CHAPTER 3: METHODOLOGY

Research Framework

Highlighted in the research framework diagram below is the overall picture of what the study entails. The first box highlights the data collection methods and instruments that are used to gather data from persons in the field as well as from written works related to the subject matter; notably, TNA. All the data is then analyzed by use of descriptive statistics which is inclusive of both quantitative as well as qualitative data analysis. Quantitative data analysis was used to quantify the respondents’ answers as gotten from two questionnaires that were issued to two different sets of subjects; one was issued to persons involved in the TNA process and the other was issued to persons in various parts of the country’s industry sector. Qualitative data analysis came about in terms of using summarizing techniques to highlight what the subjects who were interviewed had to say about TNA in Belize. Markedly, all the analysis was geared towards studying the TNA process that is used in Belize to develop/modify training programs. Based on findings and pre-established criteria standards from benchmark models acquired during the research process, conclusions are then made about TNA in Belize and whether it is effectively being conducted.

**Literature Review

** Interviews with Directors of Centers for Employment Training & other TVET personnel

** Training Needs Assessment (TNA) questionnaire

** Questionnaire for Business Sector

A Study on the Training Needs Assessment (TNA) process for the development/modification of Technical Vocational Education and Training in Belize.

Figure 7; Research Framework

*Conclusions about TNA as it is in Belize: IS TNA FOR T.V.E.T PROGRAMS EFFECTIVELY BEING CONDUCTED IN BELIZE? **RECOMMENDATIONS FOR FUTURE DEVELOPMENTS
Accessible Population

Several sectors of the populace serve as the target from which to acquire a suitable sample. The population includes the following persons: Subject analysts and experts in the TVET field, director and assistant director involved in Belize’s TVET project, manager, assistant manager, training specialist, research personnel and curriculum specialist under Employment Training and Education Services, persons from the National Apprenticeship Program also known as the National Training Council, including the interim president, other members and those involved with adult and continuing education, directors, job placement officers, directors and instructors from CETs throughout Belize, personnel from the various business sectors (industry) especially owners, managers, and employers who were called upon to participate on task force during the needs assessment process, and finally, past individuals who were members of the Vocational Technical Training Unit when it was operative –today VTTU is no longer existent, it was replaced by ETES. These former members are important since they serve as key witnesses to laying the foundation for what is the current TVET situation in Belize so they can give vital information. After extensive research to gather information about the target population, the researcher had a list amounting to eighty-four (84) names of persons who could be participants in the research.

Subject Selection

The researcher using the list of the accessible population contacted persons via the telephone and introduced herself and study to them. Then she asked for their permission to partake in the research. Basically, persons who could be contacted and who gave their consent to partake in the study became the subjects for the research. Subject selection was therefore based on a voluntary basis.
Sample

The researcher used the snowball sampling technique to generate an overall list of names of persons who could be contacted to partake in the study. Basically, snowball sampling is a technique for finding research subjects. One subject gives the researcher the name of another subject who in turn provides the name of a third, and so on. (Atkinson and Flint, 2001 as cited by Vogt, 1999) Over the course of a month and a half, the research was able to make contact with individuals to partake in the study. Notably, it was beneficial for the researcher to use this technique primarily because documentation with names of persons involved in TVET and TNA were not really up-to-date, especially in regards to contact information. Persons were targeted as being able to partake in the study because of several key factors; namely, they had or are still active in areas of TNA and program development for TVET programs, they are involved in the government’s initiative to enhance TVET in Belize, they are members of the business sector who have been targeted by MOEYS personnel to aid in the development or modification of training programs and finally, they are knowledgeable and have partaken in activities involving TNA in Belize.

The researcher was able to generate a list of forty persons who were at some point or the other involved in the TNA process in Belize and from this list was able to gain twenty-three participants which amounts to fifty-seven point five percent (57.5%) of the total accessible population in this area. In terms of industry personnel, from the total of thirty-two accessible population, the researcher was able to acquire twenty participants to complete questionnaires which is 62.5% of the total available population in this area. Meanwhile, from the list of twelve persons –four directors of CETs and eight persons who are known to have been or are presently
involved in TVET, the researcher was able to conduct interviews with eleven of them which amounts to a total of 91.6% of the total target population in this area.

In general, the researcher was able to elicit information from fifty-four persons from the overall accessible population of eighty-four and this means that the sample amounts to 64.2% of the entire available population. Several factors account for the research not being able to secure 100% participation from the accessible population; namely, some persons were too busy to take time out to fill out the questionnaire, some were out of the country, some said that they are no longer in the field, some said that they did not fully participate in the needs assessment so they lacked knowledge about the process and a few said that the last time they participated in TNA was a long time ago and so they did not feel like they were in a position to remember the details to give the researcher accurate information.

**Instrumentation**

There were three instruments used to collect data for this research study; namely, a Training Needs Assessment Questionnaire, Business Sector Questionnaire and Interview Sheets used for directors of training schools and other key persons involved in the TVET project in Belize.

**Development of Questions/Items for Instruments**

**A Training Needs Assessment Questionnaire**

After an extensive review of literature related to Training Needs Assessment for the formulation of training programs, the researcher was able to gain insight as well as acquire knowledge about how to conduct an appropriate needs assessment. In light of the latter, the researcher was able to use several needs assessment indicators as a means of developing a
questionnaire to investigate the needs assessment that is conducted in Belize. After the review of literature, it became apparent that in order to conduct a successful needs assessment, there are two main areas that need to be addressed, namely, ‘Laying the foundation for the TNA’ and deciphering the ‘Demand drives and data collection indicators’. As reported in Sommers, Dixie (2002) study called ‘Assessing Vocational-Technical Training Needs in the Eastern Caribbean Region: A Practitioner’s Guide’, it is essential that “before any needs assessment activity begins, it is important to lay the foundation for the overall effort”(p. 7) to ensure that the TNA gains appropriate sponsor support, that resources are available and that all the expectations are clear. In addition, Sommers stresses that vocational education and training must be designed to respond to demand drives as needs assessment must strive to develop training programs that are linked to a country’s economic development strategy. In light of the aforementioned, this questionnaire was therefore developed by using the data gathered from literature review, most specifically, Sommers (2002) article served as a benchmark/model to assist in the development of appropriate needs assessment demand drivers and coming up with related data indicators. See appendices section to view questionnaire.

B Business Sector Questionnaire

Sommers (2002) “Businesses, as employers of vocational-technical program students, are major stakeholders. Their involvement and cooperation are critical to the success of the needs assessment process.”(page 15) In essence, it was imperative that a questionnaire be developed that seeks to elicit information from persons from the industry sector about their involvement in the TNA process. According to literature review, phase three (3) of the training needs assessment process is engaging key stakeholders --businesses are key organizations that need to be
represented when the needs assessment is being conducted. The questionnaire was designed; therefore, with relevant questions seeking to decipher if business personnel were consulted, what information was elicited from them, what tools were used to gather data from them and general information about their role in the TNA process. See appendices section to view industry personnel questionnaire.

C Interview Sheet

Notwithstanding, it was vital that information be collected from the directors of the various training centers that exist throughout Belize. Interviews were done with the various directors/managers of the existing Centers for Employment Training (CETs) throughout Belize. There are a total of four (4) CETs operational throughout the county; in Cayo, Corozal, Punta Gorda and Belize City’s North side. These are the major centers for training in Belize with each center having a director/manager. An interview sheet was therefore developed to elicit information about the training that takes place and about the existing operations at the school. Questions seek to gain insight about the student population, current programs, instructors, skills level, how training programs were developed and so forth. Notwithstanding, imperatively interview questions also elicited information about the training needs assessment process conducted in Belize and their involvement.

In terms of the other persons involved in TVET, interview questions were devised that related to the current situation in the country, knowledge and participation in TNA and the effectiveness of existent training programs. See appendix D to view interview sheet.
Coding

A  Training Needs Assessment Questionnaire

The researcher used the five point liker scale as the central means of coding the data. The scale comprises of Never – 1; Seldom – 2; Don’t Know – 3; Often – 4; and Always – 5 as illustrated in the diagram below:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>Seldom</td>
<td>Don’t Know</td>
<td>Often</td>
<td>Always</td>
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<tr>
<td>O</td>
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</tbody>
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Figure 8; Scale of Measurement

Each number that is assigned to the choices which were made available to the participant then becomes the measure per choice for when the descriptive statistics is run in SPSS. The Training Needs Assessment Questionnaire is divided into two parts. Coding is done by assigning the variable letter ‘Q’ (for question) plus the item number for part one; therefore, in this section the code sheet has Q1…Q38 because the total amount of questions is thirty-eight.

Meanwhile, for part two of the questionnaire that deals with information about demand drives, collection tools and indicators the researcher assigned the variable letter ‘Q’ plus the item number; therefore, in this section the code sheet has Q1…Q23 because the total number of items in this section is twenty-three. Since part two indicates the respondents’ ‘selection’ or ‘non-selection’ of various indicators; the researcher codes ‘0’ for checked and ‘1’ for not checked.

Finally, for the section that deals with Demographics and Background Information, the researcher uses nominal scale of measurements and assigns a number to a variable. For example, under Occupation the researcher assigns numbers as a means of labeling the respondents’
attributes in this way: Manager –1; Assistant Manager –2; Specialist –3; Educator –4; Analyst –5; and Other –6.

B  Business Sector Questionnaire

Whilst in terms of the second questionnaire geared towards the industry sector personnel in Belize, the researcher coded the data by using nominal scales to label the respondents’ background information. Nominal scale is also used as a means of highlighting the participants’ years of service, participation in the TNA process and the number of times they have participated.

Section two of this questionnaire addresses the data collection tools that they used during the TNA process and the researcher codes the data by assigning the values ‘0’ for checked and ‘1’ for not checked.

Section three of the questionnaire allows respondents to rate several factors about their involvement in the TNA process. For these items the researcher uses a five-point likert-scale and assigns: Low –1; Moderate –2; Average –3; Over Average –4; High –5.

The final section of this questionnaire is an open-ended question and for this the researcher will use qualitative methodology to summarize the information received from the respondents.

C  Interview Sheet

In terms of the interview sheet, this is highly qualitative data; therefore, the researcher does not have to develop a coding sheet for the information collected. Rather, the researcher will use qualitative methodology to highlight the overall information that was gotten from the respondents via the interview questions. Summary will be the means of pinpointing the respondents’ answers to the various key questions that they answered.
Validity/Reliability of Instruments

The researcher used expert validity as a means of ensuring instrument reliability. The researcher had consultations with both the program director as well as her thesis adviser, who are both well-versed in the TVET field and therefore have extensive knowledge about TNA. After completing the instruments both director and adviser reviewed the items and provided the researcher with the relevant feedback on how to improve. After improvements were made accordingly, the researcher went over the instruments with her adviser and gained his approval for the use of the instruments.

Content of Instruments

A Training Needs Assessment Questionnaire

A quantitative approach was taken in an effort to solicit information from persons who have participated in TNA in Belize. A Needs Assessment Questionnaire comprising of three sections was developed: Section I relates to the overall foundation of the TNA process. This section of the instrument encompasses five subsections that sought to gain relevant information about the sponsor, cost estimates, persons involved, the audience for communication activities and finally about the actual content of the TNA process. A total of thirty-eight items are in this section. A five choice key was generated for participants to show their assessment choice –the five point choices are ‘Never, Seldom, Don’t Know, Often, Always’ and participants were expected to rate the statements based on the TNA process that they partook in.

Section II, meanwhile, seeks to elicit information about the demand drives and data collection indicators during the TNA process. This section entails three subsections that sought to gain relevant data about demand drives, tools for data collection and finally data collection
indicators. A total of twenty-four items are in this section, but in actuality there are only three main questions. There was no key for this section rather the participant had to place a tick in the respective box to indicate their choice for the proposed question/statement.

Finally, Section III seeks to gather information about the participant’s demographics and background. In this section, there are six general questions generated to obtain information about the participant of the study.

B Business Sector Questionnaire

Last, but certainly not least, another questionnaire was designed in an effort to gain input from the private business sectors about their role in the training needs assessment process and how they aid in giving input to help with the development of training programs in Belize. The researcher once again used related literature review about the TNA process and the involvement of industry personnel for the formulation of training programs to gain insight and draft the questionnaire. This questionnaire is comprised of three sections. Section I addresses the general background of the participant. In this section, there are six general questions generated to obtain information about the participant of the study. Section II seeks to elicit information about the data collection tool(s) that was used to gain information from the participant. A list of four possible data collection tools are listed along with an option for ‘other’, from which the participant had to tick the relevant box based on his/her experience when he/she participated in the training needs assessment process. Finally, Section III seeks to elicit information about the persons’ level of participation in the Training Needs Assessment (TNA) process along with their opinion about students competencies after they finish a training program. A scale of 1-5 is used and the participant is instructed to use the scale as a means of rating the statements that are given
to them. Also in this section there is an open-ended question that seeks to gather data about the exact information that was elicited from business persons in relation to the development of trainees’ skills in their respective industry.

C Interview Sheet

An interview sheet was developed as a means of collecting data from the various directors of CETs throughout Belize. After thorough review of literature related to training programs, as well as consultation with experts in the field, the researcher was able to devise sound questions/items to effectively gather key information from the targeted population. The interview sheet comprises of twelve key questions which were designed to solicit general information about the existent training programs, about teachers and support staff, funding, and most importantly about the training needs assessment process. Interviewing the directors was also in an effort to gain an in-depth understanding about the operations of the schools and the efficiency of the established training programs at the various centers.

Data Collection Procedures

Business Sector Questionnaire

In January, 2005, a list of thirty-two names of people from the industry was generated from ETES whom they had consulted to participate in the training needs assessment process. These persons all have been working in the business industry for quite a number of years and thus are considered experts in their respective fields. The fields of these business personnel include Ac/Refrigeration, Auto-mechanic, Electrical, Tourism and Hospitality, welding and Cosmetology. Of these thirty-two persons the researcher used the contact telephone numbers
listed for each and made phone calls to gain permission from them to participate in the study. After contact was made via the telephone, the researcher made arrangements to meet with them and give them the questionnaire to fill out. By the end of February, 2005, a total of twenty persons from the various industries participated in filling out the questionnaire. Since contact was made via the telephone and the participants gave a time when they would be available, the researcher was able to sit and wait in their respective office and be available for them to ask for clarity about elements of the questionnaire. For the most part, filling out the questionnaire took each participant about ten minutes to complete.

**Training Needs Assessment Questionnaire**

In January, 2005, the researcher visited the office of ETES, which is a direct umbrella department under the MOEYS. ETES is responsible for the enhancement of TVET programs in Belize. In light of the latter, one of the primary tasks of this organization is to carry out the necessary needs assessment process to decipher what training programs should be implemented at the various Centers for Employment Training. The researcher; therefore, arranged a meeting with the director of ETES, and introduced the concept of the study to her. From her the researcher then was able to get names of other important figures in the TVET project who participated in needs assessment. The researcher was able to get a total of twenty-three persons who participated in conducting needs assessment in an effort to determine what training programs were to be offered at the CETs country-wide. The director agreed to disseminate questionnaires to the individuals who were present in her office and who had participated in the TNA process.
Later, in that same month, the researcher met with the then assistant director of ETES, who then turned over the filled out questionnaires to her. She gave the researcher a list of names along with contact information for other people who also partook in training needs assessment process. She also gave her some documentation about how needs assessment is conducted and discussed with her about exactly what takes place in Belize when it comes to deciding what training programs should be implemented. The researcher contacted the other persons via the telephone and arranged to meet with them at a convenient time for them to fill out the questionnaire. The questionnaire took about fifteen minutes to be completed and for the most part she waited and got them the same day. A couple persons told her to return at a certain date and time to collect the questionnaire which she did. In total, the researcher distributed forty questionnaires based on the list of names that she had acquired. She received twenty-three of those questionnaires completed. Many of the other persons informed her that after they thoroughly examined the questionnaire they did not fully participate in the needs assessment to know the in-dept nitty-gritty’s of the procedures; therefore, they were not in a position to honestly fill out the questionnaire. Others claimed that the time they participated in the needs assessment was such a long time ago (1989) that they cannot in any way remember precise information about what was done and so they felt they were not fit enough to give accurate data.

**Interviews**

There are CETs established in four of the country’s six districts; Belize City’s North Side, Cayo, Punta Gorda, and Corozal. The researcher used the directory to get the relevant telephone numbers for each center and contacted all the directors. She informed them about her study and asked them if it was possible to take a visit to the schools to see first-hand what was going on
and to conduct an interview. All the directors agreed and date and time was arranged which the researcher complied with. The researcher was able to meet with and interview directly three of the four directors, but due to time constraints she had to eventually do a telephone interview with Mr. Fred Orio, the director of CET Corozal.

The researcher then investigated to find out who were some of the other key figures in the various areas of TVET and was able to come up with a list of names. Persons included the director of Belize’s TVET project, the former Chief Education Officer --he had conducted a baseline study for TVET in Belize and is author of many articles regarding TVET, the officer in charge of testing and certification under TVET, manager of the Labor Department and the present the interim president of the NTC and formerly the assistant manager of CET Belize. He presently manages his own training school. The researcher contacted these individuals via telephone and arranged feasible times to come in and do interviews with them. Interviews were conducted during the month of February, 2005.

**Data Analysis**

The researcher used descriptive statistics to gain key information about the data collected. Descriptive statistics include frequency charts, graphs, mean, and standard deviation. The information gathered will then be analyzed and used to write up discussion including comparisons/contrasts and recommendations are made. Key questions from the instruments are highlighted and used as a means of pin-pointing relevant information about the TNA process in Belize. The researcher did an overall discussion of the findings and will use data collected as a means of coming to appropriate conclusions about the effectiveness of the TNA process for the formulation of TVET programs throughout the country.
In essence, the researcher used SPSS statistical software to analyze the quantitative data collected from respondents. Primarily what was calculated for the likert-scale questions is the means since the number that is coded can give us a feel for which direction the average answer is. The standard deviation is also calculated and is important because it points out the average distance from the mean. If after data analysis there is a low standard deviation it signifies that most of the observations cluster around the mean. Meanwhile if there is a high standard deviation this means that there was a lot of variation in the respondents’ answers. A standard deviation of ‘0’ means that the responses to a question are the same across the board.¹

Clearly, the researcher used the statistical calculations as a means of analyzing the data and forming conclusions about the respondents’ answers. In addition, based on the choices selected by the survey population, the researcher used frequency charts and percentage values as a means of pinpointing the respondents’ belief about the various items and use this to sort out the relevance of the various stages of the training needs assessment process. The researcher then used a percentage break-down for each item on the questionnaire to write up discussion and summaries as well as come to relevant conclusions.

In terms of the interview sheet, which is highly qualitative data, the researcher utilized summary techniques to pinpoint the information received from the various respondents. The researcher used reports to highlight similarities and differences among the responses received and pinpointed general patterns that evolve from the information collected. Also, via interviewing the researcher was able to collect general information about the training needs

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assessment process and about the main vocational training centers in Belize; therefore, she simply documented such data.