination of both academics and vocational.

2.1.2 The Factors Affecting Students Choosing the TVET Areas as a Career Path

In Trinidad and Tobago, TVET is being offered in the secondary school system. However, there is a continued struggle to be established. TVET has been perceived as the career path for low achievers. The MOE of Trinidad and Tobago, has embarked on a rigid drive to change this negative perception of TVET. The Expansion of TVET in secondary schools in Trinidad and Tobago is listed as the fourth ministerial priority of the stated sixteen priorities. This continued vibrant drive to promote TVET is an effort to develop and expand the skill set of the country. In Trinidad and Tobago, the TVET include the Industrial Arts, Home Economics, Business Studies and Agricultural Science. In an extreme effort to ensure the promotion of TVET in the secondary schools, there is a draft policy

that states that every child must do at least one Caribbean Vocational Qualification (CVQ) subject.

As mentioned above, Trinidad and Tobago has introduced CVQ into the secondary schools in an attempt to increase the skill set in the country. However, the denominational schools have not embraced the CVQ, referring to it as the subject for low academic ability students. Also, these schools opted not to offer many of the traditional TVET subjects, viewing these TVET subjects as for those students who were of limited or low academic ability. An exception to the refusal to offer TVET subjects is TD, as it facilitates the development of the knowledge and skills for the coveted engineering degrees offered at the University of the West Indies, Trinidad.

In an attempt to create and interest and to promote TVET within the secondary school system, the MOE of Trinidad and Tobago provided a grant of one hundred thousand dollars ($100, 000.00 TTD) as an incentive for the purchasing of equipment and resources for CVQ expansion in the schools. This had the expected result as many schools who did not offer the CVQ inclusive of the denominational schools introduced the CVQ.

Through a rigid marketing strategy by the Curriculum Development Division (CDD) of the MOE of Trinidad and Tobago together with the National Training Agency (NTA), school administrators are changing their attitudes about a purely based academic subject prospectus. They are realizing the need to cater to the needs of the students' and the industry, so that the students can pursue

higher education in an occupational field and are made workplace ready with the necessary knowledge and skills. The struggle still continues for vocational secondary education to establish itself at the secondary school level in Trinidad and Tobago even with the CVQ expansion being implemented.

Another factor affecting students choosing TVET as a career path is their socio-economic status and parental perception of TVET. Whiteside and Desai (2000) supported this when they stated that participation in vocational secondary education is linked to the students' socio-economic status, caste background and parental education level. Society still perceives that vocational secondary education is for students who are considered to be of a lower academic ability. In Trinidad and Tobago, these students are considered to be those who are attending the de-shifted junior and senior secondary schools. A similar negative perception to TVET is seen in Arab societies (Vlaardingerbroek & Hachem El-Masri, 2008). Stevenson (2005), states that owing to TVET being an alternative to mainstream 'academic' education, it is inherently susceptible to being poorly valued. Parents' perception also dictates to a high degree if their children pursue a career path in a TVET area. Many parents perceive TVET as low income employment. Some parents are influenced by what other people may think in that, being a doctor, lawyer or accountant appears to be more refined and prestigious. This negative perception of TVET is not limited to the local context but is also seen at the global level.

Lillis & Hogan (1983) stated that vocational education plays a significant role in the reproduction of inequality within society arguing that the elite in any

society view any type of vocational education as being irrelevant to their needs since their power is linked to academic education. Similarly, Psacharopoulos (1988) stated that in Tanzania students from high income families tended to pursue programmes which specialized in commerce, while those from low income families attended agricultural programmes. In addition, the World Bank (2003) report states that it is the traditional academic achievement that is so highly valued in Lebanese society; the VTE option has always been regarded as a second-rate one for a minority of low academic achievers. Al Heeti & Brock (1997), (Herrera 2003) and Oketch (2007) indicated that VTE tends to be marginalized as a low-status track for poor academic achievers.

As mentioned before, Trinidad and Tobago has started the initiative that every child completes at least one CVQ at the secondary level. These CVQ subjects are found mainly in the TVET areas. This has started a change in the negative perception of TVET, as students and parents are now engaged in choosing the most appropriate CVQ for the selected career path. The "playing field" between academics and TVET seems to be levelled. TVET will no longer been seen as a choice for the low achievers or low income families but for all students regardless of ability and socioeconomic status. In Trinidad and Tobago, the acceptance of a CVQ Level 1 Award as an entry requirement into sixth form (Advanced Level) has further changed the negative perception of TVET as a subject choice, see Circular Memorandum No. 28 of 2014, Appendix (i).

It must be noted that in addition to selecting TVET as a career path, students must also have general education inclusive of Mathematics and English

Language. Bello, Danjuma and Adamu (2007) supported this when they stated employers are still interested in hiring individuals who have received occupationally specific training but they also want individuals with a solid grounding in basic academic skills.

In order for the negative perception of TVET to be changed, Akubudike (2003), states that proper guidance and counselling is needed to channel students' interest appropriately.

2.1.3 The Diversification of the Secondary School Curriculum

Whiteside and Desai (2000) argue that despite the pressure to change secondary curricula in a vocational direction, secondary education curricula continue to be liberal and oriented to the first degree courses. Therefore, the secondary education curricula must be reviewed and revised so that there are effective links between industry and education. Amedu (2013) pointed out that technical educators should involve technological, technical and business organisations, the government, NGO's and successful industrialists in their service delivery to students.

Schools must revisit their subject prospectus so that subjects are grouped together in order to allow for continuity of the subject area, whether academic or vocational into the workplace or higher education. A properly designed curriculum will cater to those students who have pursued a TVET career path at secondary school with the opportunity to further their education in TVET post-secondary. This is seen in Trinidad and Tobago where post-secondary students

pursue higher education in related vocational areas at technical institutions such as Metal Industries Company Limited (MIC) and National Energy Skills Centre (NESC) and are employed in high paying jobs that have status associated with it. Others have furthered their TVET career path along the traditional route of engineering degrees at the university level, that is, the University of the West Indies (UWI) and The University of Trinidad and Tobago (UTT).

Also, a well-designed curriculum offering TVET areas will develop in students the necessary knowledge and skills to make them workplace ready. Abdulhai (1993) supports this when he states that vocational education is expected among other things to assist students to acquire relevant occupational and technical skills, prepare for future occupations, and make transition from school to world of work. This is seen in the vocational area of TD in Trinidad and Tobago. While Technical Drawing is not a pre-requisite for entry into Engineering degrees at UWI, the knowledge and skills learnt at secondary level makes the curriculum easier to achieve since the university level curriculum is almost ninety percent similar to the CSEC curriculum. TD at the secondary level further prepares the students for specific occupational programmes in technical institutions such as MIC and NESC.

However, Oranu (1990) indicated that the vocational education curriculum lacks harmony between the educational practice and the world of work. In developing vocational areas to be delivered in the secondary school curriculum a number of concerns must be addressed. These concerns include collaboration between industry and vocational education institutions so as to ensure the

requirements of the workplace and employability skills are addressed, improved publicity concerning TVET and on the job experiences. There is international recognition of the need to build seamless pathways of education that connect basic education, vocational training, work-force entry and career development (Bennett 2007).

Students must be involved in choosing their career path and parents must be educated on the changing demands by higher education institutions as well as those in the workplace. In Trinidad and Tobago, secondary schools create in parents' an awareness of the importance TVET through parent-day conferencing. Support is also provided though institutions such as UTT, NTA, NESC and Ministry of Tertiary Education and Skills Training (TEST).TEST was established in 2001 as an arm of the government that would foster the development of rich diverse highly capable and adaptable human resources pool. TEST supported by NTA hosts the annually the World Skills Expo, the aim of which is to educate the public and even more specifically secondary school students about vocational education and employment opportunities. Bolaane, Chuma, Totengand and Molwane (2010) support the view that institutions should also conduct career fairs so as to sensitize employers about their graduates' skills. NTA has a Career Bus, where visits are made to secondary schools promoting vocational education.

With respect to on-the-job experiences, this may be possible where CVQ is offered but with regards to those vocational areas in the secondary school there is no such programme available at present in Trinidad and Tobago. Smith and Green (2005) conducted a follow-up survey of school students one to three years

after they had left school. They found that participating in a school-based apprenticeship provides a clear pathway into apprenticeship in a similar industry area. Through meaningful work-based learning experiences, high school students gain an understanding of career options, steps, and the skills necessary to attain occupational goals (Bailey, Hughes, and Moore 2004; Csikszentmihalyi and Schneider 2000). Vocational education is of utmost importance in the school as it allows for the students to attain knowledge and skills in a given area so as to promote employability.

2.1.4 Technical and Vocational Education as it Relates to Gender

Stanwick (2005, 2006) and Sherman (2006) considered the outcomes by gender of vocational education and training (VET) and found that males had a smoother transition to employment, obtaining better employment six months after training when compared with females. VTE at the school level may be particularly important for boys, especially where they have been falling behind girls with regard to successful outcomes of schooling (Vlaardingerbroek, 2005). Anlezark, Karmel and Ong (2006) used the Longitudinal Survey of Australian Youth Data and found that school VET programs provide a clear pathway for some students, particularly for boys studying in the areas of building and engineering. They noted that few girls appear to keep on with the VET subjects taken at school.

Theodore Lewis (1986) noted that gender was the main known determinant which decided the speed with which graduates entered the labour market, and the extent to which they remained engaged. His research showed that

this was to the disadvantage of females, who found that curriculum choice cannot be relied upon to compensate for inequality wrought by sex bias in the market place. He confirmed that vocational females nearly always fared worse than their male counterparts.

2.1.5 The Purpose and Value of Tracer Studies

This tracer study aims at tracking down graduates who completed CSEC TD and establishing whether or not the knowledge and skills obtained from of TD assisted them in the workplace or in higher education. The tracer study would indicate whether the qualifications they obtained from TD met the current needs of the industry.

Tracer studies can be referred to as graduate surveys, as the target group is former TD students. This graduate survey allows for the analysis of the relationship between higher education and work. It provides quantitative – structural data on employment and career, the character of work and related competencies, and information on professional orientation and experiences of the graduates (Millington, 2014).

Tracer studies are necessary to ascertain the importance of training to the economy and the labour market (BTEP, 2007). By tracking young people, researchers can conclude that vocational education and training assists the transition from school to work. However, the smoothness of this transition varies depending on student demographics and the nature of the TVET program undertaken. Bolaane, Chuma, Totengand and Molwane (2010), stated that tracer

studies could be used as a means of maintaining curriculum relevance and providing targeted benefits to graduates to enhance marketability of vocational programs. From information provided by tracer studies, the higher education institutions can get a systematic feedback from their former students. The institutions can know the whereabouts of their graduates; their working conditions and their retrospective assessment of their course of study might stimulate the curricular debate and could be also very interesting for the current or later students (Schomburg, 2003).

As detailed before (1.1.6), tracer studies have been carried out extensively across disciplines at the global, regional and national levels. A tracer study is an effective tool for following-up the situation of graduates from any educational institution (professional secondary school, college, university). It allows collecting information on labour market success of graduates, on the effectiveness, adequateness, quality of the training. Tracer studies are relevant for the steering of a market-oriented educational and vocational training system as well as the on-going TVET reform process. A well designed and implemented tracer study would enable the researcher to make accurate and well informed inferences.

In this tracer study, TD curriculum is evaluated to see how it assisted students further their education in TD as well as its value in the workplace. The evaluation of the course involved graduates feedback and a reflection of graduate employment rates and further education development. The data would also guide

the researcher to the viability of the TD programme in secondary schools and how it may be improved to cater to the needs of the industry.

Feedback from students is an important aspect of a course evaluation process (Barnett, 1992). The most common and convenient methods for including students in a course evaluation process are questionnaires and interviews (Burnett & Clarke, 1999). Additionally, Gibbs et al (1989) claim that graduate questionnaires should be included in a course evaluation process because they can provide information about usefulness and relevance of course content, skills acquired and knowledge gained after they have been working for a period of time. This is important as students may not be aware of the relevance of much of a course's content until they have had experience in the workplace for some time, and have had need to utilize particular skills or knowledge gained during the course.

The Department of Employment, Education and Training (1991) report suggests that ratings of graduate employment status should be included in a course evaluation process. It further states that employment can be broken up into several categories incorporating full-time and part-time work, unemployment and full-time and part-time study.

2.1.6. School to Work Transition

According to the World Web Bank (2009), school-to-work transition refers to the critical socio-economic life changing period between approximately

15 to 24 years of age. This is considered the period when young people develop and build skills which are based on their initial education and training. These skills help them become productive members of the society. The World Development Report 2007: Development and the Next Generation (WDR 2007) presented a comprehensive approach of life transitions into the challenges of adulthood. It focused on the faced by youth. Of the transitions outlined in the WDR, the education sector focused on learning for life and the school-to-work transition. The issue of school-to-work transition and employment of youth is a major challenge faced both by the poorest countries as well as the middle income countries. The World Bank education sector's work attempts to help countries form education policies that can improve the learning experiences of young people and help ease the transition into the world of work. SWT programs can be developed so as to prepare students for employment or self-employment.

These SWT programs can include both in-school and work-based experiences. These experiences can include job shadowing, job twinning, work experience, cooperative education, and in-depth skills training. The programs would require the involvement of employers in their development and delivery and may provide advanced standing or additional certification for students in apprenticeship and skills certification programs.

SWT Transition programs consist of a number of courses that prepare students to meet the requirements of a specific occupation or apprenticeship. Initially there should be a combination of courses that include opportunities for career exploration through job shadowing and work experience is appropriate.

Later, students can receive a more in-depth training through courses oriented towards their post-secondary education or workplace destinations and through skill development obtained through cooperative education placements that relate directly to their chosen careers.

These SWT programs benefit employers as employers lament the relative inability of many young people to cope with the demands of the workplace. They have expressed the view that schools hardly provide students with the requisite skills for effective transition into the labour market (Charles & Jameson-Charles, 2012). Thus advocates of the SWT perspective consider the preparation of graduates for a successful transition into the workforce as the principal function of the education system according to Gordon, 1999. This is supported by Dewey (1916) who argued that workforce education should be part of the comprehensive curricula to help students develop a wide range of personal competencies. He stated that policy-makers should design workforce education to meet the needs of students.

Work is central to young adults' well-being (Elder, 2011). School-to-work transition (SWT) indicators are designed to measure the ease or difficulty with which young people are able to access decent work. The stage 'in transition' comprises youth who are unemployed, or employed and planning to change jobs or return to education. The 'transited' stage includes young people actively employed in a career job and wanting to stay there. A recent synthesis survey of eight countries has shown that those with higher education are not guaranteed an easier transition from school to work. Egyptian youth with higher education

remained in transition 33 months after graduation. Finding work is challenging for many youth. They may lack the appropriate skills demanded by the workplace. Programs that provide support to youth in their transition to work include technical and vocational education and training (TVET) employability training.

In the Caribbean human capital is its most valuable resource. It is therefore vital that the education system is appropriately positioned to facilitate this process. It is proposed that school-to-work initiatives be integrated in the education system and that there is continued development of more strategic employability skills. It is noted that potential young workers making the school-to-work transition face certain challenges.

The traditional academic depiction of the school-to-work transition process presents students with a choice between the benefits of further education as opposed to employment (i.e. current income and projected future income), and it is assumed that students directly move from the academic ethos to gainful employment. This is not a realistic assumption as there are hindrances to labour force entry. For example, females have a much harder time finding employment than young men. In the Bahamas, for example, young women are twice as likely to be unemployed than young men.

In Trinidad and Tobago, although the youth unemployment rate has shown recovery in 2011, youth labour force participation rates have been falling (Wade Mark, 2012). The Government's Policy Framework for Sustainable Development provides the national framework in which actions aimed at achieving 'Prosperity

for All' in Trinidad and Tobago are pursued. With respect to youth, the Policy Framework seeks to strengthen the secondary school system to ensure that students move on to further education or to productive roles in the economy and to ensure that young people are literate, numerate, and possess critical thinking skills. A system of entrepreneurship and apprenticeship is encouraged, whereby all major industrial firms will operate apprenticeship programmes for youth and engage interns from the educational system.

The Government of Trinidad and Tobago has recognized that tertiary education, technical and vocational education and training (TVET) and lifelong learning play a pivotal role in the social, economic and cultural development of the country. One of the aims of the National Policy on Tertiary Education, Technical Vocational Education and Training (TVET) and Lifelong Learning is to strengthen technical and vocational education and training as part of a seamless system so as to allow for alternative pathways to further and higher education. This Policy also promotes learning and skills transfer, strengthens workforce competence, supports industrial development and promotes workplace readiness through the award of the Caribbean Vocational Qualification (CVQ).

2.1.7 The Methodology and Data Analysis used in the Tracer Study

A quantitative research design was employed in this research paper. Quantitative research involves the systematic collection of hard data and facts about individuals. From the data collected, trends can be identified. This type of research attempts to establish what relationships might exist between variables;

independent and dependent variables. A major advantage of quantitative research is the ability to replicate an experiment with a different researcher. Because the bias of the experiment can be minimized, quantitative research is considered objective. The data was collected and analyzed using IBM SPSS Statistics version 22.0 software programme. SPSS is a statistical analysis tool as well as a data management tool.

In conclusion, it is only through tracer studies can researchers follow the career path of graduates of a specific area into higher education or in the workplace so as to determine if the knowledge and skills gained in the given area was relevant to the field of study or in the workplace.

Chapter 3

Methodology

This paper was designed to trace students' further education development in the vocational area of Technical Drawing (TD) as well as the value of TD to those students who entered the workplace. Chapter 3 describes the research methodology of this study which (a) defines the research setting, (b) describes the design of the research, (c) explains the questionnaire design, (d) states the variables, (e) discusses the sample selection, (f) describes the data collection, (g) explains the data analysis and (h) states the limitations and delimitations of the tracer study.

3.1.0 Research Methodology

Corroborative evidence and subsequent analysis in support of the topic under investigation was conducted in a structured manner. The structure of the research followed an established methodology. The findings from this research can be applied to any secondary school seeking to evaluate TD as a subject choice to its students with regards to higher education or in the workplace.

3.1.1 Research Setting

La Vega Secondary School is situated in the Caroni Educational District of Trinidad in close proximity to the Point Lisas Industrial Estate. It is a new sector school built under the Secondary Education Modernization Programme

(SEMP) in 2003 and is often referred to as a SEMP school. The school has been existence for ten (10) years and has a population of seven hundred and twenty (720) students and forty-five (42) teachers exclusive of the administration. It is a coeducational institution with students of mixed abilities, ethnicity, religions and socioeconomic backgrounds.

At La Vega Secondary School there are twenty-four (24) Caribbean Secondary Examination Certificate (CSEC) subjects offered at the form four and five levels, inclusive of eight TVET subjects.

This research focused on the vocational area of Technical Drawing (TD). In an attempt to expose the students to relevant vocational subject areas and also to meet the increasing demands of the students for TD when selecting their subject groupings, the school's administration and the middle management (Heads of Department and Deans) team have expanded the offering of TD to four out the five subject groupings (Science, Business Technical 1, Business Technical 2 and Technical). Within these subject groupings the students range in varying academic abilities.

The students who participated in this research were post-secondary students who chose TD in their subject grouping. The population of students ranged from 2008-2013 who completed their course of study and sat the Caribbean Secondary Examination Certification (CSEC) in TD, whether they achieved a passing grade or not.

3.1.2 Design

The research design used in this study was a quantitative descriptive research. It relied primarily on the collection of quantitative data, i.e. numerical data. The scientific method employed in this type research was deductive. In this study, the deductive process can be used to explore whether the knowledge and skills gained from TD was beneficial in higher education or in the workplace. This type of research views human behavior as being predictable and regular and quantitative researchers try to identify cause-and- effect relationships that enable them to make probabilistic predictions and generalizations (Johnson, Christensen, 2004).

3.1.3 Questionnaire Design

In this quantitative research the data collection instrument that was used was a questionnaire. In designing the questionnaire, the aim of the survey was clearly identified as tracing students who attended La Vega Secondary School for the period 2008-2013 and pursued the vocational area of Technical Drawing, to learn about their further education development in TD as well as the value of TD in the workplace.

From this aim, the questions/items were developed so as achieve purposes of the tracer study: (1) To trace students' higher education development in the vocational area of Technical Drawing (TD) having completed TD at CSEC and (2) To trace those students who entered the workplace having completed TD at CSEC.

In this study a standardized questionnaire was given to all participants. The questionnaire , see Appendix (ii), was accompanied by a cover note identifying the researcher, the program of study the researcher was involved in, the purpose of the researcher's study and the institution where the researcher's program of study was being facilitated. The cover note also provided a section for parental signature permitting any student/ward under the age of eighteen to participate in the questionnaire. The cover note clearly stated that all information that was provided will be kept confidential. It also thanked the respondents for participating in the survey.

The first section of the questionnaire, labelled Section A, requested three demographic questions to be filled out. These were gender, age and the year the respondent participated in the TD CSEC examination.

Following this section, there were sixteen (16) items to be answered by the respondents. The items were as follows:

1. Why did you choose to do Technical Drawing for CSEC?
2. What institution (s) you are attending (if applicable)?
3. State your course of study (if applicable).
4. Does the course of study that you are pursuing have elements of Technical Drawing (if applicable)?
5. Did the CSEC Technical Drawing curriculum (Building Drawing/ Mechanical Engineering Drawing) prepare you for your current course of study (if applicable)?
6. Are you currently employed (if applicable)?

7. What is your job title?

8. Do you think that the CSEC Technical Drawing curriculum adequately prepared you for the workplace?

9. Answer this question only if you did not pursue a career path in Technical Drawing. Please indicate what career you are now pursuing

10. Since leaving secondary school, have you furthered your knowledge and skills in Technical Drawing?

11. If you have answered "YES" for Question 10 do you agree that Technical Drawing will assist you in your career?

Question 12 applies to those students who are currently employed in a field of work where Technical Drawing knowledge and skills are being utilized.

12. Do you agree that an apprenticeship program in Technical Drawing during secondary school education would have made you workplace ready?

13. What importance would you place on Technical Drawing as a subject choice?

14. Do you agree that Technical Drawing should be made a compulsory subject at Preysal Secondary School?

15. If you are employed using the skills of TD, are you satisfied with the salary you are receiving?

16. Can you indicate in the range options provided below the salary per month you are receiving the skills of TD?

For items 1- 2, 4- 6, 8, 10-16 choices were provided for the respondents using Likert Scales. For items 3, 7 and 9, the respondents were required to write in their responses. The questionnaire used in the research is seen in Appendix 2.

Note that item 2 was rephrased to state: What institution (s) you attended/ currently attending (if applicable)? Items 15-16 were added on as new items but Item 16 had an additional salary range to cater to some students' salary range. The additional salary range that was added on was $5000.00 and over.

3.1.4 Sampling

The test subjects were post-secondary students who did TD at the La Vega Secondary School during the period 2008-2013 and who completed their course of study in TD at CSEC level, whether they achieved a passing grade or not. The study excluded those students who had entered the school at the Form Four level from previous de-shifted Junior Secondary Schools. The respondents were limited to those students who entered the La Vega Secondary from only Form One.

The researcher carried out a random sampling of ten (10) post-secondary students who did CSEC TD over the period 2008-2014. From these oral responses, the researcher decided that tracing students who attended La Vega Secondary School for the period 2008-2013 and pursued the vocational area of Technical Drawing, to learn about their further education development in TD as well as the value of TD in the workplace was a feasible study.

In the tracer survey, the researcher made the attempt to receive completed questionnaires from all students who did TD during the period 2008-2013 i.e. one

hundred and sixty-five (165) students. It was expected that ninety percent of the questionnaires will be completed and received. **Table 1**below shows all students who participated in the CSEC Examination for Technical Drawing 2008-2013.

Table 1: All students who participated in the TD CSEC Examination 2008-2013

Year	Number of Students Mechanical Drawing	Number of Students Building Drawing
2008	28	19
2009	-	15
2010	-	18
2011	16	15
2012	15	08
2013	15	16
Total	74	91

As mentioned before, those students who did not attend La Vega Secondary from Form One for the period 2008-2013 and did TD were not part of the survey. There were seven (7) students who fell in this category: three students (3) were students from 2008, one (1) student from 2009, two (2) students from 2010 and one (1) student form 2012. The new revised group of students for the period 2008-2013 is now one hundred and fifty-eight (158) students. **Table 2** below shows the actual figures of students who participated in the CSEC examination for Technical Drawing and who were selected to be a part of the research study.

Table 2: The actual figures of students who participated in the TD CSEC examination and who were selected for the research study

Year	Number of Students Mechanical Drawing	Number of Students Building Drawing
2008	28	16
2009	-	14
2010	-	16
2011	15	15
2012	15	08
2013	15	16
Total	73	85

3.1.5 Data Collection

The questionnaire was distributed to hundred and fifty-eight (158) students who did TD at the CSEC examination for the period 2008-2013. In an effort to receive responses from at least ninety percent of the target population, various methods were employed. These methods included: Online/Internet-Facebook and emails, Face To Face interaction, telephone interviews and through students who are presently attending La Vega Secondary School.

The post-secondary students were contacted by the researcher through Facebook to complete the questionnaire that was uploaded onto Facebook. They were asked to email their responses to the researcher. Through Facebook the researcher was able to request from those students who are on Facebook to contact their colleagues from their given year to participate in completing the questionnaire. The use of internet allowed for catering to those students who operate in the digital environment.

Students who were contacted through Facebook were also given the option to meet the researcher at La Vega Secondary School to participate in completing the questionnaire (Face To Face interaction). Students were also contacted through the telephone. They were given the option to complete the questionnaire via the telephone or Face-To-Face interaction with the researcher at the designated school. Students were allowed to come in at the school at their own convenience as some of these students are working and requested to come in after work. Also, those who are pursuing higher education and can only come in after their classes were accommodated after their classes were completed. The researcher met with these students after work hours at La Vega Secondary. The researcher also visited the homes of students having been given permission to do so. These meetings took place during the week and well as on Saturdays and Sundays. This Face To Face interaction will provide the trust needed by the students to provide valid information.

Students under the age of 18 were required to have their parent's or guardian's signature affixed to the questionnaire before returning it. In these cases, the parents were allowed to bring the students to La Vega Secondary School to complete the questionnaire.

Telephone interviews were carried out with those students who are working offshore and were unable to come to La Vega Secondary School or who had no internet access. The interviewer, who in this study is also the researcher, read the questions or statements exactly as written on the interview protocol and recorded the interviewee answers in the spaces that were provided. When the

questionnaire was used directly by the research participant, he or she read and recorded his or her own answers in the spaces that were provided on the questionnaire.

The questionnaire was also sent through students who were presently attending La Vega Secondary School whose siblings or relatives were a part of the target population. The respondents were required to return the questionnaires in person to the researcher at the school.

The timeline for the data collection spanned one and half months, from 18th April 2014 to 09th June 2014.

It must be noted that the questionnaire did not request the respondent name. However, when the questionnaire survey was conducted if the respondent wrote his or her name on it, the respondent was assured that his or her name will be kept anonymous and the information confidential. The students who submitted their names by responding through emails or Facebook to the researcher were assured that their information will be kept confidential. Also, it was important that each participant understood that the research was important to the researcher and that respondent participation was important for the integrity of the researcher's study.

After all the questionnaires were received, the data analysis was carried out. The next section outlines the method of data analysis that was used.

3.1.6 Data Analysis

Accurate data is essential to maintain the integrity of the research. Inaccurate data collection can lead to invalid results. The software that was used for the data analysis was the Statistical Packages for Social Sciences, SPSS (IBM SPSS statistics 22.0). The data analysis addressed the research questions of the tracer study. **Table 3** below shows the actual figures of students who participated in the CSEC examination for Technical Drawing and who were selected to be a part of the research study and their responses from the questionnaire.

Table 3: The respondents in the research study

Year	Number of Students Mechanical Drawing	Number of respondents	Number of Students Building Drawing	Number of respondents
2008	28	27	16	12
2009	-	-	14	14
2010	-	-	16	16
2011	15	14	15	09
2012	15	13	08	03
2013	15	12	16	13
Total	73	66	85	67

Of the 158 questionnaires, 133 students completed the questionnaires. The reasons for students not participating in the survey included: refusal to do so, no-show, the students stated they were unable to see the relevance of the survey to their lives and the researcher was unable to contact some students.

In using the SPSS software, Variable View and Data View Windows were used. The Data View Window displayed the actual data and any new variables. The Variable View Window contains the definition of each variable in the data

set. The items from the questionnaire were set using the Likert Scale to develop codes for each item and the related responses. **Table 4** below shows the Variable View Window for this tracer study.

Table 4: The Variable View Window for this tracer study.

	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure	Role
1	Year	Numeric	8	0	Graduate Year	{1, 2008M}...	None	8	Right	Scale	Input
2	Gender	String	24	0	Graduate Gender	{1, Male}...	None	5	Left	Ordinal	Input
3	Age	Numeric	8	0	Graduate Age	{1, 17 yrs}...	None	3	Right	Scale	Input
4	Q1	String	24	0	Reason for Cho...	{1, aligned t...	None	3	Left	Ordinal	Input
5	Q2	String	24	0	Education Instit...	{0, No studi...	None	3	Left	Ordinal	Input
6	Q3	String	24	0	Career Choice	{0, Did not p...	None	3	Left	Ordinal	Input
7	Q4	String	24	0	Course has Ele...	{1, not at all...	None	3	Left	Ordinal	Input
8	Q5	String	24	0	Did CSEC TD p...	{1, not at all...	None	3	Left	Ordinal	Input
9	Q6	String	24	0	Are you Current...	{1, yes}...	None	3	Left	Ordinal	Input
10	Q7	String	24	0	What is your jo...	{0, Student}...	None	3	Left	Ordinal	Input
11	Q8	String	24	0	CSEC TD prep...	{1, strongly ...	None	3	Left	Ordinal	Input
12	Q9	String	24	0	Did not pursue ...	{1, ICT tech...	None	2	Left	Ordinal	Input
13	Q10	String	24	0	Did you further ...	{1, yes}...	None	3	Left	Ordinal	Input
14	Q11	String	24	0	Do you agree t...	{1, strongly ...	None	3	Left	Ordinal	Input
15	Q12	String	24	0	Apprenticeship ...	{1, strongly ...	None	3	Left	Ordinal	Input
16	Q13	String	24	0	What importan...	{1, unimport...	None	3	Left	Ordinal	Input
17	Q14	String	24	0	TD made a co...	{1, unimport...	None	3	Left	Ordinal	Input
18	Q15	String	24	0	Job satisfaction...	{0, Not Wor...	None	3	Left	Ordinal	Input
19	Q16	String	24	0	Salary range re...	{0, Not Wor...	None	3	Left	Ordinal	Input
20											

Note that in the Variable View, a coding system was used. The items in the questionnaire were given a numerical value to represent the Likert scale. These codes were used to enter data into the Data View. The respondents choose the most suitable words that were provided for their response. The researcher then coded these chosen words using numerical values.

Table 5 below shows part of the Data View Window which displays the actual data and new variables for this tracer study. All data entries are seen in Appendix (iii).

Table 5: A part of the Data View Window for this tracer study

	Year	Gender	Age	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	var
1	1	1	6	2	3	6	2	4	1	1	5	1	2	2	5	4	4	3	4	
2	1	1	7	2	3	8	5	5	1	13	3	1	1	4	5	5	4	3	3	
3	1	1	6	2	4	8	4	4	1	1	5	1	1	5	5	5	5	5	8	
4	1	1	6	2	0	0	0	2	2	7	4	0	2	3	4	5	5	4	3	
5	1	2	7	2	1	10	1	2	2	0	2	3	2	2	4	3	3	6	11	
6	1	2	6	2	1	11	3	3	1	11	3	7	2	3	4	4	4	6	11	
7	1	2	6	1	1	6	3	4	2	0	4	8	1	4	4	4	4	6	11	
8	1	1	5	1	1	12	5	5	1	5	5	0	1	5	5	5	5	4	4	
9	1	1	5	2	1	6	3	1	1	0	0	0	1	4	0	3	5	6	11	
10	1	1	7	5	2	2	1	0	1	12	3	9	1	2	0	4	4	6	11	
11	1	1	6	1	1	9	1	1	1	14	2	1	2	0	0	4	2	3	1	
12	1	1	8	2	0	0	3	2	1	5	4	0	2	4	3	5	5	4	4	
13	1	1	6	1	2	13	4	2	1	7	3	0	2	3	3	3	3	3	3	
14	1	1	7	1	2	13	5	4	1	7	3	0	2	0	3	4	4	5	4	
15	1	1	3	1	2	9	4	4	1	8	4	0	1	4	5	4	5	3	2	

In data analysis, validity and reliability of the data collection instrument are two important issues. Validity means the degree to which a test measures what it is supposed to measure and consequently permits appropriate interpretation of scores. Validity can only be evaluated in terms of purpose; in this study it is tracing students' higher education development in TD or the value of TD in the workplace.

Craddick, Crawford, Redican, Rhodes, Rukenbrod, and Laws (2003) describe 'quality assurance' and 'quality control' as two approaches that can preserve data integrity and ensure the scientific validity of study results. Each approach is implemented at different points in the research timeline (Whitney, Lind, Wahl, 1998): Quality assurance - activities that take place *before* data collection begins and Quality control - activities that take place *during* and *after* data collection.

Reliability refers to dependability and it is usually expressed numerically. High reliability indicates minimum error variance. Note that a valid test is always reliable but a reliable test is not necessarily valid. What this means is that a reliable test can consistently measure the wrong thing and be invalid. Hence reliability is a necessary condition for validity and is determined by correlation coefficients which range from 0 to 1; where 0 is zero percent reliable and 1 is one hundred percent reliable.

In quantitative research there are variables. Some examples of quantitative variables in this tracer study are age and job satisfaction score. A categorical variable is a variable that varies in type or kind. It usually involves different groups. Some examples of categorical variables are gender and college major. Both of these types of variables were seen in this study. It is important to note that there are independent variables and dependent variables. In this study, the dependent variables were whether the students were pursuing higher education in TD or utilizing the skills and knowledge from TD or in the workplace. The independent variable was gender and age. In this study, non-experimental research was used as there was no manipulation of an independent variable by the researcher.

3.1.7 Limitations

In the implementation of this study, the main limitation is that only one school was focused on and hence a generalization cannot be easily made to all other schools in Trinidad and Tobago. However, the strength of the this research

design is that it caters to those students who lead busy lives but are digital natives of the 21st century using the Internet as a means of communication and it also caters to those students who can physically visit La Vega Secondary to participate in the questionnaire.

3.1.8 Delimitations

The delimitations of this study are that, it addresses only one vocational area, that is, TD, of the schools' curriculum and the number of responses from the questionnaires can only be used to give guidance to the TD curriculum.

Overall, the research methodology was along established practices and was comprised of the necessary elements to ensure that the results were necessary and sufficient for analysis.

Chapter 4

Data Analysis and Presentation of Findings

The survey questionnaire was carried out using a 16-item questionnaire with an additional three (3) demographic questions. One hundred and thirty-three (133) responses were received from the overall one hundred fifty-eight (158) questionnaires that were sent out. This response rate was 84.18% which is considered a high one. This was attributed to the researcher making the continued effort to meet with the test subjects through Face to Face interaction, online or telephone contact.

This chapter addressed the findings for the research questions and also included the results for each item in the questionnaire.

4.1 The Research Questions

Main question:

What was the nature of the post-secondary experiences of graduates, and did they find the curriculum they pursued in school to be beneficial or relevant to these experiences, in terms of further education and training, and in terms of the employment experience?

The nature of the post-secondary experiences of graduates was varied. Based on the questionnaire responses completed by the graduates, it was concluded that the graduates found that the TD curriculum they pursued in school to be beneficial or relevant to their post-secondary experiences, in terms of further

education and training. This was supported by Item 5 responses which asked “Did the CSEC Technical Drawing Curriculum prepare you for your current course of study (if applicable)? It was seen that 76.70% of the respondents indicated that the CSEC TD Curriculum prepared them for their current course of study. Of the 76.7%, 23.30% of the respondents indicated mildly, 36.10% of the respondents indicated strongly and 17.30% of the respondents indicated very strongly. **Table 6** below shows in the detail the nature of their further education and training, whether it was at a tertiary level institution or a craft institution.

Table 6: Career Choices/Course of Study of the respondents

Name of Courses	UWI		UTT		SBCS		COSTAATT		NESC		MIC	ATC	YTEPP		CTC	Humber Clge	Civ.Con..Cor	A' Lev. Inst.		Trade	No study pursued		**TOTAL**
Gender	M	F	M	F	M	F	M	F	M	F	M	M	M	F	M	F	M	M	F	M	M	F	
A' Levels	-	-	-	-	-	-	-	-	-	-	-	-			-			4	5				**09**
Auto CAD					1	-									2	-							**03**
Auto Technician									1	-													**01**
Architecture															-	1							**01**
Automotive									1														**01**
Air con & Refr									4		1												**05**
Agri. Diploma								1															**01**
Bus. Info. Tech.	-	1			-	5	2	1															**09**
BSc. Radiography							1	-															**01**
B. Ed. Tech. Voc.			-	1																			**01**
B. Ed.	-	1	-	1																			**02**
B. Sc. Agriculture	-	1																					**01**
B. Sc. Physics	2	-																					**02**
Criminal Justice							-	1															**01**
Culinary Arts																	1						**01**
Computer Eng.			2	-																			**02**
Chemical Eng.	1	-	2	-																			**03**
Civil Eng.	2	-	1	-																			**03**
ECCE	-	2																					**02**
Elec Etronic. Tech.	-	-	2	-	1																		**03**
Elec. Eng. Tech.	1		2																				**03**
Electrical Maint.											1												**01**
Elec. Comp Eng.	1	1																					**02**
Elec. Etnics Eng.			5	-					2	-													**07**
Forestry			1	-																			**01**
Graphics Design					1	-																	**01**
Geo. Eng.	1																						**01**
Health Study		1																					**01**
Health and Safety							1	1															**02**
Hair and Nails													-	1									**01**
Hum.Res.Mgmnt		1																					**01**
Instrumentation									1	-													**01**
Info. Technology							1	-															**01**
Ind. Elec. Main.			2	-					2	-													**04**
Ind. Mech. Main.									1	-													**01**
Joinery													1	-									**01**
Mech Eng. Tech.			9	-																			**09**
Mech. Ind. Maint			1	-					3	-	1												**05**
Marine Navigator			1	-																			**01**
Medical Lab Tech.							2	-															**02**
Nursing							-	2															**02**
Pre- Med.							1	-															**01**
Plant Proc Oper			1	-					1	-		1											**03**
Welding & Fab									4	1													**05**
Trade . Mechanic																				2			**02**
Did not Study	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	7	**22**
TOTAL	**8**	**8**	**29**	**2**	**3**	**5**	**8**	**6**	**20**	**1**	**3**	**1**	**1**	**1**	**2**	**1**	**1**	**4**	**5**	**2**	**15**	**7**	**133**

The respondents also indicated that their employment experiences were closely linked to the course of study they pursued at further educational institutions. This information is represented in Item 8: "Do you think that the CSEC Technical Drawing curriculum adequately prepared you for the workplace?" 79.0% of the graduates indicated the CSEC TD curriculum adequately prepared them for the workplace, this percentage were broken down in three categories options where 17.30% of the graduates indicated they slightly agree, 42.90% of the graduates indicated they agree and 18.80% of the graduates indicated they strongly agreed.

Sub-questions:

1. To what extent did the graduates pursue higher education development in Technical Drawing?

   81.96 % of graduates for the period 2008-2013 used the knowledge and skills from TD in their pursuit of post- secondary higher education. This included Advanced Level (also known as Form 6 as this level is considered post-secondary). This information was obtained from **Table 6: Career Choices/Course of Study of the respondents** in response to Item 2: "What institution you attended/currently attending (if applicable)".

   81.96 % of graduates for the period 2008-2013 used the knowledge and skills from TD in their pursuit of post- secondary higher education. 52.63% attended tertiary level institutions which included UWI, UTT, School of Business and Computer Science

(SBCS) and College of Science Technology and Applied Arts of Trinidad and Tobago (COSTAATT). 21.05% attended Craft institutions such as MIC, NESC, Automation Technology College (ATC) and Civilian Conservation Corporation (CCC). 6.78 % attended Form Six level institutions. 1.5% attended Computer Technology Centre (CTC) where they pursued AutoCAD, 1.5% went on to pursue private trade and 16.54% did not pursue any studies.

2. What kinds of higher education programmes did the graduates pursue?

Table 6: Career Choices/Course of Study of the respondents shows 45 different career paths that graduates choose for the period 2008-2013, there were a total of 109 or (81.96%) graduates who pursue higher education programmes.

44 (33%) of graduates pursue higher education in many of the Engineering /Technician programmes, 09 chose Mechanical Engineering Technician, 05 chose Mechanical Industrial Maintenance, 07 chose Electrical Electronics Engineering, 04 chose Industrial Electrical Maintenance, 03 chose Chemical Engineering, 03 chose Civil Engineering, 02 chose Computer Engineering, 03 chose Electrical Engineering Technician, 03 chose Electrical Electronics Technician, 03 chose AutoCAD and 02 chose Health and Safety.

13(9.77%) of graduates pursue higher education programmes at several Craft Institutions: 05 chose Air Condition and Refrigeration,

05 chose Welding and Fabrication and 03 choose Plant Process Operator.

There were graduates, who also pursued higher education programmes at SBCS, UWI, UTT and COSTAATT: 09 chose Business Information Technology, 02 chose Nursing, 02 chose Medical Lab Technician, 02 chose Bachelor of Science in Physics, 02 chose Bachelor of Education, 02 chose Early Child Care Education and 09 chose A' Levels education. There were 22 students who did not pursue any studies.

3. What kinds of jobs did the graduates find in the labour market in terms of job-type and salary?

37 jobs types were identified and shown in **Table 7** below. Each job type has a salary range scale in which the graduates are currently receiving a salary scale range from $3000.00 or less to $12,200.00 and above (The currency being Trinidad and Tobago dollars).

55.64 % (74) of the graduates for the period 2008-2013 found jobs in the labour market. The graduates found many different categories of job-types with varying salary ranges. 4.05% of graduates were employed as Plant Process Operator and were receiving a monthly salary above $12200. In 17 job-types, 37.83% of graduates were receiving $4100 - $4900 per month These 17 job-types were as

follows: Industrial Mechanical Maintenance, Electrical Electronics Technician, Mechanical Engineering Technician, Welding and Fabrication, Plant Process Operator, Process Technician, Mechanical Pipe Fitter, Air Condition and Refrigeration, Draughtsman, Draughtsman Assistant (Canada) Construction Rigger, Automobile Technician, Joiner, Health and Safety Officer, Administration Assistant, Clerks and Construction worker.

From the 37 job types identified in **Table 7**, 6.76% of graduates were receiving $3000 or less per month, 13.51% of graduates were receiving $3100- $3500 per month, 13.51% of graduates were receiving $3600 - $4000 per month, 37.83% of graduates were receiving $4100 - $4900 per month, 9.45% of graduates are receiving $5000 - $6000 per month, 2.70% of graduates were receiving $6100 - $7000 per month, 5.4% of graduates were receiving $7100 - $8500 per month, 4.05% of graduates were receiving $9000 - $10000 per month, 2.7% of graduates were receiving $11000 - $12000 per month and 4.05% of graduates were receiving $12200 and above per month.

There were gender differences of graduates who are employed only 5.4% of female graduates were employed, whereas 50.23% of male graduates were employed. **Table 7** below shows the Various Job types graduates find in the labour market with the salary scale.

TABLE 7: Job Types and Salary Scale ((F: represents female graduates)

		SALARY RANGE PER MONTH (TTD)										
No	JOB TYPES	$ 3000 or Less	$ 3100-3500	$ 3600-4000	$ 4100-4900	$ 5000-6000	$ 6100-7000	$ 7100-8500	$ 9000-10000	$ 11000-12000	$ 12200 and Above	**TOTAL**
01	Ind. Elec. Maintenance							1				**01**
02	Ind. Mech. Maintenance			1	3							**04**
03	Electrical Elect. Technician				4				1			**05**
04	Mechanical Eng. Tech.		1		2							**03**
05	Chemical Engineering		1									**01**
06	Welding and Fabrication		1		1			1	1			**04**
07	Plant Process Operator				1				1		3	**05**
08	Process Technician				1							**01**
09	Plant Main. Technician									1		**01**
10	Mechanical Pipe Fitter				1							**01**
11	Air Con. & Refr. Tech.		2		2							**04**
12	Draughtsman Assistant				**1F**							**01**
13	Draughtsman				2							**02**
14	AutoCAD Technician					1						**01**
15	Computer Eng. Trainee	1										**01**
16	Computer Technician		1									**01**
17	Rigger Construction				1							**01**
18	Pump Repair Technician					1						**01**
19	Auto Electrical			1		1						**02**
20	Automobile Technician			2	1	1						**04**
21	Joiner		1		1							**02**
22	Mechanic			1								**01**
23	Laboratory Technician							1				**01**
24	Electrical Sales Rep.	1										**01**
25	Health and Safety				1					**1F**		**02**
26	Hardware Loader			1								**01**
27	Hair and Nails Tech.	1										**01**
28	Administrative Assistant				**1F**							**01**
29	Manager			1		1						**02**
30	Clerk		2	1	2		2					**07**
31	Customer Sales Rep.	1		1								**02**
32	Police Constable					2						**02**
33	OJT Trainee (Food & Nut.)		**1F**									**01**
34	Heavy Machinery Operator							1				**01**
35	Delivery Driver			1								**01**
36	Labourer	1										**01**
37	Construction				3							**03**
	TOTAL	**05**	**10**	**10**	**28**	**07**	**02**	**04**	**03**	**02**	**03**	**74**

4. To what extent did the graduates use the skills and knowledge from TD in the workplace?

55.64% of the graduates were employed (that is, 74 graduates out of the total 133 graduates who responded) but only 43.61 % of these graduates (that is, 58 graduates) for the period 2008-2013 used the knowledge and skills from TD at the workplace. This data is shown in **Table 7: Job Types and Salary Scale.**

79% of the graduates used the skills and knowledge from TD in the workplace (this was inferred from Item 8). 18.8% of the graduates strongly agreed, 42.9% agreed, 17.3% slightly agreed, while 5.3% disagreed, 2.2% strongly disagreed and 13.5% did not choose any of the responses. Item 8 provided the data for this question.

5. Were there any gender differences in the post-school experiences of students?

Yes there were gender differences in the post school experiences of graduates. 82.73% of graduates enrolled in post- secondary institutions. 21.08% out of 27.06% of female graduates enrolled in post- secondary institutions and 61.65% out of 72.94% male graduates enrolled in post-secondary institutions. 4.51% of female students were enrolled in a course that had elements of TD, whereas 46.62% of male graduates enrolled in a course that had elements of TD. This information was taken from **Table 6: Career Choices/Course of Study of the respondents.**

4.2 Data Analysis and Presentation of Findings for Each Item on the Questionnaire

The first three items were the demographic items of the questionnaire under the category of General Information and were addressed as Items A, B and C.

Items 1-16 were addressed in the numerical form, that is, Item 1, Item 2 etc. Tables were produced by the SPSS software to reflect collected data from 2008-2013.

The SPSS software was also used to generate histograms so as make data analysis easier and more visual.

Responses from the Demographic Items A-C

Demographic Item A- Distinguishes between Males and Females

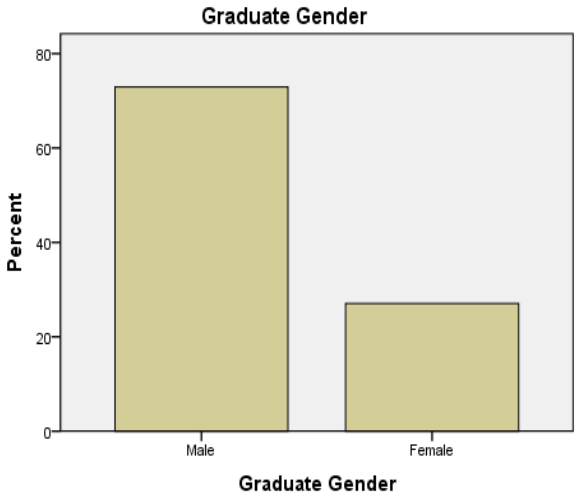
Table 8 below shows Graduate Gender for the period 2008-2013: (N=133)

Table 8

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	97	72.9	72.9	72.9
	Female	36	27.1	27.1	100.0
	Total	133	100.0	100.0	

Figure 1 below shows Graduate Gender for the period 2008-2013

Figure 1



Summary: Of the 133 respondents, for the period 2008-2013, there were

72.9 % males respondents and 27.1% female respondents.

Demographic Item B- Distinguishes the age groups of the respondents

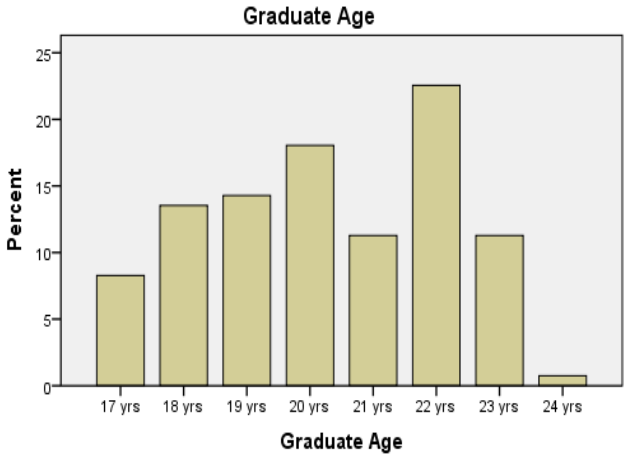
Table 9 below shows Graduate Ages for the period 2008-2013: (N=133)

Table 9

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	17 yrs.	11	8.3	8.3	8.3
	18 yrs.	18	13.5	13.5	21.8
	19 yrs.	19	14.3	14.3	36.1
	20 yrs.	24	18.0	18.0	54.1
	21 yrs.	15	11.3	11.3	65.4
	22 yrs.	30	22.6	22.6	88.0
	23 yrs.	15	11.3	11.3	99.2
	24 yrs.	1	0.8	0.8	100.0
	Total	133	100.0	100.0	

Figure 2 below shows the Graduate Ages for the period 2008-2013

Figure 2



Summary: Of the 133 respondents, the age ranged from 17-24 years. The two dominating age groups were 20 years and 22 years.

Demographic Item C- What year did you participate in the CSEC Technical Drawing Examination

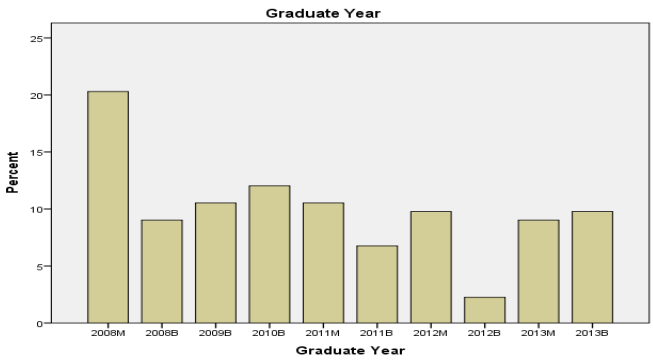
Table 10 below shows the Graduate Year the respondent participated the CSEC TD examination (N=133)

Table 10

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2008M	27	20.3	20.3	20.3
	2008B	12	9.0	9.0	29.3
	2009B	14	10.5	10.5	39.8
	2010B	16	12.0	12.0	51.9
	2011M	14	10.5	10.5	62.4
	2011B	9	6.8	6.8	69.2
	2012M	13	9.8	9.8	78.9
	2012B	3	2.3	2.3	81.2
	2013M	12	9.0	9.0	90.2
	2013B	13	9.8	9.8	100.0
	Total	133	100.0	100.0	

Figure 3 below shows the year the respondent did the TD CSEC examination

Figure 3



Summary: Of the 133 respondents, 66 students did Mechanical Drawing and 67 did Building Drawing. In 2008, there were 39 graduates, in 2009 there were 14 graduates, in 2010 there were 16 graduates, in 2011 there were 23 graduates, in 2012 there were 16 graduates and in 2013 there were 25 graduates.

The Responses from the 16-item questionnaire

Item 1- Why did you choose to do Technical Drawing for CSEC?

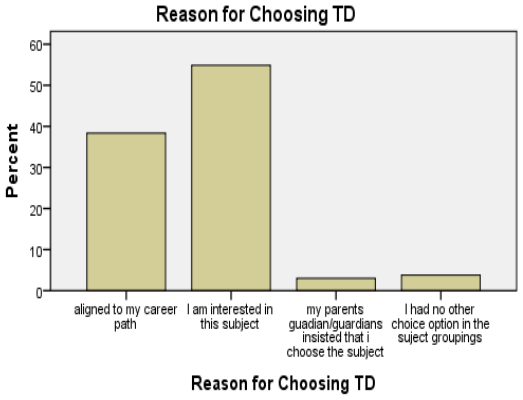
Table 11 below shows the Respondent Reason for Choosing TD (N=133)

Table 11

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Aligned to my career path	51	38.3	38.3	38.3
	I am interested in this subject	73	54.9	54.9	93.2
	My parent/guardian insisted that I choose the subject	4	3.0	3.0	96.2
	I had no other choice option in the subject groupings	5	3.8	3.8	100.0
	Total	133	100.0	100.0	

Figure 4 below shows the year the respondent reason for choosing TD

Figure 4



Summary: Of the 133 respondents, 38.3% chose TD as being aligned to their career path.

Item 2- What institution you attended/currently attending (if applicable)

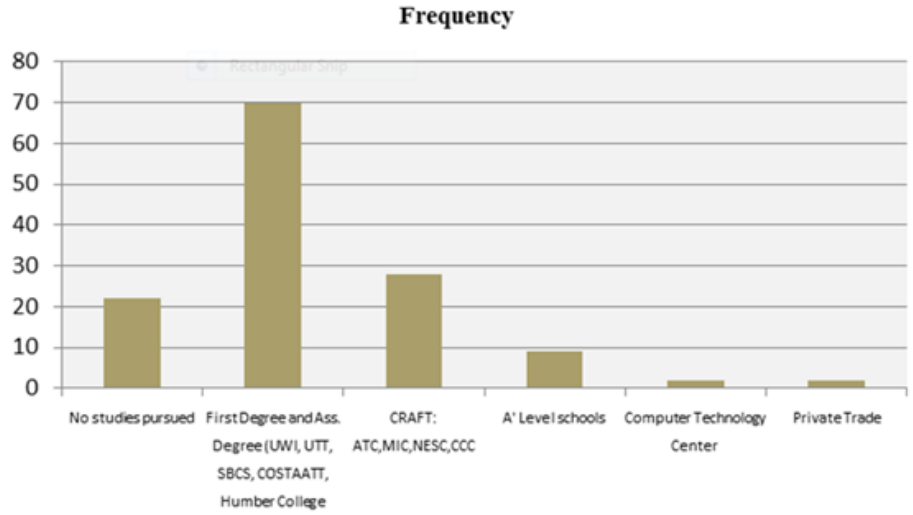
Table 12 below shows what Educational Institution the respondent attended or is currently attending (N=133)

Table 12

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No studies pursued	22	16.54	16.54	16.54
	First Degree and Ass. Degree (UWI, UTT, SBCS, COSTAATT	70	52.63	52.63	69.17
	CRAFT: ATC,MIC,NESC,CCC	28	21.05	21.05	90.22
	A Level schools	09	6.78	6.78	97.0
	Computer Technology Center	2	1.5	1.5	98.5
	Private Trade	2	1.5	1.5	100.0
	Total	133	100.0	100.0	

Figure 5 below shows what educational institution the respondent attended or is currently attending

Figure 5



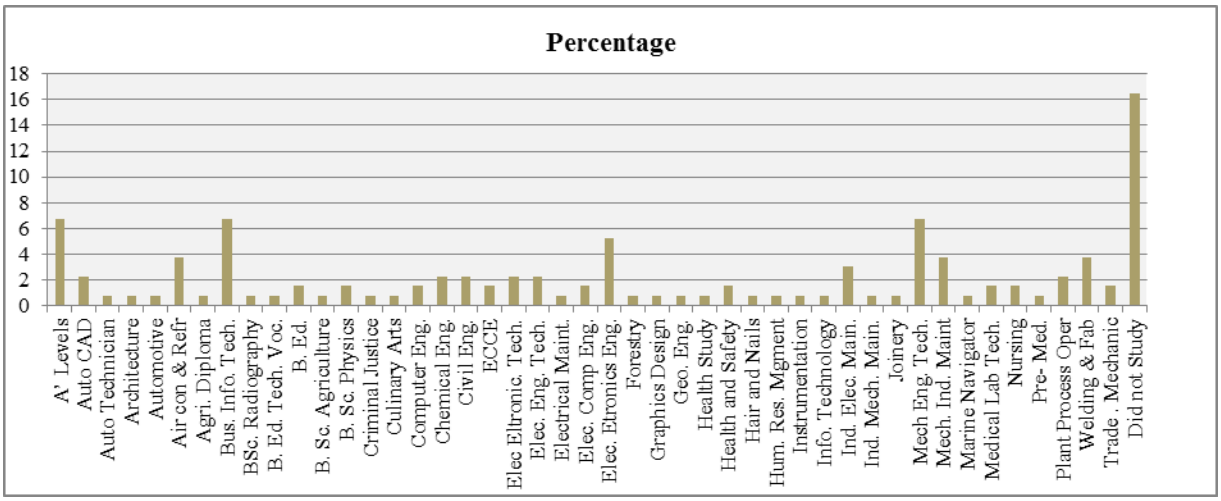
Summary: Of the 133 respondents, 79.7% of the respondents pursued higher education at tertiary institutions.

Item 3- State your course of study.

(See **Table 6: Career Choices/Course of Study of the respondents**, page 63)

Figure 6 below shows the Career Choices/Course of Study of the respondents

Figure 6



Summary: Of the 133 respondents, 81.96% of the respondents pursued higher education at tertiary institutions. 45 career paths were identified. 56.40% of these represented a TVET career path.

Item 4- Does the course of study that you are pursuing have elements of Technical Drawing (if applicable)?

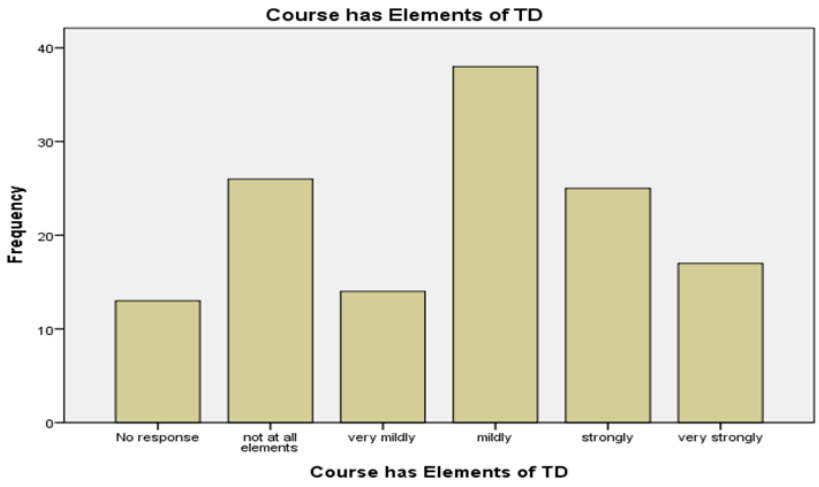
Table 13 below shows the responses to if the Course being pursued has Elements of TD (N=133

Table 13

	Frequency	Percent	Valid Percent	Cumulative Percent
No response	13	9.8	9.8	9.8
not at all elements	26	19.5	19.5	29.3
very mildly	14	10.5	10.5	39.8
mildly	38	28.6	28.6	68.4
strongly	25	18.8	18.8	87.2
very strongly	17	12.8	12.8	100.0
Total	133	100.0	100.0	

Figure 7 below shows the responses to if the Course being pursued has elements of TD

Figure 7



Summary: Of the 133 respondents, 70.7% of the graduates indicated that the course they were pursuing had elements of TD. 12.8 % of these respondents

indicated that the course had very strong elements of TD and 18.8% indicated that their course had strong elements of TD.

Item 5- Did the CSEC Technical Drawing Curriculum prepare you for your current course of study (if applicable)?

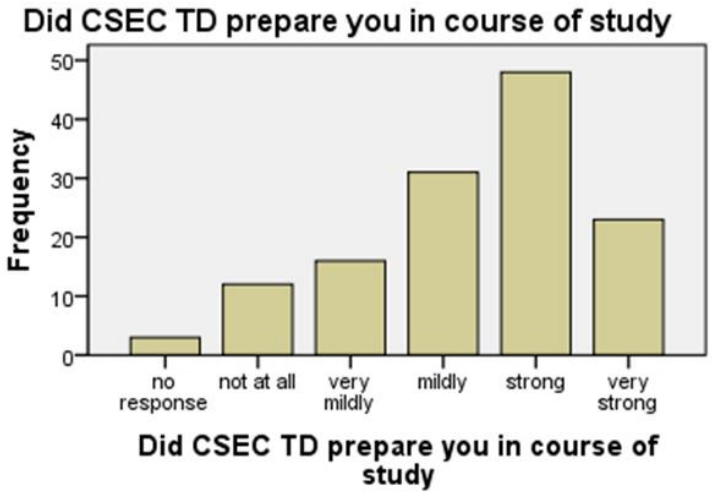
Table 14 below shows the responses to the question-Did CSEC TD prepare you in course of study? (N=133)

Table 14

	Frequency	Percent	Valid Percent	Cumulative Percent
no response	3	2.3	2.3	2.3
not at all	12	9.0	9.0	11.3
very mildly	16	12.0	12.0	23.3
mildly	31	23.3	23.3	46.6
strong	48	36.1	36.1	82.7
very strong	23	17.3	17.3	100.0
Total	133	100.0	100.0	

Figure 8 below shows the responses to question- Did CSEC TD

Figure 8



Summary: Of the 133 respondents, 88.7% indicated that CSEC TD prepared them for the post-secondary course of study. Of these, 17.3% indicated very strongly and 36.1% indicated strongly.

Item 6- Are you currently employed (if applicable)?

Table 15 below shows the responses to the question- Are you Currently Employed? (N=133)

Table 15

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	80	60.2	60.2	60.2
	no	53	39.8	39.8	100.0
	Total	133	100.0	100.0	

Figure 9 below shows the responses to the question-Are you currently employed?

Figure 9

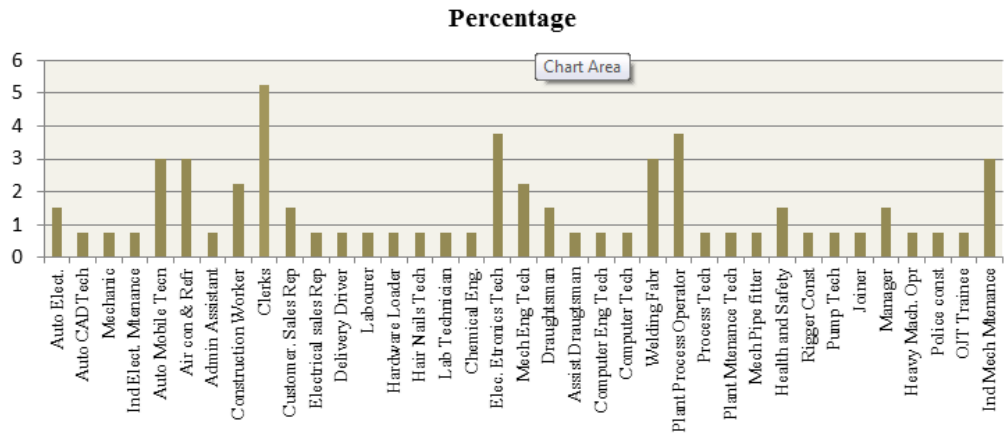
Summary: Of the 133 respondents, 60.2 % indicated that they were employed.

Item 7- What is your job title?

(See Table 7: Job Types and Salary Scale, page)

Figure 10 below shows the responses to the question-What is your job title?

Figure 10



Summary: Of the 133 respondents, there were thirty-seven (37) job titles identified.

Item 8- Do you think that the CSEC Technical Drawing curriculum adequately prepared you for the workplace?

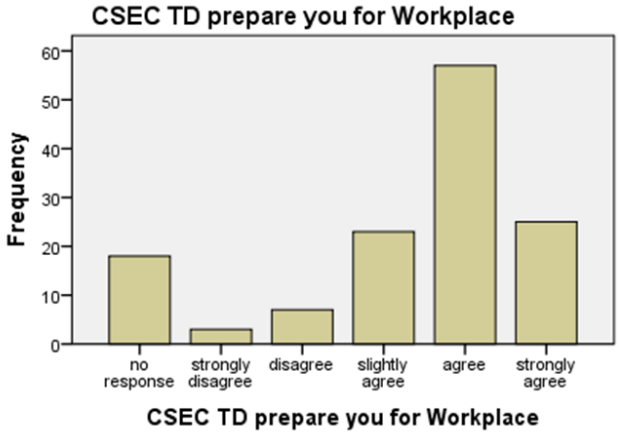
Table 17 below shows the responses to the Question- Did CSEC TD prepared the respondents for Workplace? (N=133)

Table 17

	Frequency	Percent	Valid Percent	Cumulative Percent
no response	18	13.5	13.5	13.5
strongly disagree	3	2.3	2.3	15.8
disagree	7	5.3	5.3	21.1
slightly agree	23	17.3	17.3	38.3
agree	57	42.9	42.9	81.2
strongly agree	25	18.8	18.8	100.0
Total	133	100.0	100.0	

Figure 11 below shows the responses to question-Do you think that the CSEC Technical Drawing curriculum adequately prepared you for the workplace?

Figure 11



Summary: Of the 133 respondents, 61.7% (18.8% strongly agreed and 42.9% agreed)indicated that CSEC TD curriculum prepared them for the world of work.

Item 9- Answer this question only if you did not pursue a career path in Technical Drawing. Please indicate what career you are now pursuing.

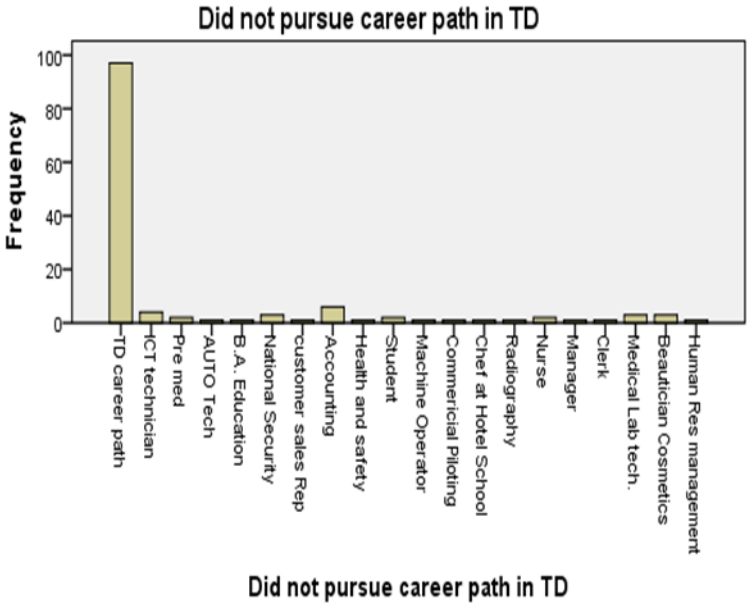
Table 18 below shows the responses question- Those who did not pursue a career path in TD (N=133)

Table 18

	Frequency	Percent	Valid Percent	Cumulative Percent
TD career path	97	72.9	72.9	72.9
ICT technician	4	3.0	3.0	75.9
Pre med	2	1.5	1.5	77.4
AUTO Tech	1	.8	.8	78.2
B.A. Education	1	.8	.8	78.9
National Security	3	2.3	2.3	81.2
customer sales Rep	1	.8	.8	82.0
Accounting	6	4.5	4.5	86.5
Health and safety	1	.8	.8	87.2
Student	2	1.5	1.5	88.7
Machine Operator	1	.8	.8	89.5
Commercial Piloting	1	.8	.8	90.2
Chef at Hotel School	1	.8	.8	91.0
Radiography	1	.8	.8	91.7
Nurse	2	1.5	1.5	93.2
Manager	1	.8	.8	94.0
Clerk	1	.8	.8	94.7
Medical Lab tech.	3	2.3	2.3	97.0
Beautician Cosmetics	3	2.3	2.3	99.2
Human Res management	1	.8	.8	100.0
Total	133	100.0	100.0	

Figure 12 below shows the responses to question for those who did not pursue career path in TD

Figure 12



Summary: Of the 133 respondents, 36 students did not pursue a career path in TD.

Item 10- Since leaving secondary school, have you furthered your knowledge and skills in Technical Drawing?

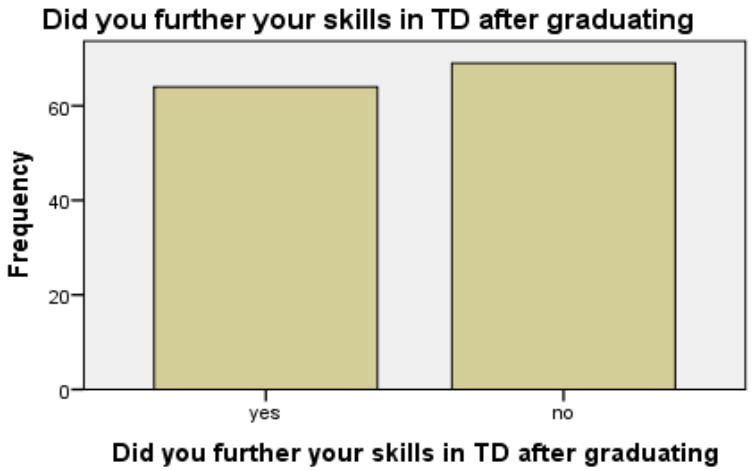
Table 19 below shows the responses to the question- Did you further your skills in TD after graduating?(N=133)

Table 19

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	64	48.1	48.1	48.1
	No	69	51.9	51.9	100.0
	Total	133	100.0	100.0	

Figure 13 below shows the responses to question-Since leaving secondary school; have you furthered your knowledge and skills in Technical Drawing?

Figure 13



Summary: Of the 133 respondents, 51.9% did not further their knowledge and skills in TD.

Item 11- If you have answered Yes for Question 10, do you agree that Technical Drawing will assist you in your career?

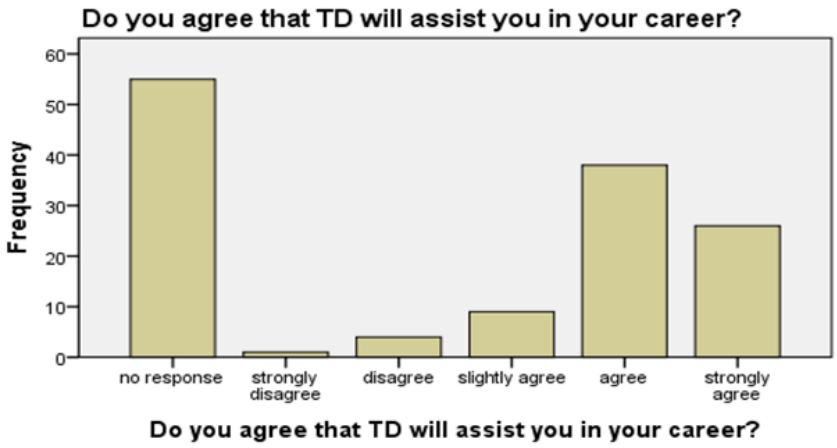
Table 20 below shows the responses to the question- Do you agree that TD will assist you in your career? (N=133)

Table 20

	Frequency	Percent	Valid Percent	Cumulative Percent
no response	55	41.4	41.4	41.4
strongly disagree	1	.8	.8	42.1
disagree	4	3.0	3.0	45.1
slightly agree	9	6.8	6.8	51.9
agree	38	28.6	28.6	80.5
strongly agree	26	19.5	19.5	100.0
Total	133	100.0	100.0	

Figure 14 below shows the responses to question- do you agree that Technical Drawing will assist you in your career?

Figure 14



Summary: Of the 133 respondents, 54.9% indicated that TD assisted them in their career. Of this percentage, 19.5% indicated that they strongly agreed and 28.6% indicated they agreed.

Item 12- Do you agree that an apprenticeship program in Technical Drawing during secondary school education would have made you workplace ready?

Table 21 below shows the responses to the question- Does an Apprenticeship program make you workplace ready? (N=133)

Table 21

	Frequency	Percent	Valid Percent	Cumulative Percent
no response	14	10.5	10.5	10.5
strongly disagree	2	1.5	1.5	12.0
disagree	2	1.5	1.5	13.5
slightly agree	17	12.8	12.8	26.3
agree	62	46.6	46.6	72.9
strongly agree	36	27.1	27.1	100.0
Total	133	100.0	100.0	

Figure 15 below shows the responses to question-Does Apprenticeship program make you workplace ready?

Figure 15

Summary: Of the 133 respondents, 86.5% indicated that an apprenticeship in-school programme would make them workplace ready.

Item 13- What importance would you place on Technical Drawing as a subject choice?

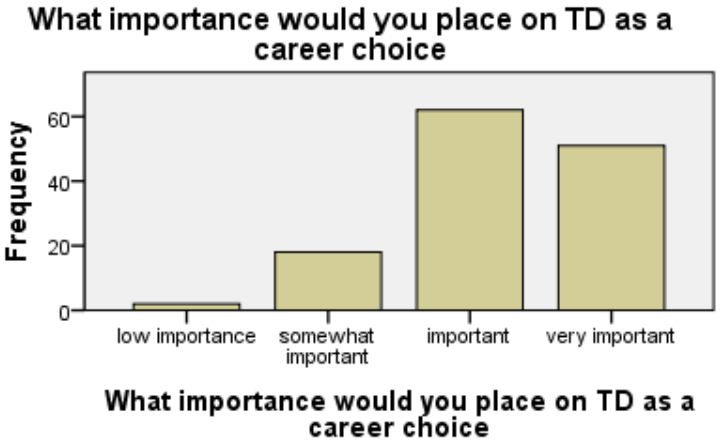
Table 22 below shows the responses to the question-What importance would you place on TD as a career choice? (N=133)

Table 22

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low importance	2	1.5	1.5	1.5
	Somewhat important	18	13.5	13.5	15.0
	Important	62	46.6	46.6	61.7
	Very important	51	38.3	38.3	100.0
	Total	133	100.0	100.0	

Figure 16 below shows the responses to question-What importance would you place on TD as a career choice?

Figure 16



Summary: Of the 133 respondents, 84.9% (Very important and important) indicated that they considered TD as a career choice as important.

Item 14- Do you agree that Technical Drawing should be made a compulsory subject at La Vega Secondary School?

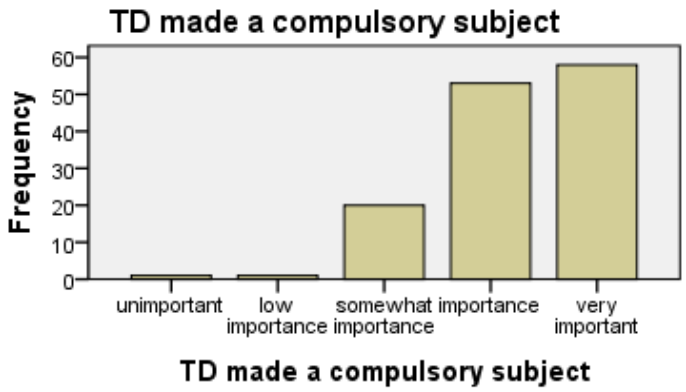
Table 23 below shows the responses to the question- Should TD be made a compulsory subject? (N=133)

Table 23

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Unimportant	1	.8	.8	.8
	Low importance	1	.8	.8	1.5
	Somewhat important	20	15.0	15.0	16.5
	Important	53	39.8	39.8	56.4
	Very important	58	43.6	43.6	100.0
	Total	133	100.0	100.0	

Figure 17 below shows the responses to question-Should TD be made a compulsory subject?

Figure 17



Summary: Of the 133 respondents, 83.4 % responded that TD should be a compulsory subject at La Vega Secondary School.

Item 15- If you are employed using the skills of TD, are you satisfied with the salary you are receiving?

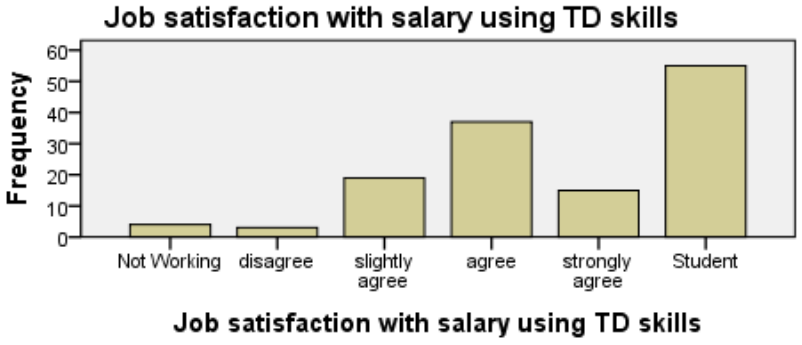
Table 24 below shows the responses to the question- If you are employed using the skills of TD, are you satisfied with the salary you are receiving? (N=133)

Table 24

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Working	4	3.0	3.0	3.0
	Disagree	3	2.3	2.3	5.3
	Slightly agree	19	14.3	14.3	19.5
	Agree	37	27.8	27.8	47.4
	Strongly agree	15	11.3	11.3	58.6
	Student	55	41.4	41.4	100.0
	Total	133	100.0	100.0	

Figure 18 below shows the responses to question- If you are employed using the skills of TD, are you satisfied with the salary you are receiving?

Figure 18



Summary: Of the 133 respondents, 27.8% agreed with the salary they are receiving as opposed to 2.3% who disagreed with their salary.

Item 16- Can you indicate in the range options provided below the salary per month you are receiving using the skills of TD?

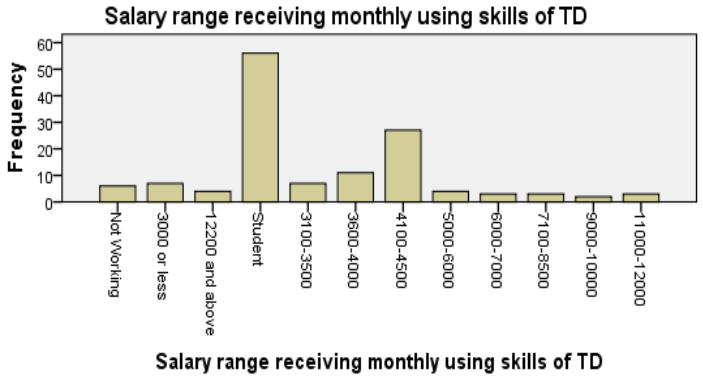
Table 25 below shows the responses to the question on Salary Range receiving monthly using skills of TD. (N=133)

Table 25

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Working	6	4.5	4.5	4.5
	3000 or less	7	5.3	5.3	9.8
	12200 and above	4	3.0	3.0	12.8
	Student	56	42.1	42.1	54.9
	3100-3500	7	5.3	5.3	60.2
	3600-4000	11	8.3	8.3	68.4
	4100-4500	27	20.3	20.3	88.7
	5000-6000	4	3.0	3.0	91.7
	6000-7000	3	2.3	2.3	94.0
	7100-8500	3	2.3	2.3	96.2
	9000-10000	2	1.5	1.5	97.7
	11000-12000	3	2.3	2.3	100.0
	Total	133	100.0	100.0	

Figure 19 below shows the responses to question on Salary Range receiving monthly, using skills of TD

Figure 19



Summary: Of the 133 respondents, 9.1% received wages ranging from $5000 - $10,000 per month.

Chapter 5

Discussion and Recommendations

5.1 Discussion and Findings

In response to **sub-question (1)** "To what extent did the graduates pursue higher education development in Technical Drawing?" the analyzed data, indicated that 81.96% of the respondents used the knowledge and skills of TD in their pursuit of higher education. This emphasized that a properly designed curriculum will cater to those who will pursue a particular TVET career path at secondary school students providing them with the necessary knowledge and skills with the opportunity to further their education in TVET post-secondary. Of the 81.96%, 52.63% pursued higher education at the tertiary level at institutions such as UWI, UTT, COSTTATT and SBCS. 21.05% pursued higher education at craft institutions such as MIC, NESC and ATC where they obtained diplomas and certificates in the related field of study. 16.54% did not pursue any higher education development in TD. Important to note was that 1.5% pursued AutoCAD at CTC. Currently 6.78% are attending sixth form institutions pursuing GMED. The high percentage of graduates who pursued higher education at tertiary institutions, for example UWI may be due to the negative preconceived ideas about the value of TVET as indicated by Whiteside and Desai (2000).

Item 4 questioned the graduates about the extent of the elements of TD in course of study they were pursuing. This indicated to the researcher the extent to which there was higher education development in TD. The data showed that

12.8% indicated that there were very strong elements, 18.8% indicated that there were strong elements and 28.6% indicated there were mild elements of TD (see **Table 13**). The high percentage of graduates pursuing higher education development in TD is a reflection of the changing negative perception of TVET. Students and parents are more aware of the value of TVET education (see 2.1.2).

Sub-question (2) sought to determine "What kinds of higher education programmes did the graduates pursue?" The data taken from **Table 6: Career Choice/Course of Study of the respondents** showed that there were 45 different career paths taken by the graduates. 16 students have furthered or are furthering their higher education at UWI (degree programmes), 31 students have furthered or are furthering their higher education at UTT (certificates, diplomas and degrees), 8 students have furthered or are furthering their higher education at SBCS (certificates, diplomas and degrees) and 14 students have furthered or are furthering their higher education at COSTATT (certificates, diplomas and degrees).

With respect to the craft institutions, 21 students have furthered or are furthering their higher education at NESC (craftsman certificates and diplomas), 3 students have furthered or are furthering their higher education at MIC (craftsman certificates and diplomas), 1 student furthered his higher education at ATC (diploma), 2 students have furthered their higher education at YTEPP (certificates) and 2 students have furthered their higher education at CTC (certificates). It was observed that 1 student attended the Civilian Corps (certificate) and I attended Humber College in Canada pursuing a course in

Architecture (diploma). 2 students were trained under a private mechanics and nine students were currently pursuing their Advanced Levels. Note that vocational education guides students to gain relevant occupational and technical skills. Career and Technical Education (2009) supports this view by stating vocational and technical education is a planned programme of course and learning experiences that begin with the exploration of career options, supports basic, academic and life skills, and enables the achievement of high academic standards, leadership, preparation for industry and continuing education. This view is also supported by Amedu, 2013.

Sub-question (3) addressed the issue of jobs as it asked "What kinds of jobs did the graduates find in the labour market in terms of job-type and salary?" **Table 7: Job Type and Salary Scale** gives detailed information on the responses received. The data showed that 37 job-types were identified and the corresponding salary scale. 55.64% (74 graduates) of the graduates found jobs in the labour market.

There were 3 students who are receiving salaries in the highest range, $12,200 and above. These students were employed as Plant Process Operators. It was noted that two of these students did not attend UWI, UTT or SBCS. One of these students attended ATC, another was employed directly after graduating from secondary school with CSEC qualification and the third attended UTT. All three of these students were males.

In the second highest salary range of $11,000 - $12000, two graduates (male and female) were identified as receiving these wages. One was identified as a Plant Maintenance Technician and the other as a Health and Safety Officer.

The third highest salary range was $9000-$10000 and 3 graduates were identified as receiving these wages. The job-types were Electrical Electronic Technician, a Welder and Fabricator and a Plant Process Operator.

The fourth salary range was $7100-$8500 and there were 4 graduates in this range who held the job-types of Industrial Electrical Maintenance, Welder and Fabricator, Laboratory Technician or Heavy Machinery Operator.

In the salary range of $6100-$7000, two graduates were identified and both were employed as Clerks. Seven graduates were identified in the $5000-$6000 salary range and were employed as Police Constables (2 graduates), Manager (1 graduate), one Automobile Technician, one Auto Electrician, one Pump Repair Technician and one AutoCAD Technician.

The salary range of $4100 to $4900 had the most graduates, that is, 28 graduates. Here 17 different job types were identified (see **Table 7: Job Type and Salary Scale**). Note that out of the 17 job-types, 15 were TVET based.

In the salary range $3600-$4000, there were 9 job-types identified. In the salary range $3100-$3500, there were 8 job types identified. In the lowest salary range of $3000 and less, 5 job-types were identified. In this lowest range there was a Nail Technician, an Electrical Sales Representative, a Customer Sales Representative, a Labourer and a Computer Engineering Trainee.

The high employment (74 out of the 133 graduates) seen in this study indicated that sustainable development of the country was being promoted. Amedu (2013) indicated that the development of any nation hinges on the social and economic contributions of her citizens and that vocational and technical education has been identified as a tool for a sustainable, virile and stable economy. Nwogu (2009) also stated that the wellbeing of any nation depends on its sustainable economic development.

Sub-question (4) asked "To what extent did the graduates use the skills and knowledge from TD in the Workplace?" 55.64% of the graduates were employed (that is, 74 graduates out of the total 133 graduates who responded) but only 43.61 % of these graduates (that is, 58 graduates) for the period 2008-2013 used the knowledge and skills from TD at the workplace.

The analyzed data showed that 78.37% of the graduates were employed in a TVET field (16 out of the 74 graduates were not employed in a TD related field) used the knowledge and skills from TD in the workplace. From **Table 7** it was inferred that there were 28 job-types that used the knowledge and skills for TD. Item 8 (**Table 17**) addressed the issue of the graduates perception of whether the CSEC TD adequately prepared them for the workplace. It was noted 18.8% indicated that they strongly agreed that the CSEC TD curriculum adequately prepared them for the workplace, 42.9% agreed and 17.3% slightly agreed. Note that 2.2% strongly disagreed. It was noted that a well-designed curriculum offering TVET areas will develop in students the necessary knowledge and skills

to make them workplace ready. This was supported by Abdulhai (1993) when he stated that vocational education is expected to assist students to acquire relevant occupational and technical skills, prepare for future occupations, and make transition from school to the world of work.

Sub-question (5) addressed the issue of gender. It asked "Were there any gender differences in the post-school experiences of students?" In response to the gender issue, it was found that only 21.8% of the female graduates followed a TD career path (higher education) as opposed to 61.65% males. Note that 16.54% of the graduates did not pursue higher education. Of this 16.54%, 11.27% were males and 5.27% were females. **Table 6** presents detailed information on this. This coincides with the literature provided by Vlaardingerbroek (2005), who noted that few girls appear to keep on with the VET subjects taken at school. He also noted that school VET programs provide a clear pathway for some students, particularly for boys studying in the areas of building and engineering.

Table 6 shows that 8 females as well as 8 males pursued or are pursuing higher education at UWI. However, it was seen that at UTT, 29 males pursued or are pursuing higher education as opposed to 2 females. At the craft institutions (NESC, MIC, ATC, YTEPP, CTC, Humber College, Civilian Corps), it was seen that 16 females pursued or are pursuing higher education as opposed to 68 males. At Advanced Level, 5 females and 4 males were seen to be pursuing higher education.

With respect to the labour market, it was seen (**Table 7**) that only 4 females were employed with varied salary scale as opposed to 70 males. The females were employed as a Draughtsman Assistant ($4100-$4900 /mth) having pursued a Diploma at Humber College, Canada; an Administrative Assistant ($4100-$4900 / mth); an On-the-Job Trainee /Food and Nutrition ($3100-$3500 /mth) having received CSEC passes and a Health and Safety Officer ($11000-$12000/mth) who pursued higher education UTT. From these findings, it can be implied that females with higher education qualification received higher salaries. Only one female was seen to be in the highest salary range and no females in the lowest salary range $3000 and less.

With reference to **Table 7** it was seen that 70 males were employed. 5 males were seen to receive a salary of $3000 and less, 52 males received salaries in the range of $3100 - $6000, 9 males received salaries in the range $6100-$10000 and 5 males received salaries in the range $11000 and above. This clearly shows that males received better employment than females as indicated by Stanwick (2005, 2006) and Sherman (2006). It also indicates that males are more successful in VTE employment as opposed to girls.

5.2 Recommendations

From the data analyzed for 2008-2013 with reference to **sub-question (1)**, a high percentage (81.96%) used the knowledge and skills of TD in their pursuit of higher education. However, it was seen that only 21.05% pursued higher education at craft institutions as compared to 52.63% pursuing higher education at UWI, UTT, COSTATT and SBCS. It is recommended that schools take an active part in TVET career guidance when students are choosing their career paths. Guidance counsellors, subject area teachers, persons from craft institutions and industry conference with students about training, the labour force and salary range.

The recommendation for **sub-question (2)** is that at the career guidance sessions students should be guided to higher education career paths where there is a lack of skilled persons. They should be encouraged to pursue higher education in areas such as Health and Safety, Welding and Fabrication, Air Conditioning and Refrigeration and Auto Technicians. They should be made aware of the financial benefits and job security of these lucrative jobs as well be self-employed (sustainable jobs) or be employed in industry. This awareness can be developed by attending career fairs such as the NTA World Skills Expo. This is supported by Bolane, Chuma, Totengand and Molwane (2010).

In **sub-question (3)** the labour market in terms of job salary and salary were addressed. It was observed that only 12 graduates earned a salary above $7100 and 53 graduates earned a salary within the range of $3000-$4900.

The graduates in this second salary range of $3000-$4900 should be encouraged to upskill themselves. This can result in an increase in salary within the company they are employed with or be employed with a new company with an increased salary. The data analyzed indicates that the high end jobs can be identified and therefore students can be directed to choosing a career path so as to attain similar employment.

From the data it was seen that a high percentage (78.37%, that is 58 out of 74) of the graduates employed used the knowledge and skills from TD in the workplace (**sub-question 4**). This therefore indicates that the curriculum is in alignment with the industry and it is recommended that periodic checks be made with schools and the industry so as to ensure continued alignment.

Sub-question (5) dealt with the gender differences in the post-school experiences of the graduates. It was seen that only a small percentage (21.8%) of female graduates pursued TD post-secondary in higher education and 5.4% was employed. The researcher should investigate the factors leading to this and provide current and future female students with the information as to how they can pursue TD post-secondary in higher education, informing them of potential jobs and salary benefits.

An apprenticeship program in-school may encourage more females into the skill labour force. In the program they can be made aware of what is required and negative perceptions of skilled labour as a male job can be reduced. Also an apprenticeship program can assist them in becoming workplace ready. Item 12

asked the respondents if they agreed that an apprenticeship program in TD during secondary school would make them workplace ready. The response was 73.7% indicated to the affirmative.

Therefore, the school can address an inclusion of an apprenticeship program by partnering with industries or companies for an apprenticeship program in the related field of TD. The program can be facilitated during the Easter and summer vacations**.** La Vega Secondary School is situated in the environs of the Pt. Lisas Industrial Estate and such partnership should be easily facilitated.

The feedback from this research is of vital importance to the researcher as to the viability of the TD programme in La Vega Secondary School. From the feedback received it can be deduced that TD is catering to the needs of the students for the workplace and in furthering their education

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Appendices

Appendix (i)

CIRCULAR MEMORANDUM

File No. 19/1/15

Circular Memorandum No. 28 of 2014

FROM: Permanent Secretary Ministry of Education

TO: School Supervisors III, II, I Principals –Secondary Schools

DATE: 11th June 2014

SUBJECT: Admission to Sixth Form in Public Schools

This circular replaces Circular Memorandum No. 60 of 2009. The criteria to be used for admission to the Sixth Form Public Secondary Schools are as follows:

- Students must be under the age of nineteen (19) years on the 31st of December of the year of entry (Sixth Form) and must not have had more than six (6) years of secondary education and

- Students must have attained a minimum of five (5) CSEC CXC subjects including English Language attaining grades I, II or III. In at least two of the three subjects being attempted at Advanced Level, at least a grade II must be attained. Or

- Students must have a minimum of four (4) CSEC CXC subjects including English Language attaining grades I, II or III along with a CVQ Level 1 Award. In at least one of the three subjects being attempted at least a grade II must be attained.

Principals are reminded that approval must be obtained before students are promoted or admitted to Sixth Form. To facilitate this, Principals are asked to submit through the School Supervisor III within three (3) weeks of the release of the results the following information in duplicate, using the format outlined.

- A list of all students of their schools meeting the minimum requirements who are recommended for promotion giving details of their results and proposed CAPE subjects;

- A list of all students of their schools meeting the minimum requirements who are not recommended for promotion giving details of their results and their reasons for not recommending;

- A list of all students of their schools not possessing the minimum requirements who are recommended for promotion giving details of their results and proposed CAPE subjects and reasons for special recommendation;

- A list of students from other Public Schools who are recommended for entry into their schools giving details of their results and proposed CAPE subjects, and

- A list of students from Private schools who are recommended for entry into their schools giving details of their results and proposed CAPE subjects.

NB: please draw a circle in red ink around the subjects students wish to pursue at Sixth Form. Kindly note that each candidate from other public or private school must produce the following documents:

- A transfer certificate from the original school – care must be taken to establish the number of years of secondary schooling the student would have had had thus far;

- A birth certificate to establish the age of the student.

Repeaters Students may be considered to repeat their Form Six final year if they have suffered some unfortunate setback or for some reason did not attain results that appear to be in line with their consistent performance prior to the examination. However, this is only possible if there is room and admission would not entail the provision of additional space, furniture or staff. All other particular outlined in this circular, more so those of good discipline, number of years in school and age must be closely observed. Particular cases for special consideration may be made by the Principal to the School Supervisor III. The School Supervisor III will be guided, beyond anything else, by what is most beneficial for the student. It should be noted that the Education Act, Chapter 39:01, was amended by way of Act No. 27 of 1984 or Education (Amendment) Act through the inclusion of the following subsection immediately after section 12(2):

"Notwithstanding section 6 (1) (b) and subsection (1) (e) a pupil at a school referred to in subsection (1) (e) may be allowed to write the examination in Advanced Level of the General Certificate of Education in the „calendar year" in which he attains his twentieth birthday so long as he has not attended secondary school in the public system for a period in excess of eight (8) years in aggregate."

Chief Education Officer
/f/ Permanent Secretary
Ministry of Education

Appendix (ii) - The Questionnaire

Transitioning of CSEC Technical Drawing into Higher Educationfor the period 2008- 2013
Students' Questionnaire

I, Ashim Mohammed, Technical Drawing teacher at Preysal Secondary School (2004-present) who is currently pursuing a Master of Arts in Leadership in TVET and Workforce Development at the University of The West Indies, St. Augustine. This questionnaire is designed to obtain information about your experience with Technical Drawing at postsecondary education. All information you provide is confidential and will be used to trace students' higher education development in the area of Technical Drawing.

Students who are under the age of 18 years, you are required to obtain parental/guardian permission to participate in completing this questionnaire.

I…….....parent/guardian of …… hereby, grant permission or do not grant permission for my child to participate in completing the questionnaire. (Please draw a line through the unfavourable option stated above).

I sincerely appreciate your participation.

Section A: General Information.

Gender: Male ☐

Female ☐

Age: _____

What year did you participate in the CSEC Technical Drawing examination?

Tick the appropriate year

Year	
2008	
2009	
2010	
2011	
2012	
2013	

(1) Why did you choose to do Technical Drawing for CSEC?

This subject is aligned to my desired career path	
I am interested in this subject	
My parents/guardians insisted that I choose the subject	
All my friends chose the subject	
I had no other choice options in the subject grouping	

Please tick the appropriate box.

(2) What institution you attended/ currently attending (if applicable)?

Please tick the appropriate box.

The University of The West Indies (UWI)	
College of Science Technology and Applied Arts of Trinidad and Tobago (COSTAATT)	
The University of Trinidad and Tobago (UTT)	
National Energy Skills Center (NESC)	
Metal Industries Company (MIC)	
School of Business and Computer Science (SBCS)	
Automation Technology College(ATC)	
Trinzuela Technical Institute	
Other (please state)	

(3) State your course of study (if applicable).

_____

(4) Does the course of study that you are pursuing have elements of Technical Drawing (if applicable)?

Please tick the appropriate box.

No elements	Very Mildly	Mildly	Strongly	Very Strongly

(5) Did the CSEC Technical Drawing curriculum (Building Drawing/ Mechanical Engineering Drawing) prepare you for your current course of study (if applicable)?

Please tick the appropriate box.

Not at all	Very Mildly	Mildly	Strongly	Very Strongly

(6) Are you currently employed (if applicable)?

Please tick the appropriate box.

YES	
NO	

(7) What is your job title?

(8) Do you think that the CSEC Technical Drawing curriculum adequately prepared you for the workplace? Please tick the appropriate box.

Strongly Disagree	Disagree	Slightly Agree	Agree	Strongly Agree

(9) Answer this question only if you did not pursue a career path in Technical Drawing.

Please indicate what career you are now pursuing.

_____

(10) Since leaving secondary school, have you furthered your knowledge and skills in Technical Drawing?

Please tick the appropriate box.

YES	
NO	

(11) If you have answered "YES" for Question 10 do you agree that Technical Drawing will assist you in your career?

Strongly Disagree	Disagree	Slightly Agree	Agree	Strongly Agree

Question 12 applies to those students who are currently employed in a field of work where Technical Drawing knowledge and skills are being utilized.

(12) Do you agree that an apprenticeship program in Technical Drawing during secondary school education would have made you workplace ready?

Please tick the appropriate box.

Strongly Disagree	Disagree	Slightly Agree	Agree	Strongly Agree

(13) What importance would you place on Technical Drawing as a subject choice?

Please tick the appropriate box.

Unimportant	Low Importance	Somewhat Important	Important	Very Important

(14) Do you agree that Technical Drawing should be made a compulsory subject at Preysal Secondary School?

Please tick the appropriate box.

Unimportant	Low Importance	Somewhat Important	Important	Very Important

(15) If you are employed using the skills of TD, are you satisfied with the salary you are receiving?

Please tick the appropriate box.

Strongly Disagree	Disagree	Slightly Agree	Agree	Strongly Agree

(16) Can you indicate in the range options provided below the salary per month you are receiving using the skills of TD?

Please tick the appropriate box.

$3000 or Less	$3100 -$3500	$3600-$4000	$4100-$4500

I would like to thank you for completing this questionnaire.

Appendix (iii)

Table 5 (b) 1 below shows the Data View Window with the data entries for the 1-46 responses of the 133 respondents

Table 5 (b) 1

	Year	Gender	Age	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	var
1	1	1	6	2	3	6	2	4	1	1	5	1	2	2	5	4	4	3	4	
2	1	1	7	2	3	8	5	5	1	13	3	1	1	4	5	5	4	3	3	
3	1	1	6	2	4	8	4	4	1	1	5	1	1	5	5	5	5	5	8	
4	1	1	6	2	0	0	0	2	2	7	4	0	2	3	4	5	5	4	3	
5	1	2	7	2	1	10	1	2	2	0	2	3	2	2	4	3	3	6	11	
6	1	2	6	2	1	11	3	3	1	11	3	7	2	3	4	4	4	6	11	
7	1	2	6	1	1	6	3	4	2	0	4	8	1	4	4	4	4	6	11	
8	1	1	5	1	1	12	5	5	1	5	5	0	1	5	5	5	5	4	4	
9	1	1	5	2	1	6	3	1	1	0	0	0	1	4	0	3	5	6	11	
10	1	1	7	5	2	2	1	0	1	12	3	9	1	2	0	4	4	6	11	
11	1	1	6	1	1	9	1	1	1	14	2	1	2	0	0	4	2	3	1	
12	1	1	8	2	0	0	3	2	1	5	4	0	2	4	3	5	5	4	4	
13	1	1	6	1	2	13	4	2	1	7	3	0	2	3	3	3	3	3	3	
14	1	1	7	1	2	13	5	4	1	7	3	0	2	0	3	4	4	5	4	
15	1	1	3	1	2	9	4	4	1	8	4	0	1	4	5	4	5	3	2	
16	1	1	6	1	1	7	4	3	1	4	4	0	1	4	3	5	5	5	4	
17	1	1	6	1	2	12	3	5	1	1	4	10	1	5	4	4	5	4	10	
18	1	1	6	1	2	13	2	2	1	7	3	11	2	0	5	4	4	3	5	
19	1	1	7	2	0	0	5	5	1	5	5	0	2	0	5	5	5	5	4	
20	1	1	6	1	2	2	4	4	1	2	4	0	1	4	4	5	5	4	4	
21	1	1	6	1	1	5	3	3	2	0	4	0	1	5	4	4	5	6	11	
22	1	1	6	1	1	14	3	5	2	0	4	0	1	5	4	5	5	6	11	
23	1	1	6	2	1	7	3	3	1	1	4	0	1	4	4	5	4	4	4	
24	1	1	6	1	1	15	3	4	1	8	4	0	2	4	5	5	5	3	1	
25	1	2	6	2	1	14	3	4	2	0	5	0	1	4	0	5	5	6	11	
26	1	2	6	1	0	0	0	3	1	10	4	0	2	0	0	3	3	4	3	
27	1	2	7	2	1	16	5	4	1	9	4	0	1	4	4	5	4	6	11	
28	2	1	6	2	1	11	3	3	1	16	4	7	2	0	4	4	4	6	11	
29	2	1	7	1	4	17	5	5	1	5	5	0	1	5	5	4	5	5	2	
30	2	1	6	1	1	17	5	5	1	17	5	0	1	5	4	5	5	5	6	
31	2	1	7	2	0	18	4	2	1	7	4	0	2	3	1	5	5	2	4	
32	2	1	4	1	2	18	3	5	1	2	4	0	1	4	3	4	4	3	3	
33	2	1	6	2	1	19	2	2	2	18	4	0	2	0	4	5	5	4	3	
34	2	1	7	2	2	8	4	4	1	1	5	0	1	4	4	5	5	5	10	
35	2	2	7	2	1	20	2	4	1	19	3	12	2	0	5	4	4	2	4	
36	2	2	6	2	1	21	5	3	1	17	4	0	1	5	5	4	4	4	10	
37	2	2	7	2	1	22	1	3	2	0	4	0	1	4	4	5	5	6	11	
38	2	1	7	2	1	18	2	3	2	0	4	0	2	3	4	4	4	6	11	
39	2	1	7	2	1	23	1	2	1	20	5	0	2	0	5	5	5	3	4	
40	3	1	5	2	1	3	5	5	1	5	5	0	1	4	4	4	4	4	7	
41	3	1	7	1	1	12	5	5	1	21	3	14	1	5	4	5	5	4	4	
42	3	1	5	2	2	7	4	4	1	22	4	0	2	0	4	4	4	4	4	
43	3	1	5	1	1	1	2	4	1	5	5	0	1	5	5	4	5	5	4	
44	3	1	6	2	1	24	3	4	2	0	0	0	1	4	4	5	3	3	4	
45	3	1	5	2	2	3	4	4	1	23	4	0	2	0	4	5	5	4	2	
46	3	1	6	1	2	12	3	3	2	0	4	0	2	0	4	3	3	2	0	

Table 5 (b) 2 shows the Data View Window with the data entries 47- 92 graduates' responses of the 133 respondents.

	Year	Gender	Age	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	var
47	3	1	6	2	1	7	3	3	2	0	4	0	1	4	4	4	4	6	11	
48	3	1	5	1	1	14	4	5	1	2	5	0	1	4	5	5	5	4	4	
49	3	1	6	1	3	17	5	5	1	1	4	0	1	5	4	5	4	6	11	
50	3	1	6	1	1	7	3	4	1	1	4	0	1	4	4	4	4	4	4	
51	3	1	6	2	0	0	3	3	1	12	1	6	2	0	1	4	4	4	0	
52	3	1	7	1	1	7	5	5	1	6	5	0	1	5	5	5	5	5	4	
53	3	2	6	2	1	25	4	5	1	24	5	0	1	5	5	5	5	3	4	
54	4	2	4	2	1	0	3	4	2	0	4	0	1	5	4	5	5	6	11	
55	4	2	5	1	0	0	1	4	1	14	5	15	2	0	5	4	5	3	3	
56	4	2	5	1	2	26	4	4	1	18	5	0	1	4	5	5	5	4	9	
57	4	2	4	2	1	1	1	1	1	12	4	16	2	0	4	4	4	6	11	
58	4	2	4	1	0	0	1	4	1	12	4	0	2	0	4	5	5	4	6	
59	4	2	5	2	1	1	2	4	1	12	5	16	1	5	5	5	5	6	11	
60	4	2	4	2	1	12	4	5	1	6	5	0	1	4	5	4	5	3	3	
61	4	1	5	1	2	14	3	3	1	12	2	0	1	4	4	4	4	4	2	
62	4	1	4	2	0	0	0	4	1	5	3	0	2	0	4	4	4	4	4	
63	4	1	5	1	2	3	5	4	1	23	4	0	1	4	4	5	4	4	4	
64	4	1	5	2	0	0	1	4	1	3	4	0	2	0	4	5	5	0	0	
65	4	1	4	2	0	0	4	4	1	0	4	0	2	0	4	4	5	4	4	
66	4	1	5	2	1	19	2	3	1	12	3	17	2	0	3	4	4	4	4	
67	4	1	5	1	2	3	5	4	1	3	4	0	2	0	5	5	5	3	8	
68	4	1	6	2	0	0	2	4	1	21	4	14	2	0	4	4	4	0	0	
69	4	1	6	2	0	0	1	1	1	10	1	5	2	0	4	4	3	4	5	
70	5	2	3	2	1	27	1	1	1	12	2	4	2	0	4	3	3	6	11	
71	5	2	3	2	1	28	1	3	1	25	3	14	2	0	4	3	3	3	2	
72	5	2	4	2	1	20	2	3	2	0	0	0	2	0	3	3	3	6	11	
73	6	2	4	2	0	0	1	1	2	0	3	0	2	0	4	4	3	0	0	
74	6	2	3	1	2	1	1	1	2	0	1	0	2	0	3	2	1	6	11	
75	6	1	4	1	1	12	4	4	2	0	3	0	1	5	4	4	4	6	11	
76	6	1	4	2	1	7	3	2	1	12	3	0	2	0	4	4	5	4	4	
77	6	1	4	1	0	0	0	0	1	7	5	0	2	0	5	5	4	5	6	
78	6	1	3	2	1	1	1	2	2	0	0	16	2	0	2	3	3	6	11	
79	6	1	3	2	1	1	3	4	1	12	3	0	1	5	5	5	3	6	11	
80	6	1	3	2	1	1	1	5	1	12	4	16	2	4	0	4	4	6	11	
81	6	2	3	2	1	0	1	2	2	0	2	4	2	4	3	3	4	6	11	
82	5	2	4	2	3	29	1	4	2	0	0	0	1	4	3	4	5	6	11	
83	5	2	4	3	3	29	1	4	2	0	0	18	1	4	4	3	5	6	11	
84	5	1	4	2	0	0	0	4	1	16	5	7	2	0	5	5	5	5	7	
85	5	1	4	1	1	12	4	4	1	6	4	0	1	4	4	4	5	4	9	
86	5	1	3	1	1	7	3	4	1	26	4	0	1	5	5	5	3	4	3	
87	5	1	3	2	0	0	0	0	1	12	0	19	2	0	0	5	4	0	0	
88	5	1	4	2	1	12	4	4	2	0	0	0	1	4	0	4	5	6	11	
89	5	1	3	1	1	5	4	4	2	0	4	0	1	4	4	4	4	6	11	
90	5	1	4	1	1	24	3	3	2	0	0	0	2	0	0	5	5	6	11	
91	5	1	4	2	3	1	3	3	2	0	5	0	2	0	5	5	5	6	11	
92	5	1	4	2	2	2	3	3	2	0	4	0	1	4	4	5	5	6	11	

Table 5 (b) 3 shows the Data View Window with the data entries 93-133 graduates' responses out of 133 responses

	Year	Gender	Age	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	var
93	7	2	3	2	1	1	1	1	2	0	3	16	1	3	0	4	4	6	11	
94	7	1	2	2	1	6	3	3	2	0	3	0	1	0	0	3	4	6	11	
95	7	1	2	1	2	18	4	5	2	0	0	0	1	5	4	4	4	6	11	
96	7	1	2	1	0	0	0	3	1	27	4	0	2	0	3	5	5	4	5	
97	7	1	2	1	3	29	3	3	2	0	4	0	1	5	4	4	4	6	11	
98	7	1	4	3	1	29	1	2	2	0	3	10	2	0	3	4	5	6	11	
99	7	1	3	5	1	7	3	3	1	14	4	0	2	5	5	3	3	3	1	
100	7	1	2	2	1	30	2	2	2	0	3	0	2	0	4	4	4	6	11	
101	7	1	4	1	1	12	4	5	2	0	3	0	1	5	5	4	4	6	11	
102	7	1	2	2	1	18	3	5	2	0	3	0	1	4	0	4	5	6	11	
103	7	1	2	1	1	12	4	4	2	6	4	0	1	4	3	4	5	5	2	
104	7	2	3	2	2	3	3	3	2	0	4	0	2	0	4	4	4	6	11	
105	7	2	3	2	1	1	1	1	2	0	0	16	1	3	0	4	4	6	11	
106	8	1	2	2	0	0	0	4	1	5	4	0	2	0	4	4	4	3	1	
107	8	1	4	1	2	4	4	2	1	28	2	0	2	2	2	3	4	4	4	
108	8	2	3	1	2	2	3	4	1	1	5	0	1	5	5	5	4	4	9	
109	9	2	2	2	3	29	2	1	2	0	0	0	2	0	0	3	3	6	11	
110	9	2	1	2	3	1	1	1	2	0	2	0	2	0	3	3	4	6	11	
111	9	2	1	2	1	1	1	3	2	0	4	18	2	0	4	5	3	6	11	
112	9	2	2	1	3	29	2	3	2	0	0	0	2	0	3	3	4	6	11	
113	9	1	1	1	5	4	5	4	2	28	4	0	1	4	4	5	4	4	4	
114	9	1	1	2	5	31	5	5	1	22	4	0	2	0	5	5	5	4	1	
115	9	1	1	1	3	29	4	4	2	0	4	8	2	0	4	4	3	6	11	
116	9	1	1	3	3	29	2	2	1	0	0	0	2	1	4	2	3	6	11	
117	9	1	1	5	5	29	3	3	2	0	0	8	2	3	3	4	5	3	1	
118	9	1	1	3	1	32	3	4	2	0	4	20	2	0	3	5	4	6	11	
119	9	1	1	2	1	7	3	5	2	0	4	0	1	4	4	5	5	6	11	
120	9	2	2	1	1	12	4	4	1	0	0	0	1	5	4	4	4	6	11	
121	10	1	1	5	2	4	3	4	2	7	0	0	1	5	4	4	5	4	2	
122	10	1	3	2	0	0	0	3	1	1	3	0	2	0	5	4	4	5	10	
123	10	1	2	1	2	2	3	3	2	0	4	0	1	4	4	4	4	6	11	
124	10	1	1	5	3	21	1	2	2	29	5	0	2	0	4	3	5	6	11	
125	10	1	3	2	5	0	0	4	2	0	0	0	1	4	4	4	4	6	11	
126	10	1	2	2	2	4	4	4	2	28	4	0	2	0	4	4	4	4	1	
127	10	1	2	1	2	18	5	5	1	26	4	0	1	5	5	5	5	5	7	
128	10	1	2	2	0	0	0	5	1	7	5	0	2	0	5	5	5	5	3	
129	10	2	2	2	1	19	1	1	2	18	3	0	2	0	4	4	5	6	11	
130	10	2	4	1	1	0	3	4	2	30	4	21	1	4	4	4	4	4	11	
131	10	1	3	2	0	0	0	3	1	5	4	0	2	0	5	4	3	4	5	
132	10	1	2	2	0	0	0	4	1	6	5	0	2	0	5	5	3	4	3	
133	10	1	2	2	2	4	3	3	1	12	4	0	1	3	5	4	5	3	4	
134																				
135																				

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