The University of Sheffield

D. Indar

Awakening the Awareness: Critical Thinking in Vocational Education

Conceptualizations of Critical Thinking in Vocational Education and Perceptions of Factors that Impact the Development of Critical Thinking in Adult Vocational Education Students in Trinidad and Tobago

Thesis submitted in partial fulfilment of the requirements for the degree of Doctor of Education (Ed. D.) 2017

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ABSTRACT

The development of critical thinking skills in students is one of the cherished and prominent objectives of education; however, in spite of its acclaimed significance, critical thinking has remained one of the most elusive goals of education systems. Although nurturing and inculcating critical thinking skills have been presumed to be the responsibility of academic education, within recent times the philosophy of education has changed to one that recognizes critical thinking as a viable inclusion in vocational education.

The purpose of this research was twofold: (1) to investigate how Vocational Instructors, Administrators and Internal Verifiers of a specific programme in Trinidad and Tobago conceptualize critical thinking in vocational education; and (2) to determine their perceptions of factors that impact the development of critical thinking in the adult students of the programme. By means of a Case Study in the Qualitative paradigm the perspectives of fifteen purposefully selected persons were gained primarily through open-ended and semi-structured interviews. An eclectic blend of various theoretical frameworks was used to interpret the data which revealed that participants equate critical thinking in vocational education to being proactive, evaluation, extrapolation, rigorous questioning, and problem solving.

The commonly reported factors impacting the development of critical thinking in adult vocational students were their socio-economic status, educational attainment and levels of reading, attitudes, and their culture/religion. Other factors reported with less frequency were teachers' instructional style, teachers' personalities, students' expectations, classroom climate, design of the curriculum, institutional factors such as time and resource constraints, and students' physical and mental barriers.

This research highlights the need for vocational instructors to: (a) resist the urge to conduct their classes on the archaic principle of teaching as primarily transmitting knowledge; and (b) facilitate the learning process by nurturing the development of critical thinking in vocational education through its various manifestations.

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I wish to acknowledge the supremacy of Almighty God to whom I owe my very existence and who has enabled me to truly understand the biblical verse which says that, "the race is not to the swift, nor the battle to the strong" (Eccl. 9:11.). In addition to providing me with the tenacity and persistence to successfully bring this research to its fruition, my supreme creator has brought the following persons into my life – all to whom I owe an enormous debt of gratitude:

My supervisor, Dr. Tim Herrick, who has steadfastly guided and warmly encouraged me with his insightful comments, astute advice and ever gentle suggestions. Interactions with this amazing individual enabled me to transcend the boundaries of my mental and physical realities;

Professor Pat Sikes, who accepted me into this Doctoral programme several years ago, who encouraged me at the Study School sessions held in Trinidad, who never missed the opportunity to boost my ego whenever bouts of inferiority and incompetence struck, and who shares my love for writing (and for cats);

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My participants – those incredibly dedicated vocational educators who uninhibitedly conversed with me and without whose input this research would not have been possible;

My deceased parents, Jack – whose calm demeanour I inherited, and Pearly Ramdass Singh – whose love for creativity, fashion, design and other vocational skills are woven through my being, and whose determination to always succeed resonates within me;

My husband of 35 years, Wilton (Chexy) Indar and our children - Gavin (Chilos) and Devon (Ace) who, although having been forced to develop and master various culinary and housewifery skills whilst I was on this seemingly never-ending journey, never once complained (to me).

DEDICATION

This thesis is dedicated to my husband, Chexy.

Chex! The children and I all carry the title of Doctor, but we know to whom this highly esteemed title should really be bestowed!

So… this one's for you, Chex!

This one's for you!

LIST OF ABBREVIATIONS

Abbreviation	Meaning
ACTT	The Accreditation Council of Trinidad and Tobago
COSTAATT	College of Science, Technology and Applied Arts of Trinidad and Tobago
CT	Critical Thinking
CTE	Career and Technical Education
CVQ	Caribbean Vocational Qualification
MIC - IT	The MIC Institute of Technology
MSTTE	The Ministry of Science, Technology & Tertiary Education
MTEST	The Ministry of Tertiary Education and Skills Training
NESC	The National Energy Skills Centre
NTA	The National Training Agency
T&T	Trinidad and Tobago
TEST	Tertiary Education and Skills Training
TTHTI	The Trinidad and Tobago Hospitality and Tourism Institute
TTNVQ	Trinidad and Tobago National Vocational Qualification
TVET	Technical and Vocational Education and Training
UTT	The University of Trinidad and Tobago
UWI	The University of the West Indies
VE	Vocational Education
VET	Vocational Education and Training
YTEPP	Youth Training and Employment Partnership Programme

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CHAPTER 1: INTRODUCTION

1.1 Overview

The "need to teach critical thinking (CT) skills in [educational] institutions is currently and prominently featured among the goals of education because of its positive effects on the overall development of an individual" (Agboeze, Onu, & Ugwoke, 2013, p. 117), and its significant contribution towards employability. Additionally, according to the summary and conclusions section of Huitt's (1998) report, it "is one of the most important attributes for success in the 21st Century". The quest for CT skills has been necessitated by accelerating technological changes, rapidly accumulating knowledge and increasing global competitiveness that require individuals to possess "more than basic reading, writing and computing skills – they need to be able to use knowledge and skills critically in the context of modern life" (Partnership for 21st Century Skills, 2007, p. 6). In spite of the acclaimed significance of CT to individuals and societies, Leming (1998, p. 61) has cautioned that it has remained "one of the most cherished, yet elusive goals of education systems". Concurring with this, Allison (2014, p. 1) further states that the topic of critical thinking "enjoys a ubiquitous existence in education… [and that] its importance to learning has remained an unquestionable and prominent concern" (p. 1).

The clarion call for the need for CT is echoed worldwide. Kek and Huilser (2014) report that "although many students are highly skilled at multi-tasking and handling a sea of information at seemingly dazzling speed, the ability to critically assign value to such information is often missing" (p. 331). Referring to the situation in America, Collier, Guenther and Veerman (2002) have stated that based on evidence from test scores, teacher observation checklists and portfolio information, "students of all ages demonstrate a deficiency in critical thinking" (p. 16). Qian (2007) has also lamented the alarming gap between current educational practices in China that feature memorization, drill and extensive content coverage and the educational ideal of developing critical thinkers. Along a similar vein, Beckmann, Cooper and Hill (2009) advise that the "English education system has been increasingly impoverished over the last 30 years … leading to the increasing production of uncritical thinkers" (p. 311). Similarly, Kaye and

Hager (1992), reporting on the situation in Australia, posit that CT represents a relatively neglected area of student learning. Additionally, in 2000, the Commonwealth of Australia reported that students' "capacity for independent and critical thinking …is rare" (p. viii).

Within the islands of Trinidad and Tobago (T&T) - the focus of this research, CT skills are also essential if we are to address the ills that have been plaguing us for decades. UNESCO issued an alarming report that revealed the critical nature of the challenges that confront the Caribbean region - "challenges of unsustainable patterns of production and consumption, which put pressure on our limited and fragile natural resources, leading to increased vulnerability to natural hazards, increased poverty, ill-health and loss of economic and cultural opportunities" (UNESCO, 2007). With particular reference to T&T, our former Minister of Science, Technology and Tertiary Education (MSTTE) - Fazal Karim, states that:

> Our country, our democracy and our institutions are works in progress requiring a unique kind of 21st century citizen who must, among other things, be innovative, entrepreneurial, community-oriented, civic-minded, ethical and capable of critical-thinking and possess the ability to creatively confront the plethora of challenges which face us, while grasping the opportunities as they arise. (MSTTE, 2010, p. 3)

Education that focuses on sustainable development is essential if we are to overcome the multitude of challenges that confront us and if we are to regain "our community vibrancy, the personal quality of our lives, our economic viability and our business competitiveness" (Partnership for 21st Century Skills, 2007, p. 2). In order to ensure sustainable development, students must exercise their CT skills to find solutions to key sustainability issues of environmental, social, economic and political origins. Continued practice at solving such problems results in students becoming more proficient at exercising their CT skills. This ultimately results in a thinking, enlightened citizenry who possess expert CT skills that will enable them to increase their competitive capacity regionally, expand their exports on a sustainable basis and attract foreign investment (Vision 2020, Tertiary Education Draft Report, 2002). CT and sustainable development are therefore inextricably linked for without CT skills, progress towards a more sustainable future will be compromised. However, for this goal of sustainable

development to be materialized, governments must strengthen their mandate for primary, secondary, tertiary and vocational education (VE) institutions to address the multifaceted tenets of CT and to institutionalize assessment practices that effectively gauge students' acquisition of these skills.

Halliday (2000) notes that in addition to a heightened quest for CT in academic education, there needs to be a rejuvenated thrust for CT in adult VE. Agboeze et al. (2013) are of the view that Vocational Education and Training (VET) prepares trainees for professional positions in various fields of endeavor – engineering, medicine, music, agriculture and marketing to name a few. Thomas (1992) therefore alludes to the fact that it is essential for vocational educators to equip students with skills that will enable them to respond, with varying levels of cognitive complexity, to the unprecedented challenges of present and future industrial needs. Agboeze et al. (2013) advise that:

> Effective teaching of critical thinking will help vocational and adult education students to learn continuously through thinking and reasoning, problem solving, decision-making and interpersonal competence, especially as the nature of work changes and occupations become more reliant on cognitive capacities. (Agboeze et al., 2013, p. 118)

Goodman and Sprague (1991) contend that although vocational training can perpetuate productive and enriching lives, it is presently not doing so because vocational educators are preparing students for current industrial needs and not necessarily preparing them for the needs of the future - a future that demands "the ability to analyze, evaluate, and challenge assumptions, information and opposing points of view" (Agboeze et al., 2013, p. 116). Sizoo, Agrusa and Iskat (2005) say that "vocational educators are therefore challenged to prepare students for skills required in the dynamic and uncertain future" (p. 527), and pose a thought provoking question: "When tomorrow is uncertain, what are educators supposed to teach today?" (p. 527). Agboeze et al. (2013) advise that we "should prepare students for [an uncertain] future by teaching them *how* to think critically instead of *what* to think" (p. 118). I also am of the view that when teaching the much needed practical skills, vocational instructors should inculcate students' "ability to think creatively, make decisions, solve problems, visualize, reason, analyze, and interpret – [all] desirable qualities of the future work force" (Kerka, 1992, p. 2) and all aspects of CT.

Kerka (1992) posits that CT has often been assumed to "be the role of academic education" (p. 2); however, Thomas (1992) cites the following arguments for VE's role in the development of CT:

> a) Occupations are becoming reliant on cognitive competencies as well as skill competencies; b) the changing work environment requires flexibility and adaptability to changing conditions; c) VE provides a real world context for cognitive development; and d) higher order learning is not just a change in behavior, but the construction of meaning from experiences. (Thomas, 1992, p. 63)

The effective teaching and learning of CT skills in VE "would enable students to seize and exploit opportunities to solve problems, generate and communicate ideas, and make positive differences to themselves and their communities" (Agboeze et al., 2013, p. 122).

The thrust for CT in VE has also been promulgated by the belief that it can provide a relief from "social deprivation" (Kuboni, 2002, p. 95), alleviate the unemployment situation, and increase "individual and national economic prosperity by producing a well-trained workforce" (Halliday, 2000, p. 160). Kuboni (2002) cautions though, that resurgence in the importance of skills development and a "skilled workforce has spawned the proliferation" (p. 95) of a number of new vocational institutions, which has led to "the detriment of the development of critical thought" (Beckman, Cooper, & Hill, 2009, p. 314).

Dirkx, Kielbaso and Smith (2004) also question the "extent to which" these new institutions are preparing workers to "effectively address the levels of uncertainty and cognitive complexity inherent in the emerging workplaces of the 21st century" (p. 30). Similarly, Hyslop-Margison and Armstrong (2004) complain that the type of CT offered by vocational institutions encourages "students to address problems from a limited perspective that ignores wider workplace, labour market, and socio-economic issues" (p. 43). They contend that current models of CT in VE "are conceptually problematic, epistemologically incomplete, virtually ignore dispositions, and merely promote technical rationality aimed at improving human capital efficiency within difficult labor market and working conditions" (Hyslop-Margison & Armstrong, 2004, p. 46).

CT in VE is of great significance to me since I am currently employed as a Curriculum Specialist at OrgX, where my major responsibilities are primarily geared towards the Innovative Programme (IPRO) – a programme that has, as one of its primary objectives, the alleviation of poverty and unemployment by providing vocational training to nationals of our country who are between the ages of 25 to 60 years. This training is expected to re-engineer their individual economic platforms by enabling them to obtain employment or to become micro-entrepreneurs. My interest in CT in VE within the IPRO of OrgX has provided the impetus for focusing my research on this particular geographical setting.

In a recent management meeting, our Chief Executive Officer (CEO) cautioned that if we are not preparing our trainees for the world of work and the future, and inculcating in them, the CT skills that will enable them to think independently and make a positive, significant contribution to the economy, the Ministry of Education may be forced to terminate our programme since it is not a direct contributor to the country's Gross Domestic Product. It is also anticipated that with increased employment and self-employment, trainees will be motivated to desist from lives of crime, and society in general, will benefit.

With the current economic meltdown in our country (and indeed the world), all governmental ministries were instructed to "tighten their belts". Several sectors of various ministries were terminated and numerous projects that were carded for commencement in the near future were aborted. Luckily, the IPRO was not one of the unfortunate programmes to be discontinued; but we were again cautioned by our director that we should not be contributing to the general environment of under-productivity and under-performance by generating trained persons in various skills who do not possess the CT skills required by an educated, "sophisticated citizenry able to participate effectively in a globalized world" (Vision 2020, Tertiary Education Draft Report, 2002).

Although there are inherent tensions between these goals of education - education for the development of CT skills, and education for individual and collective economic development, we at the IPRO are required to produce adults who possess the CT skills

that will enable them to secure rewarding jobs, maintain satisfying lives, and become well adjusted, economically productive citizens. Since CT skills are of such paramount importance, we need to investigate the factors that have been perceived to impact its development; but...before the perceived factors can be established, we need to ascertain what constitutes CT in VE, for as Clemens (2014) posits, "the pursuit of something you can't define usually leads to chaos or farce". The literature abounds with definitions of CT in the academics. Indeed, as Brigham (1993) reports, there are as many definitions of CT in the academic arena as there are experts in the field. However, definitions of CT in VE are limited. It is therefore the intent of this research to illuminate: 1) the conceptualizations of CT in VE; and 2) factors that are perceived to impact the development of CT skills in this specific group of adult VE trainees from the IPRO at OrgX in Trinidad and Tobago. While Torff and Sessions (2006) believe that instructors themselves are a propitious group to consult on issues related to students' acquisition of CT skills, Quinlan and O'Brodovich (1996) are of the view that "all institutional constituents who have a stake in adult learner success and well-being" (p. 176) are important: they are all responsible for the transitory support necessary for adult learners who are embarking upon postsecondary VE programmes that require increasing levels of cognitive complexity.

In keeping with Quinlan and O'Brodovich's (1996) view, this research has sought the participation of three (3) major constituent groups of educators from the IPRO of OrgX - *Vocational Instructors, Administrators (Managers and Specialists)* and *Internal Verifiers,* regarding their conceptualizations of CT in VE and factors that are perceived to impact the development of CT skills in adult VE students.

As a senior Curriculum Development Specialist at the IPRO in OrgX, I can make recommendations for the provision of resources that will enable all research participants to effectively exercise their rights and undertake their responsibilities as facilitators of CT. I am also able to present a compelling case to the director for changes which, in my participants' opinions, will assist in furthering the development of CT skills at our programme.

This research is worthy of scholarly attention since it has the potential to enhance the CT skills of subsequent trainees at the IPRO. Economic constraints have mandated that programmes such as the IPRO of OrgX, which require considerable amounts of government expenditure, produce value for money. By awakening the awareness for CT in VE, it is believed that Vocational Instructors, Administrators and Internal Verifiers will engage, with renewed vigour, in their quest for the development of CT skills in their trainees – skills which, in addition to contributing to the overall development of the individual, will ultimately translate into economic productivity. This research can also "serve as an impetus for [vocational educators] to systematically and reflectively explore" (Santangelo & Tomlinson, 2009, p. 320) their roles and responsibilities and the various ways in which they can ensure that this "dimension of humanity [CT] is not impeded, but is allowed to proliferate in the classrooms" (Fisher, 1995). Discussions held with educators will also reiterate their need to formulate policies, develop institutional structures, provide relevant in-service programmes, and implement strategies designed to complement current instructional practices that facilitate CT.

It is plausible to speculate that the discussions held with these educators - Vocational Instructors, Administrators and Internal Verifiers, will heighten their desire to ensure that their adult trainees develop into critical thinkers: critical thinkers who possess the required knowledge, skills, attitudes and competencies that will enable them to participate effectively and fully as citizens of our democracy and appropriately cope with the rapidly accelerating economic, technological, informational, demographic and political advancements of the 21st Century.

1.2   Significance of Study

Research endeavours on various aspects of CT in the academic arena are extensive – for a brief review, see: Atabaki, Keshtiaray and Yarmohammadian, 2015; Frijters, Dam and Rijlaarsdam, 2008; Lawson, Jordan-Fleming and Bodle, 2015; Pilanthananond, 2007; and Rogal and Young, 2008. However, in spite of the centrality of CT to the enhancement of all educational enterprises, insignificant published dialogue and very little empirical research has been reported on: 1) conceptualizations of CT in VE; and 2) factors that are perceived to impact the development of CT in adult VE students. The

value of my research emanates from the interaction and interplay of these different elements coming together within the T&T context.

The works of several authors and researchers on the topics of CT, VE and adult students have guided this research - Agboeze, Onu and Ugwoke, 2013; Becker and Hecken, 2009; Billett, 2014; Chee Choy and Kin Cheah, 2009; Collier, Guenther and Veerman, 2002; Rubie-Davies, 2010; Rudd, 2007; Sanavi and Tarighat, 2014; Shell, 2001; Torff, 2015; and Wang and Torrisi-Steele, 2016. Nevertheless, the usefulness of the literature provided from these sources was limited, since they were neither based on the peculiarities of adult VE trainees with respect to CT, nor the uniqueness of the T&T setting.

This research is therefore, neither the replication of any previously conducted research, nor the continuation of any study: It is an original investigation into two (2) constructs – CT *and* VE, which, to my knowledge, have not been previously conducted within the Trinidad and Tobago context. Since relatively little substantial knowledge has emanated from past research on CT with respect to adult VE students in Trinidad and Tobago, this study attempts to fill a significant gap and bolster the available thin literature.

The ability of T&T to enhance the CT skills of its VE students is of importance domestically, regionally, as well as internationally. Our economic predominance in the Caribbean region means that "the successes or failures of our sustained developmental attempts have implications for international perceptions of Caribbean viability" (McGrath & Akoojee, 2009, p. 150). CT in VE is seen as one of the vehicles through which our attempts at development may be attained and sustained.

1.3 Purpose of Study

The purpose of this study is primarily to investigate: 1) Vocational Instructors, Administrators and Internal Verifiers' conceptualizations of CT in VE; and 2) Perceptions of Vocational Instructors, Administrators and Internal Verifiers regarding factors that impact the development of critical thinking in the adult vocational education students at the IPRO of OrgX in T&T. It is the intent of the research to stimulate thought and dialogue amongst participants, regarding the need for the enhancement of

critical thinking in their adult vocational education classrooms. This dialogue is intended to heighten participants' reflectivity and impact their sensitivities by stimulating thought about andragogical issues and classroom practices that have been observed to either hinder or aid the development of CT. Interviews which will be conducted with participants, are expected to awaken their awareness for the dire need to further the development of CT skills in their adult vocational students.

Administrators have the ability to influence policy implementation. They can "transform policy into practice and are therefore critical points of influence when enacting the strategic vision" (Milburn, 2010, p. 94) of an organization. It is therefore anticipated that the administrators who will be interviewed would use their influence to effect changes in the existing structures of OrgX in an attempt to advance the company's vision, by producing trainees who possess the CT skills that would enable them to secure jobs or become micro entrepreneurs.

It is also intended that the research would raise readers' levels of awareness for the need to further the development of CT in adult VE. By "publicly sharing the findings, [the research] would offer insights, promote critical discussions, and spawn questions for subsequent inquiries" (Santangelo & Tomlinson, 2009, p. 310). Since the study attempts to unveil the perceptions of Vocational Instructors, Administrators and Internal Verifiers, subsequent research may focus on the perceptions of other constituent groups regarding the factors that may impact the acquisition of CT skills. Undoubtedly, this would reveal a myriad of possibilities that are not unearthed in this study. Subsequent research may also explore the degree to which the perceived factors actually impact the development of CT. Since this research will also provide recommendations that are geared to foster the development of CT, subsequent research endeavours may attempt to ascertain the efficacy of the recommendations on the development of CT in adult VE students in T&T.

Findings of this research will be made available to the CEO, and the two Regional Managers from OrgX, together with the Director and the two Regional Managers of the IPRO. Although the study will specifically address CT in the IPRO - adult vocational students aged 25 years to 60 years, results may also prove to be beneficial to the

younger target group of OrgX – students aged from 15 years to 35 years. Factors that have been perceived by participants to impact the development of CT skills will be discussed at the IPRO's monthly management meetings. Factors that are within the control of the administrators will be addressed, while attempts will be made to mitigate the debilitating factors that are beyond our control. Changes to the design of the IPRO, suggested by participants, will also be explored at these monthly meetings in an attempt to determine their feasibility - considering the economic constraints under which the programme currently operates.

1.4   The Research Questions

My review of the literature and my personal and professional interests in the topic of CT in VE have led me to develop the following research and sub-research questions.

1.4.1   Main Research Questions (MRQs)

According to Vocational Instructors, Administrators and Internal Verifiers:

❖ *How is critical thinking in vocational education conceptualized?*

❖ *What factors are perceived to impact the development of critical thinking in adult vocational students in Trinidad and Tobago?*

1.4.2   Sub-research Questions (SRQs)

The following four sub-research questions will also serve to guide this investigation:

According to Vocational Instructors, Administrators and Internal Verifiers:

1) *Why are critical thinking skills in vocational education important in the 21st century?*

2) *How effective are current instructional strategies (teaching styles/methods) in facilitating the development of critical thinking?*

3) *What are the roles and responsibilities of Vocational Instructors, Administrators and Internal Verifiers in enhancing the development of critical thinking in adult vocational education students?*

4) *What changes (if any) can be made to the design of the IPRO to ensure that subsequent trainees are afforded ample opportunities to further develop their critical thinking skills?*

In an attempt to minimize the gap that exists between the aspired state and the present state of CT within the IPRO, I needed to firstly ascertain my participants' thoughts on CT in VE (MRQ 1). To a large extent, thoughts determine persons' actions and my participants' actions towards the advancement of CT was the topic of inquiry. I then needed to ascertain my participants' perceptions of how CT skills in our trainees could be enhanced: I needed to know what they thought are the facilitating and debilitating factors – MRQ 2. It is widely acknowledged that when something is considered to be important, the quest for it is propelled: I therefore needed to know my participants' perceptions of the importance of our trainees acquiring CT skills – SRQ 1. SRQs 2 and 3 emanated from my readings of the relevant literature. SRQ 4 alludes to the fact that there may be systems that could be institutionalized or modified within the IPRO to propel the development of CT skills in our trainees.

1.5   Operational Definitions of Terms

In an attempt to convey the uniform, unambiguous meaning of key words used within this research, the following operational definitions of terms are provided:

1.5.1 Critical Thinking

The Literature Review of this document contains detailed conceptualizations of CT. However, as used in this research, CT refers to:

> Those cognitive skills or strategies that increase the probability of a positive outcome. It is used to describe thinking that is [habitually] purposeful, reasoned and goal directed ... [It] also includes evaluating the thinking process – the reasoning that went into the conclusion arrived at and the kinds of factors considered in making a decision. (Halpern, 2003, p. 6)

It is also considered to be "the ability and disposition to improve one's thinking; by systematically subjecting this thinking to intellectual self-assessment…persons are critical thinkers only if they display this ability and disposition in all or most of the dimensions of their lives" (Elder & Paul, 1996, p. 34).

Additionally, CT "is the practice of processing information in the most skillful, accurate and rigorous manner possible, [leading] to the most reliable, logical and trustworthy conclusion upon which one can make responsible decisions about one's life, behavior and actions" (Schafersman, 1991, p. 4).

These definitions of CT have been provided by prominent researchers in the field of CT. They encompass the key cognitive skills, dispositions and abilities, which in my opinion, need to be enhanced in our trainees.

1.5.2 Vocational Education

For the purposes of this study, VE refers to general education necessary for the personal and cultural development of individuals while preparing them "for jobs that are of a manual or practical nature…and related to a specific trade, occupation or vocation" (Agbongiasede, 2012, p. 14).

1.5.3 Critical Thinking in Vocational Education

In keeping with the vision of OrgX and the IPRO, my definition of CT in VE is as follows: the use of reasoned, purposive and reflective thinking to effectively accomplish a task by making sound decisions, solving problems and mastering concepts related to a particular vocational area, and then combining these skills with other employability

skills to become more competent employees or successful micro-entrepreneurs who are willing to challenge the status quo by asking political and ethical questions associated with social justice.

1.5.4   Adult Vocational Education Students

In this research, adult VE students refer to persons between the ages of 25 to 60 years, who are pursuing VE courses.

1.6   Structure of Thesis

This thesis contains 7 chapters. Chapter 1 provided an overview of the need for CT skills in various parts of the world and then it highlighted the importance of CT in VE with respect to adult students in the Caribbean. It outlined my motivation for engaging in this particular project in this geographical region and my conceptualizations of the project's significance and purpose were discussed. Prior to providing definitions of relevant terms, the two major questions which provided the platform from which the study proceeded, together with the sub-questions which guided the study were outlined.

In an attempt to fully understand the context in which the study was undertaken, Chapter 2 will provide an outline of the genesis of VE in the Caribbean and the rationale for the establishment of both OrgX and the IPRO which operate in Trinidad. It will also highlight the various ministries under which both bodies operated and discuss the government's rationale for fostering CT and entrepreneurship as an integral part of the country's overall developmental thrust.

My understanding of the terms "critical thinking" and "vocational education" does not emanate from any single research endeavour; rather, it is based on the critical examination of findings from a range of research studies. I shall therefore explain how this extensive literature was obtained. In this chapter - Chapter 3, the Literature Review, I shall present issues and previous research that are of direct relevance to my research questions. By referring to and discussing the existing literature, I will be able to gauge prominent researchers' perspectives on the constructs contained in my topic.

Through a decolonizing agenda, I employed the use of existing theories to apply, describe, and explain my data. These theories which undergirded the study will be presented in Chapter 4 - Theoretical Perspectives. I thought it prudent to include this chapter since it will explain the frameworks used for organizing and synthesizing my data. Basing my data on sound principles and theories lends credibility to my study and makes it intelligible to readers.

Chapter 5 will explore my justification for employing the use of decolonizing methodologies and will also explain my unique positionality within the research. The philosophical parameters which undergirded my study will be presented, as will the rationale for conducting a Case Study in the Qualitative paradigm. In this chapter I shall also explain the methods used, the way data were collected and analyzed, and issues of rigour and ethics that were observed.

In Chapter 6, the most significant chapter in this thesis, I shall present my findings. This chapter will give me the opportunity to demonstrate my decolonizing agenda by using my participants' actual words. An analysis and discussion of the themes that were generated from my participants' responses will then be presented. The chapter will conclude with the responses to my specific research and sub-research questions.

The overall conclusions being derived and the recommendations being made will be provided in Chapter 7. In its entirety, this research will demonstrate that by engaging in CT in VE "human beings are [not] a notoriously self-centered, obsessively egocentric species" (Mohri, 2005, p. 63): we are not "the scavengers of civilization, but the inheritors of rainbow possibilities and the creators of new sensibilities" (Louisy, 2001, p. 432).

CHAPTER 2: THE CONTEXT

2.1   Overview

Chapter 2 presents the context or the backdrop against which CT in VE is conceptualized by persons within the IPRO at OrgX in T&T. As posited by Gonzalez y Gonzalez and Lincoln (2006), "context plays an important part in the act of interpreting data. Without an understanding of the context where the participants [are situated] the results could emerge with no clear interpretation of the data" (p. 2).

The education system in T&T, like those of many other former British colonies, "has emerged from an historical background of slavery and colonialism" (James, 2010, p. 1). Indeed, James (2013) contends that "the education system in T&T historically has been and to some extent continues to be shaped by its colonial past" (p. 4). Against this backdrop of a colonial legacy, with "hegemonic features of a post-colonial society" (James, 2010, p. 1) still evident, this chapter advances its momentum by providing an outline of developments in VE in T&T, from its genesis in the mid-19th century to the present. Since educational developments in T&T are usually patterned along those of developed countries such as USA, England and Germany, specific reference will be made to global mandates and situations in these countries that necessitated changes to their existing educational system. Peacock (n.d.) advises "that colonial patterns can be used to explain current phenomena" (p. 2), so investigating trends in these developed countries may also enable us to explain how our current situation has arisen.

Being one of the agencies responsible for the implementation of VE in T&T, OrgX and the rationale for its establishment will be provided. OrgX has undergone significant growth and development since its establishment as a company in 1988, although its general structures and functions have remained largely unchanged. It has also operated under several governmental ministries which will be outlined, since these different ministries have impacted its evolution and current mandate. The IPRO, one of the two major arms of OrgX, has similarly undergone adaptations due to changes in governments and governmental reshuffling, and these adaptations together with the details of the operations of the IPRO will be provided.

2.2   VE in Trinidad and Tobago

The genesis of VE in the Caribbean dates as far back as the mid-19th century when "the power of human capital in the enhancement of economic production" (Morris & Powell, 2013, p. 2) was recognized. Prior to this, technology and physical capital were keenly regarded as the major contributors to the wealth of powerful nations. However, when the English philosopher, Herbert Spencer promulgated the idea that education which prepared individuals for complete living was to be deemed the most valuable, the idea spread to the rest of the world, including the Caribbean. The breakup of the colonial empires in Africa, Asia and the Caribbean, caused the education of the masses to become the responsibility of national governments. In assuming responsibility for the development of their nations, many governments chose to remove the strong academic curricula and make greater provisions for VE. Prior to this, divisions between the liberal arts education and VE had been "well entrenched in the education system for many decades" (Hutton & Dixon, 2016, p. 102), where in countries such as the USA, liberal arts education was the "exclusive domain of the American elite, who looked down on all practically oriented education" (Gutmann, 2011, p. 8). This new blended curricula approach which sought the integration of liberal arts and VE was in direct response to similar shifts in curricula in developed countries such as France, Germany and Sweden (Morris & Powell, 2013).

"In Trinidad and Tobago, VET has evolved over a period of more than 100 years" (MSTTE, 2010, p. 19). It began with the Board of Industrial Training - BIT in 1906, followed by the National Training Board - NTB in 1970, and then the National Training Agency - NTA in 1999 (MSTTE, 2010). When the islands of Trinidad and Tobago gained Independence in 1962, political leaders recognized "education as a vehicle for the movement of the people from colonialism to independence and for the transformation of the society into a viable self-reliant integrated nation state" (Alleyne, 1995). According to De Lisle, Seecharan and Ayodik (2010), in both developing and developed countries, "the human capital requirements of globalization and the information age placed great demands upon economic and educational structures" (p. 3). De Lisle et al. (2010) continue by saying that "rapid changes in the economy and the nature of work forced nations to transform education and training systems to produce

individuals" (De Lisle et al., 2010, p. 3) who possessed both liberal arts education and vocational training. This shift from being a purely liberal arts or VET institution to one that saw a merging of the two, was a direct reflection of the economic needs of many developing countries (Maclean, 2007). This merging was however, not without its challenges since it opposed the dictates of organizations such as the Organization for Economic Co-operation and Development (OECD) which had an "economic-oriented view" and UNESCO which held a "human-oriented approach" (Hutton & Dixon, 2016, p. 106).

An educational plan that would address the needs of the rapidly changing nation: a nation in dire need of academically inclined citizens as well as technicians and persons skilled in the various crafts was developed. The "Plan" became known as the *Draft Plan for Educational Development in Trinidad and Tobago (1968-1983).* Although it was drafted in 1974, it was intended to encompass the 15 year period spanning 1968 to 1983.

Although it was recognized that "the technical-vocational area of an education system is the phase that most significantly influences the qualitative and quantitative dimensions of the labour force" (Alleyne, 1995), the Plan did not place heavy emphasis on either the development of human capital or the technical-vocational area. Realizing the deficiencies of the Plan, the then Prime Minister - Hon. Dr. Eric Williams proposed additional guidelines and amendments to the plan which were made to cabinet. One such guideline which was deemed a signal guide for the secondary curriculum was "that an integrated comprehensive program embracing the traditional academic, pre-technical, commercial, general industrial and limited specialized craft training be adopted" (Alleyne, 1995). This resulted in the establishment of technical schools and the inclusion of practical, manual and vocational subjects to the secondary school curriculum. It was only then that the formalizing of manual and vocational training became evident, and the "formidable" Technical and Vocational Education and Training (TVET) system came into existence. Due to the fact that various TVET institutions were established, "there was wide variation in curriculum offerings [with] no mechanism for ensuring alignment to national goals for development" (MSTTE, 2010, p. 22).

In 2015, a National Policy Framework (2015-2025) was designed by the Ministry of Tertiary Education and Skills Training (MTEST) to meet the challenges facing the sector in the 21st Century. Although the Framework was aligned to the seven (7) inter-connected pillars for sustainable development identified by our government, it specifically addressed pillar 5 – *"A More Diversified, Knowledge Intensive Economy"*. Committed to the sector, the government invested in excess of TT$16.7Bn over the period 2010/2011 to 2014/2015, and set a target of 60% participation in tertiary education by the year 2015. This target was surpassed in 2013 with a record participation rate of 65.23%.

The Vision of MTEST was "A knowledgeable and skilled citizenry that is…empowered to harness opportunities and to contribute to a more diversified economy…" (Tertiary Education and Skills Training, 2015, p. 5). Two of its overarching goals that have direct relevance to this research are: 1) "to produce graduates with the life skills, transferable skills and employability skills including critical-thinking and problem-solving; and 2) to foster the creation of new knowledge, entrepreneurship and lifelong learning" (Tertiary Education and Skills Training, 2015, p. 6). These two goals drove the ministry's policy statements – statements that attempted to structure and shape specific areas of practice of its employees. The implementation arm of MTEST is shown in *Figure 1* on page 28. It was comprised of nine agencies, one of which was OrgX. Two other arms which have direct relevance to OrgX were the Accreditation Council of T&T (ACTT) and the National Training Agency (NTA) which was the umbrella agency for effecting reform in VET in T&T. With the changes in government due to national elections in 2015, TVET in T&T once again became the responsibility of the Ministry of Education.

Acknowledging the fact that "countries with strong and attractive VET systems, and notably those with well-established apprenticeship systems, tend overall to perform better in terms of youth employment" (European Commission, 2013, p. 4), the government of T&T has fashioned our VET system along the lines of European models of work based learning (WBL). Through WBL vocational students are given the opportunity to acquire the knowledge, skills, attitudes and competences that are necessary for successful job performance. The European Commission "has identified three main models of WBL: 1) Alternance schemes or apprenticeships – typically

known as the 'Dual System'; 2) School-based VET which includes on-the-job training; and 3) WBL that is integrated in a school-based programme" (European Commission, 2013, pp. 5-6).

Although the VET system that operates at the IPRO has been fashioned with these models in mind, it currently bears little resemblance to any of these models. Trainees at the IPRO are not given any form of industry training. All training is done at our training facilities where real-life, authentic tasks and simulations are provided. In some instances, when our instructors are required to perform "private" jobs that demand additional human resources, trainees who display acceptable levels of performance during class sessions are called upon to assist.
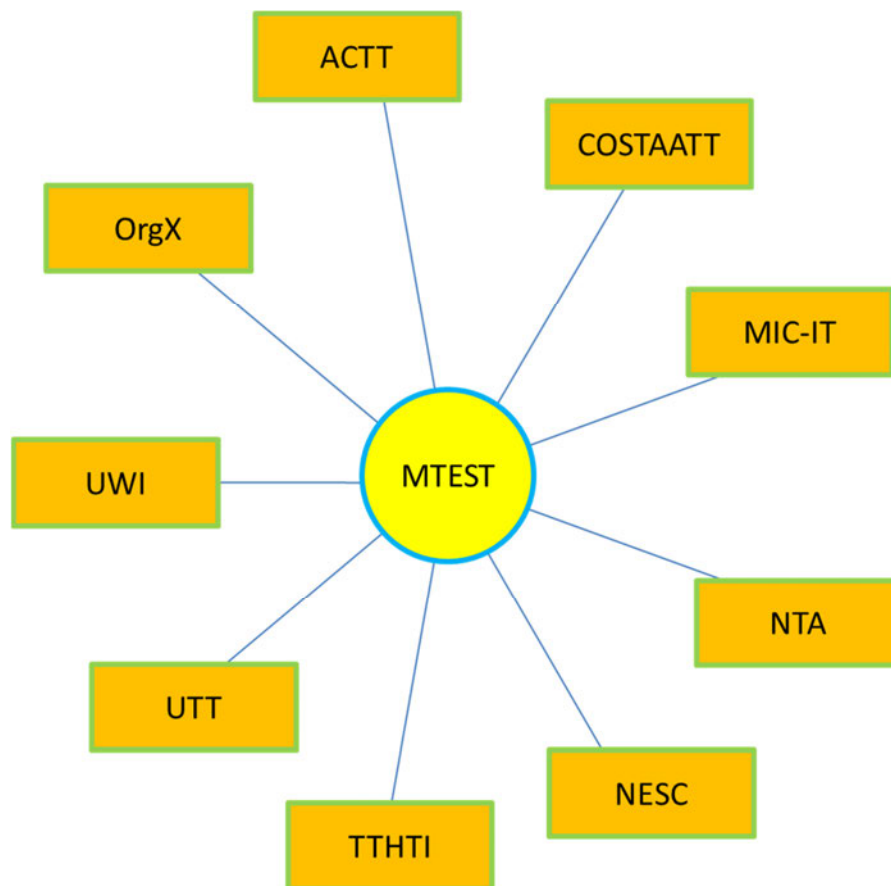
Figure 1: The Implementation Arm of the Ministry of Tertiary Education and Skills Training

2.3 OrgX

In the early 1980s, youth employment was one of T&T's most serious social problems; resultantly, OrgX was established as a temporary programme designed to curb this growing problem of unemployed and unemployable youths. OrgX continued on a temporary basis until 1988 when, through World Bank funding, it was established as a company whose target audience was unemployed youth between the ages of 15 to 25 years. In 1990 it was formed into a limited liability company.

Like many Third World countries that borrow funds from international organizations such as the IMF and the World Bank, "we were forced to swallow severe austerity measures in order to bring our economy in line with their dictates" (Weissman, 1990). Weissman continues by saying that the strong-arm policies of these international lending organizations inflicted great strain and stress on borrowing nations. We have had to endure severe austerity measures in order to qualify for and comply with the structural adjustment policies of these loans. This "devastated the islands' economy and took an especially heavy toll on the poorer citizens" (Weissman, 1990). This in itself is ironic, for it is the poorer citizens who were intended to benefit from World Bank's intervention. The Global Exchange (n.d.) exemplifies some of the measures that have had to be implemented as a result of these loans. We have had to "cut spending on education and health; eliminate basic food and transportation subsidies; devalue national currencies to make exports cheaper; privatize national assets; and freeze wages" (Global Exchange, n.d.). The Global Exchange further explained that "such belt-tightening measures increase poverty, reduce countries' ability to develop strong domestic economies and allow multinational corporations to exploit workers and the environment".

According to the history of OrgX, "World Bank funding ended in 1998 and the financial responsibility of OrgX fell squarely on the shoulders of the Government of Trinidad and Tobago" (YTEPP, 2017); thus it became subsumed under the Ministry of Education. According to YTEPP (2017), it was "later transferred to the Ministry of Information, Communication, Training and Distance Learning". That ministry eventually became the Ministry of Science, Technology and Tertiary Education (MSTTE, 2000). In 2010, after

general elections, MSTTE was split into two ministries – Ministry of Science and Technology, and the Ministry of Tertiary Education and Skills Training (MTEST), under which OrgX became subsumed. It was in that same year, members of staff of another programme at MSTTE - the IPRO (which focused on adult training – persons from 25 to 60 years) were transferred to OrgX under MTEST. To facilitate this extension of the age group of trainees, OrgX had to change its mandate to include unemployed persons between the ages of 15 to 60 years. After the general elections in 2015, MTEST (with OrgX and it newly acquired IPRO) became subsumed, once again, under the Ministry of Education where it resides today. OrgX remains a limited liability company governed by a Board of Directors, with a CEO spearheading operations.

The current Vision of OrgX is "to be an innovator in providing internationally benchmarked TVET to build human capacity that facilitates improved productivity and entrepreneurial opportunities for a competitive economy" (YTEPP, 2015). Its mission is "to support human capital development through market driven technical vocational training" (YTEPP, 2015). Its ultimate aim is to produce a competent and skilled labour force equipped to compete effectively on the local market while fostering entrepreneurship as an integral part of Government's overall developmental thrust.

2.4   The Innovative Programme

The closure of Caroni 1975 Limited (a state owned agro-industrial company) in 2003, heralded the commencement of another vocational training institution – the Innovative Programme (IPRO). This closure of Caroni 1975 Limited had a devastating effect on the agricultural sector, and on the 9,000 odd workers who had lost their jobs when the company closed its doors. Retraining of the labour force is a major strategy that is globally used by industrialized nations to develop their human resources; therefore, in an attempt to retrain the former Caroni workers for a variety of jobs in various vocational occupational sectors, the government of Trinidad and Tobago, under MSTTE, established the IPRO.

The IPRO has operated under several government ministries within T&T since the commencement of this research: MSTTE - July 2008 to May 2010; The Ministry of

Tertiary Education where it remained "in limbo" until August 2011; MTEST - September 2011 to September 2015; and presently, it is subsumed under OrgX at the Ministry of Education. It is one of several social sector programmes, initiated and supported by the Government of T&T. Its goal - to equip unemployed adults with new and transferable skills needed to enhance their opportunities for employment and self-employment through re-training, is therefore aligned to those of OrgX. Additionally it has the development of entrepreneurship as a significant feature; therefore, in addition to offering training in vocational skills, it is the intent of the programme to foster the development of CT skills that are required to develop an entrepreneurial mind-set.

Agboeze et al. (2013) posit that self-employment or entrepreneurship "can lead to economic self-sufficiency of an individual, a community and a nation" (p. 116). This is based on the premise that it inculcates in citizens "such behaviours that facilitate profit making, job creation, infrastructural development, quality service delivery, creative and innovative attitudes" (Agboeze et al., 2013, p. 116). It is anticipated that such behaviours, combined with key employability skills (outlined below), will enable our trainees to become self-sufficient micro entrepreneurs who possess sound vocational qualifications and behaviors, as well as critical employability skills such as the ability to:

- *Collect, analyse and organise information*
- *Communicate ideas and information*
- *Plan and organise activities*
- *Work with others and in teams*
- *Use mathematical ideas and techniques*
- *Solve problems*
- *Use technology* (National Training Agency, 2014).

With the introduction of the Caribbean Vocational Qualifications (CVQs), general employability skills are now gaining prominence in vocational institutions. It must be noted though, that although these softer skills are also reinforced by Life Skills Facilitators through a ninety-six (96) hour mandatory Life Skills component of training at IPRO, the responsibility of nurturing these skills in trainees rests on vocational instructors.

CVQs are based on internationally benchmarked occupational standards that have been developed by industry practitioners from CARICOM who act as Lead Body experts during the development of the standards. In Caribbean countries where they are used, these standards act as guides to develop curricula, materials and instructional design. Vocational qualifications employ the use of a competency-based education and training (CBET) system, which is designed to ensure that participants develop the relevant knowledge, skills and attitudes (competences) required in the workplace. "Assessment within this framework is defined as the process of collecting evidence and making judgments about whether competence has been achieved" (National Training Agency, 2014), when measured against the occupational standards. According to Hutton and Nixon (2016, p. 108), CBET had its roots in early TVET, which originated in "behaviorist models for vocational training". Throughout the years since its inception, CBET "has evolved to encompass higher education degree programmes" (Ford, 2014, p. 15).

Numerous developed countries have adopted a competency-based approach to education, and following on their footsteps, T&T has adopted a similar structure. Hutton and Dixon (2016) mentions some of these programmes that have applied the CBET approach to higher degree education:

> The Bologna process, which involves 47 European countries adhering to the European Qualification Framework; the Global Learning Qualifications Framework (GLQF) in the USA which is based on the framework of 90 other countries; the Lumina Degree Qualification Framework (LQF); and the Association of American Colleges and Universities Essential Learning Outcomes. (Hutton & Dixon, 2016, p. 108)

As increasingly more developed countries begin to take cognizance of the important role that VET has taken, the Caribbean has also strengthened its VET programmes. In Jamaica there are "the master's degree programmes in Leadership in TVET and Workforce Development, and PhD students are also pursuing the TVET degree. In T&T, UWI has graduated a cohort of master's students in the TVET leadership programme" (Hutton & Dixon, 2016, pp. 113-114). One of these graduates is a participant in this research.

In T&T, the VET courses at the IPRO are based on Regional or National Vocational Qualification Standards which lead to the attainment of the CVQs or the Trinidad and Tobago National Vocational Qualifications (TTNVQs). In other words, the "knowledge" that constitutes the curriculum is relatively fixed. Winter (2017) espouses the view that "fixing curriculum knowledge involves the identification and prescription of a bounded 'core' of disciplinary knowledge deemed to form the 'best' body of knowledge for the curriculum" (pp. 63-63). She further states that this type of "fixing" "fails to address through its quest for pre-ordained order, the ethical importance of the singularity and uniqueness of the subject and of human relationality in education" (Winter, 2017, p. 70). Nevertheless, the acquisition of the CVQ or TTNVQ is appealing to trainees of the IPRO who are provided with cost-free training in approximately 20 CVQ Level 1 (semi-skilled) occupations such as Fabric Design, Furniture Making and Grow Box operations; 20 CVQ Level 2 (skilled) occupations such as Barbering, Electrical Installation and Leather Goods Manufacturing; and 3 CVQ Level 3 (technician) occupations namely Draughting, Massage Therapy and Music Production. Additionally, training is geared towards the acquisition of the TTNVQs in areas such as Refrigeration and Air Conditioning, Cake Baking and Decorating and Multi-Media Animation. Combined with this "vocational skills training, emphasis is also placed on the development of positive work attitudes as well as the acquisition of entrepreneurial, interpersonal and communication skills" (People's National Movement, 2008). Undoubtedly, these acquired competencies will facilitate the entrepreneurial mindset of our trainees and enhance their marketability and employability.

The courses at the IPRO are conducted in cycles. Duration of these courses varies from three hundred and forty (340) contact hours to five hundred (500) contact hours, depending on the demands of the skill. The courses are portable, which means that they are conducted throughout the two islands of Trinidad and Tobago, in communities where such training is deemed necessary. Training is therefore "taken" to various locations, thus making it more convenient and accessible to potential trainees - It was the intent of the IPRO to "cater for those citizens who have been historically disadvantaged in respect of access to tertiary education and TVET due to systemic barriers, such as the differently-abled, the financially challenged, the academically under-prepared, and those who live in rural communities" (MSTTE, 2010, p. 6).

Although attempts were made "to avoid duplication, wastage and needless overlap" (MSTTE, 2010, p. 3), there are other social sector programmes offering similar courses in Trinidad and Tobago. The annual number of trainees enrolled in the IPRO is therefore, only approximately six hundred and twenty-five (625) trainees. Tracer studies conducted 3 years ago by the Research Department of OrgX have revealed that approximately thirty-five percent (35%) of our graduates are gainfully employed in occupations related to their training.

The IPRO is overseen by a Director, two (2) Regional Managers, one (1) Curriculum Manager, three (3) Curriculum Specialists, two (2) Training Specialists and seven (7) Coordinators. They all possess the minimum of a Master's Degree. As a means of Quality Assurance, Internal Verifiers (IVs) who are specialists in the various skills, moderate the assessment of the practical skills through periodic visits to classes. At these visits the IVs assess the trainees' practical skills and match these against the assessment ratings provided by the instructor to determine if there is agreement with regard to the competences that trainees have attained.

Vocational instructors of the programme are experienced and highly qualified in their respective fields. Having experience in the industry gives instructors the additional advantage of being perceived as credible when delivering instruction. Since the quality of VE programmes depend, to a large extent, on the quality of teachers (Alvunger, 2016), only persons who have been carefully screened by officials of the IPRO are selected to be instructors within the programme. Non-professionals are not selected since it is envisioned that this may lead to disjointed implementation and non-achievement of the programme's objectives. Instructors are therefore actual practitioners who maintain a close connection to the real world.

It must be noted that although these instructors possess the required experience and qualifications, they oftentimes do not have a sound knowledge of the art of teaching. The administrators of the IPRO have therefore mandated that these instructors undergo intense sessions of teacher training before the commencement of their tenure - "Train the Trainer" sessions. These sessions are conducted by the Training and Curriculum

Specialists of the programme for a period of five days. Instructors are also trained and certified in competency-based assessment methodologies by members of the NTA.

It is recognized that VET can only survive "and meet the world economic order, if training, retraining and learning take place in an environment where all necessary tools, machines, equipment and facilities are in place and resemble the real work environment" (Uddin, 2013). The instructors at the IPRO are therefore required to *provide* all the tools, equipment and material required for teaching. Additionally, they provide the theoretical and practical training facility that meets the requirements of their skill area. Training is therefore conducted in non-traditional venues such as home garages that have been refurbished to suit the needs of the skill, community centres, kitchens in residential homes, and church annexes. All health, safety and environmental concerns are strictly mandated by officials of the IPRO and failure to comply with these demands, results in the dismissal of the instructors from the programme. Members of the Health, Safety and Environmental department of OrgX make periodic checks at these training facilities to ensure that all initial requirements are sustained throughout the period of training.

In spite of the fact that the instructors are exhorted to be independent and autonomous, they are required by NTA (the body that awards the CVQs and TTNVQs) to be highly accountable by maintaining detailed planning and record keeping of their activities. Since, as has been previously mentioned, these instructors are industry practitioners who are oftentimes not well-versed in the art of accurately completing voluminous paperwork, many of them struggle to balance their time wisely between teaching the knowledge and practical aspects of their skill, and completing the paperwork. They oftentimes complain that completing the paperwork is done at the expense of effectively teaching the requirements of the skill. Winter (2017) laments these "regimes that regulate [teachers'] professional lives in ways that counteract their professional and ethical judgements, including [their] practices" (p. 69). Although officials of the IPRO are fully cognizant of the challenges encountered by some instructors, their (the officials') hands are bound by the dictates of the NTA and the Ministry of Education which get their mandate from the Government of T&T. It is "hegemonic and colonial" circumstances such as these that require persons to possess CT skills needed to

challenge and oppose the dominating and oppressive situations that have been allowed to proliferate in our country.

The IPRO is targeted to adults between the ages of 25 to 60 years old, who are unemployed for various reasons. These trainees "represent a diversity of socioeconomic backgrounds, academic preparation and achievement, races and ethnicities" (Dirkx et al., 2004, p. 31). What is arguably the most distinguishing feature of the IPRO is that trainees are *not* required to possess *any* secondary level qualifications for entry into the majority of courses; yet, as has been previously mentioned, all trainees are required to work towards the acquisition of the TTNVQ or the CVQ. Instructors therefore conduct frequent placement evaluations (to find out whether students possess the relevant competencies needed to begin the course and to determine the level of remediation required), formative evaluations (to monitor students' learning progress during instruction with the purpose of providing on-going feedback) and summative evaluations (to find out which students, and to what extent, have mastered the intended learning outcomes). Vocational instructors, like many academic teachers, have the unenviable task of teaching a heterogeneous range of students.

2.5   Summary

In an attempt to enable readers to coherently comprehend the dynamics under which my participants – employees of the IPRO at OrgX in T&T operate, this chapter has illuminated various pertinent issues. It began by sketching an outline of developments in VE in T&T, from its genesis in the mid-19th century to the present. Reasons for the establishment of a training institution such as OrgX in T&T in the early 1980's were provided. After highlighted the purposes that were fulfilled by OrgX, and the numerous ministries under which it served, the chapter concluded by providing a detailed account of the tumultuous history and the operations of the IPRO.

It is anticipated that, having read this context, readers will be able to peruse the forthcoming chapters with clarity and unambiguity.

CHAPTER 3: THE LITERATURE REVIEW

3.1 Overview

T he purpose of this research is to provide insights into the topic, *"Conceptualizations of critical thinking in vocational education, and perceptions of factors impacting the development of critical thinking skills in adult vocational students in T&T".* In an attempt to achieve my objectives, I conducted an extensive Literature Review on the two related concepts of the research – *CT* and *VE*. Terms which are used synonymously with VE such as *vocational education and training (VET), technical and vocational education and training (TVET),* and *career and technical education* (CTE) were also searched primarily through the University of Sheffield's Star Plus Library Catalogue. This automatically provided access to all available electronic databases. The databases from which the majority of information came were ERIC via EBSCO, Web of Science (Web of Knowledge), ProQuest and Primo Central. Questia – an online commercial digital library of books and articles also provided similar searches. Having read the publications sourced by the databases, I then used authors and titles listed in the reference sections of these publications to further my research for relevant studies. As such, my understanding of the terms *CT* and *VE*, does not emanate from any single research endeavour, but rather the critical examination of findings from a range of research studies.

This Literature Review commences with a discourse on conceptualizations of CT from dominant researchers in the field. Although conceptualizations of CT are oftentimes vague and varied, if one is to engage in discussions on CT, one must firstly have a firm grasp of its concept. I have therefore included a discussion on the interpretations that may be conjured when the concept of CT is discussed. A sound rationale for engaging in discussions on CT for life in the 21st century then precedes an in-depth analysis of factors that have been reported to impact the development of CT.

Definitions of VE may sometimes be fluid and lack consistency due to their situational and contextual nature; therefore the Literature Review will proceed with a discussion on the numerous conceptualizations of VE. In spite of the fact that VE is a "significant and

long-standing educational sector, it continues to suffer from low status and negative societal sentiments" (Billett, 2014, p. 8). I therefore considered it prudent to include a discussion on the sources of VE's low societal esteem. Benefits to be derived from engaging in VE will then follow. It is anticipated that the stigma of VE will be minimized if persons are cognizant of the numerous benefits to be derived from engaging in VET.

The Literature Review will conclude by providing an optimistic view of the direction in which CT in our vocational classrooms can be propelled by educators who are committed to their profession.

3.2   Conceptualizations of Critical Thinking

The potential vagueness and ambiguous conceptualizations that may be conjured when the term "CT" is discussed, have prompted me to include in my research topic, "Conceptualizations of CT"; however, as Brigham (1993) reports, there are as many definitions of this multifaceted and multidimensional term as there are experts. While conceptualizations of CT in VE have been minimal, conceptualizations of CT in academic education*,* do, in fact, abound and these will be used to engage the following discussion on conceptualizations of CT.

John Dewey, often considered to be the father of modern day critical thinking, defines critical thinking as: "Active, persistent, careful consideration of a belief or supposed form of knowledge in light of the grounds that support it and the further conclusions to which it tends" (Dewey, 1933, p. 9). For Halpern (1996) and Paul (1995), CT has been primarily understood as a cognitive skill that equates to problem solving, decision-making and logic. Paul (1995) defines CT as "the art of thinking about your thinking while you are thinking in order to make your thinking better: more clear, more accurate, or more defensible" (p. 526). However, research done by Cheung, Rudowicz, Kwan and Dong Yue (2002) reveals that, "more central than the cognitive dimension of CT, are the motivational, ideological and behavioral components that have often been missing in past research". They contend that relying "exclusively on the cognitive component [of

CT] would not give a thorough" and realistic view of the entire CT process. They posit that an adequate conceptualization of CT should combine:

a) *Cognitive thinking skills* – interpretation, analysis, evaluation, inference, explanation, self-regulation, deduction and their overall integration;
b) *Motivational dispositions* – inquisitiveness, concern for being well-informed, open-mindedness, understanding the opinions of others, fair mindedness, alertness to opportunities, self confidence in one's own ability to reason, clarity, orderliness;
c) *Behavioral habits* – analysis, comparison, prediction, application, deduction, synthesis;
d) *Ideological beliefs* – reflective thinking and learning. (Cheung et al., 2002)

In Scriven and Paul's (1987) study, the importance of skills as well as dispositions was also revealed. These authors contend that CT comprises: "1) a set of information and belief generating and processing skills and, 2) the habit, based on intellectual commitment, of using those skills to guide behavior" (Scriven & Paul, 1987). Elder and Paul (1996), while "approaching the human mind exclusively from an intellectual standpoint" (p. 31), also consider the importance of dispositions, and state that CT "is the ability and disposition to improve one's thinking; by systematically subjecting [this thinking] to intellectual self-assessment…persons are critical thinkers only if they display this ability and disposition in all or most of the dimensions of their lives" (Elder & Paul, 1996, p. 31). In a more recent publication, Paul and Elder (2006) introduce the elements of creative thinking, problem solving and metacognition to critical thinking. They posit that, "critical thinking is…self-directed, self-disciplined, self-monitored, and self-corrective thinking…It entails effective communication and problem solving abilities and a commitment to overcome our native egocentrism and sociocentrism" (Paul & Elder, 2006, p. 4). Concurring, Clemens (2014) posits that the meaning of critical thinking has been erroneously viewed as "severely criticizing" when in reality, it means "exercising careful judgment…basing conclusions on evidence, logic, and reason rather than sentiment, intuition and emotion".

In 1990, Facione conducted a study to determine the common elements of CT and he also found 2 distinct components - CT skills and CT dispositions. Concurring, Golding (2011) iterates, "being a critical thinker is a multi-faceted notion: merely knowing subject matter is insufficient for being a critical thinker, as is being disposed towards

critical thinking without possessing strong critical thinking skills" (p. 358). Fiske and Taylor (1984, p. 12) say that students who possess CT skills, but who are not disposed to use these skills in solving problems are "cognitive misers", who "limit their capacity to process information". Dispositions refer to "consistent internal motivations to act [towards] or respond to persons, events, or circumstances in habitual, yet potentially malleable ways" (Facione, 2000, p. 64). Commonly regarded as attitudes or habits of the mind, "dispositions include open-mindedness, fair-mindedness, the propensity to seek reason, inquisitiveness, the desire to be well informed, flexibility, and respect for and willingness to entertain others' viewpoints" (Lai, 2011, p. 10).

When speaking about the process of CT, McKowen (1986) introduces two important aspects - emotion and affect. He pointed out that:

> In law or logic, an argument is supposed to be emotionless. Since we think with our whole minds and not with our left brains only, this is impossible. To understand a line of reasoning, we need to get the feeling of it as well as its surface features. (McKowen, 1986, p. 278)

Chaffee (1998) however, extends the role of affect to include the awareness of personal bias. He explains that critical thinkers "need to become aware of their biases and explore situations from many different perspectives in order to attain the most accurate beliefs possible" (Chaffee, 1998, p. 28).

In a comprehensive definition of CT, Pascarella and Terezini (1991) posit that:

> CT has been defined and measured in a number of ways but typically involves the individual's ability to do some or all of the following: identify central issues and assumptions in an argument, recognize important relationships, make correct inferences from data, deduce conclusions from information or data provided, interpret whether conclusions are warranted on the basis of the data given, and evaluate evidence or authority. (Pascarella & Terezini, 1991, p. 118)

Educator Diane Halpern (2003) posits yet another comprehensive definition of CT as follows:

> CT is the use of those cognitive skills or strategies that increases the probability of a positive outcome. It is used to describe thinking that is purposeful, reasoned and goal directed ...[It] also includes evaluating the thinking process – the reasoning that went into the conclusion arrived at and the kinds of factors considered in making a decision. (Halpern, 2003, p. 6)

This definition of CT (which I endorse) is contradictory to the views expressed by Facione (1996). He posits that CT is just "a tool, an approach to situations" (p. 14) that can result in either morally and ethically good or bad outcomes, "depending on the character, integrity and principles of the persons who possess them" (p. 14). He continues by saying that CT "has nothing to do with any set of ethical values or social norms and that becoming a skilled critical thinker does not guarantee" (p. 14) that you will use your expert skills for the benefit of others.

Like Lipman (1988), who believes that CT "involves skillful, responsible thinking that facilitates good judgment because it relies upon criteria, is self-correcting, and is sensitive to context" (p. 39), I believe that CT, "by its very nature, is inconsistent with unethical and deliberately counterproductive [activities]" (Facione, 1996, p. 13) - if a person is an expert critical thinker s/he would not deliberately engage in exploitive actions. My belief is based on the sound premise that CT "is the practice of processing information in the most skillful, accurate and rigorous manner possible, leading to the most reliable, logical and trustworthy conclusion upon which one can make responsible decisions about one's life, behavior and actions" (Schafersman, 1991, p. 4). This definition, like that of Halpern's (2003), is at variance with the definition posited by Facione (1996). This variance between the two schools of thought calls into question the outcome of an ethical action as being a result of CT. In a similar manner, if CT is employed, there is no guarantee that it would lead to economic development.

When it comes to teaching and assessing students' CT skills, Bloom's taxonomy for information processing skills has been widely used. Hierarchical in its nature, this taxonomy features comprehension at the bottom, and analysis, synthesis and evaluation - the three highest levels - representing CT. Paul (1995) opposes the fact that some teachers depend solely on Bloom's taxonomy for teaching CT skills. He advises that this practice is "seriously misleading since there are no neat set of recipes that can foster CT in students" (Paul, 1995, p. 218). He further states that:

> Knowledge is not something that can be given by one person to another. It simply cannot be memorized out of a book or taken whole cloth from the mind of another. Knowledge, rightly understood, is a distinctive construction by the learner. (Paul, 1995, p. 222)

The above definitions of CT have been provided in an attempt to elucidate its various conceptualizations; however, Coombs and Daniels (1991) remind us that definitions should provide clear indications of what jobs we want them to serve – "they should help us solve our problems and achieve our purposes" (p. 29). Since this research seeks to exhibit a decolonizing agenda (explained in Chapter 5), with an emphasis on postcolonialism (explained in Chapter 4), we also need to supply definitions that provide the platform for our students to use their CT skills to: (a) examine "issues of race, class, gender, sexual orientation, cultural beliefs and customs, economics, politics, and religion and how these elements combine to form individual identity - in shaping [students'] perceptions of themselves, others, and the world in which they live" (Brizee, Case Tompkins, Chernouski & Boyle, 2015); (b) "challenge ideology, contest hegemony and unmask power" (Wang & Zheng, 2016, p. 1326); and (c) systematically question and deconstruct colonial power. Although some of the definitions provided above (Chaffee, 1998; Dewey, 1933; Pascarella & Terezini, 1991; Paul, 1995; Schafersman, 1991), do in fact, allow our students to use their CT skills to address issues of relevance to today's societies, they are somewhat limited in their scope. Indeed, as Buffington (2007) contends, "ideas promoted in the recently published literature on critical thinking … do not explicitly relate to contemporary ideas about critical thinking" (p. 22). Nevertheless, as will be revealed in the paragraphs hereunder, long-standing and timeworn definitions of CT can be interpreted in a manner that facilitates the critique of policies, systems and practices that perpetuate colonialism.

Speaking on the topic of CT, Barnett (1997) espouses the view that there are three domains of criticality: critical reason which deals with cognitive skills possessed by individuals; critical reflection which is reflective in nature and interrogates the actions of self; and critical action which addresses world issues. Allison (2014) has lamented the fact that our educational institutions have primarily concentrated on the cognitive skills possessed by individuals, which in actuality is "thinking without a critical edge" (Barnett, 1997, p. 127). Allison (2014) describes this approach "as risking the trivialisation of critique, where students are able to do critical thinking, but are not the critical beings society needs" (p. 1). Brookfield (1987) recommends that, in order to propel students into becoming "critical beings" they must be "taken out of their comfort

zone into less familiar environments". These "disorienting dilemmas" (Roberts, 2006, p. 100) encourage students to develop into the critical beings that societies need.

Cuypers and Haji (2006) posit a definition of CT which facilitates the cultivation of a critical spirit. They contend that CT is "the ability to assess beliefs, desires, actions and other conative and cognitive elements …on the basis of appropriate evaluative standards, be disposed to such evaluation and be motivated by good reasons in belief-formation and action" (p. 723). This type of thinking "attempts to help students question and challenge domination, and the beliefs and practices that dominate" (Riasati & Mollaei, 2012, p. 224). Brookfield (1991) hopes that responses to such questions will "galvanize people into collective social action directed toward creating a fairer, more just society" (p. 3).

 The summary paragraph of Chapter 1 in Vaughn's (2005) article adopts a definition of CT that is also likely to provide the scope to critically interrogate policies and practices that have been considered to be hegemonic and that reflect a postcolonial stance. It states that "Critical thinking [is] the systematic evaluation or formulation of beliefs, or statements, by rational standards" (Vaughn, 2005). This type of CT is considered to be systematic because it encourages individuals to methodologically critique their own beliefs and statements and those of others. It enables them to "dialogue with others who are different, and have different worldviews, different personal values, and different social and cultural backgrounds" (Mason, 2008, p. 3). Similarly, Ennis (2011) defines critical thinking as "reasonable and reflective thinking focused on deciding what to believe or do" (p. 1). For Paul (2005) "CT is the art of thinking about thinking in an intellectually disciplined manner" (p. 28). It is the *intentional* thought and consideration of a matter. According to Rear (2008), these definitions "imply an emancipatory quality to the concept, a freeing of people's minds from a slavish acceptance of conventional beliefs" (p. 4). These definitions emphasize the use of reason, reflection, and decision-making when interrogating issues that have been perceived to be oppressive. Scriven and Paul (1987) remind us that the history of CT reveals persons who *do* and *do not* exercise these practices. They contend that:

> Two contradictory intellectual tendencies [exist]: a tendency on the part of the large majority to uncritically accept whatever was presently believed as more or

less eternal truth; and a conflicting tendency on the part of a small minority — those who thought critically — to systematically question what was commonly accepted and seek, as a result, to establish sounder, more reflective criteria and standards". (Scriven & Paul, 1987)

It is unfortunate to note that although persons who possess the latter tendencies are the ones who are required for today's societies, most people "live an unexamined, uncritical life…without really taking charge of the persons they are becoming; without developing or acting upon the skills and insights of which they are capable" (Scriven & Paul, 1987).

Beyer (1995) and Sumner (1911) also supply definitions of CT that provide opportunities for students to ask political and ethical questions associated with social justice in education. Beyer's (1995) definition is easily understandable and concise. He posits that "Critical thinking... means making reasoned judgments" (p. 8). This definition implies that persons who are critical thinkers do not arbitrarily believe things; rather, they only arrive at conclusions after they have questioned information and data presented. It also implies that critical thinkers question themselves and reflect on the processes in which they were engaged before arriving at conclusions. Sumner (1911) posits that "CT is the examination and test of propositions of any kind which are offered for acceptance, in order to find out whether they correspond to reality or not" (p. 632). For Sumner (1911) CT "is a prime condition of human welfare that men and women should be trained in it. It is our only guarantee against delusion, deception, superstition, and misapprehension of ourselves and our earthly circumstances" (p. 633). Sumner advances his discussion by saying that educating students to adopt this type of thinking, is "the only education … which makes good citizens" (p. 634), for these students question and "hold everything open to unlimited verification and revision" (p. 634). According to Petress (2004) "this kind of thinking does not blindly accept arguments and conclusions. Rather, it examines assumptions, discerns hidden values, evaluates evidence and assesses conclusions" (p. 1). These critical students "ask awkward questions regarding the activities of local, regional, and national government offices, call for political leaders to account for their actions, and are ready to challenge the legitimacy of existing policies and political structures" (Brookfield, 1987, 2nd paragraph).

Definitions of CT with specific reference to VE have been made by Rudd (2007), and Hyslop-Margison and Armstrong (2004). Rudd (2007) wrote the article *"Defining CT"* in which he sought to clarify the concept of CT for Career and Technical Education (CTE) – another term used synonymously for VE. After synthesizing multiple definitions of CT, Rudd (2007) defined CT in VE "as reasoned, purposive and reflective thinking used to make decisions, solve problems and master concepts" (p. 47). In my opinion, this view of CT in VE may be rather limited when considering the needs of the IPRO. It seems to reflect a technicist perspective where, through effective and strategic performance, persons are able to successfully execute a task (Papastephanou & Angeli, 2007). If I were to apply Rudd's definition to the skill of Cake Making, it would mean that I use my CT skills to effectively accomplish the task of making the cake by taking decisions, solving problems and mastering concepts of cake making. While mastering concepts of a particular skill is, for me, the *initial* intent of CT in the IPRO, it is not the ultimate goal – entrepreneurship. Hyslop-Margison and Armstrong (2004) also advocate a definition of CT in VE which, in my opinion, is not congruent with the goals of the IPRO. They posit that CT in VE represents employability skills that are transferable to other vocations thus rendering students who possess these skills more marketable. While this definition is more closely aligned to the requirements of CT at the IPRO, it is nevertheless, also limited. Paul (1984) argues that "the development of cognitive skills for vocational or technical purposes is critical thinking in the weak sense" (p. 5), while "in the strong sense [CT] implies emancipatory reason and an inclination for people to free themselves from the self-serving manipulations of their own leaders" (Paul, 1993, p. 359).

My opinion of CT in VE is an eclectic blend of Rudd (2007), Hyslop-Margison and Armstrong (2004), and Paul's (1993) latter definitions – it is initially using reasoned, purposive and reflective thinking to effectively accomplish a task by making sound decisions, solving problems and mastering concepts of a particular vocational area, and then combining these skills with other employability skills (mentioned in Chapter 2) to become more competent employees or successful micro-entrepreneurs who are willing to challenge the status quo by asking political and ethical questions associated with social justice. This definition of CT in VE takes into account the need for our trainees to master concepts of a particular skill *as well as* the need for them to advance their

entrepreneurial skills while exercising their rights and undertaking their responsibilities. Combined, these skills will undeniably advance the goals of the IPRO and ensure that this organization is able to "develop, or liberate sustainable graduates who are ready and able to take up their role as effective participants in society" (Allison, 2014, p. 2).

Space limitations have precluded me from exemplifying other definitions of CT; however, the preceding paragraphs have indeed highlighted the fact that no single definition would be complete and all-encompassing for the notion of CT, because of the numerous ways in which it is conceptualized. Nevertheless, as productive citizens operating efficiently as change agents in the 21st Century, the achievement of CT should be our goal, since "CT is a liberating force in education and a powerful resource in one's personal and civic life" (Facione, 1990, p. 2).

3.3 Critical Thinking Skills for Life in the 21st Century

As has already been stated by Huitt (1998) "critical thinking is one of the most important attributes for success in the 21st Century". Similarly, the late guru of adult learning, Malcolm Knowles (1975) has been quoted as saying:

> In a world in which the half-life of many facts may be ten years or less, half of what a person has acquired at the age of twenty may be obsolete by the time that person is thirty… thus, the main purpose of education must now be to develop the skills of inquiry. (Knowles, 1975, p. 15)

The saliency of this point of view has remained largely unchanged, for over the years accelerating "economic, technological, informational, demographic and political forces" (Partnership for the 21st Century Skills, 2007, p. 4), have further reiterated the clarion call for educational institutions to ensure that learners are well equipped to function "in a multitasking, multi-faceted, technology-driven, diverse, vibrant world" (Partnership for the 21st Century Skills, 2007, p. 4).

To enable learners to effectively cope with rapid, continuous changes, premium education must address the issue of teaching students *how to learn*, rather than *what to learn*, since specific facts and knowledge learnt today will undoubtedly provide negligible assistance in coping with the dynamic issues of the future. Sizoo et al. (2005)

reinforce the need for all educational institutions to enable their students to learn *how to learn*. They contend that citizens who can make a positive contribution to their societies and those who can achieve their maximum potential are those who have acquired CT skills and those who have learned *how to learn* throughout their lives. Learning *how to learn* "will give students the tools to become more effective and independent lifelong learners ...better prepared to seize opportunities today and be equipped to deal with the challenges of an uncertain tomorrow" (Sizoo et al., 2005, p. 527). Tsui (2002) also supports the claim for teaching students *how* (rather than *what*) to learn. She laments the fact that so much effort is being wasted on teaching students what to think:

> We need to teach them how to think. Higher order cognitive skills such as the ability to think critically are invaluable to students' futures; they prepare individuals to tackle a multitude of challenges that they are likely to face in their personal lives, careers, and duties as responsible citizens. (Tsui, 2002, p. 740)

This view is further corroborated by various authors such as Hirose (1992), Oliver and Utermohlen (1995) and Sizoo et al. (2005). Halpern (2003) also posits that "the twin abilities of *knowing how to learn* and *knowing how to think clearly* about the rapidly proliferating information that we must select from, are the most important intellectual skills for the 21st Century" (p. 3). Corroborating these findings, Elder and Paul (2006) "proposed that in a world of accelerating change, intensifying complexity and increasing interdependence, CT is now a requirement for economic and social survival" (p. xiii).

The need for CT skills is greatly intensified in the Caribbean region where our citizens are still struggling to recover from the "oppressive legacy" of colonialism. In a background paper prepared for the World Bank, Salling-Olesen (2006) declared that formal education in the Caribbean was primarily viewed as a method of gaining social elevation with little regard for its possible implications on present or future economic development. This situation has led to an education system in the Caribbean that has neither regarded the education of its citizens as a means of fueling the nations' future nor was it ever closely linked to the main productive and economic sectors. The development of CT in students has consequently never been at the forefront of educators' minds. To confound this problem, the ghosts of colonialism still rear their ugly, dominating heads amongst our own people and the critical, creative ideas of our

students are oftentimes repressed. Edwards (2007) contends that by stifling creativity and CT, the culture of education in T&T (and indeed the world) "has limited the capacity of our citizens to produce at an optimum level in our workforce" (Edwards, 2007).

Within recent times however, the superficial view of the goals of education has begun to change. The Vision 2020 Tertiary Education Sub-committee Draft Report (2002) posits that the goal of education is, in addition to training economic beings:

> The creation of a civilized, creative, innovative, intelligent citizenry with the ability and desire to participate actively and rationally in a democratic society based on equality, liberalism, tolerance and acceptance of diversity…It must [therefore] inculcate a culture of CT that enables individuals to approach issues facing society in novel, questioning and innovative ways. (p. 9)

If we are to educate students for full and authentic participation in society, it is imperative that we extricate ourselves from the impoverished and misleading situation where "presumably omniscient teachers tell or show presumably unknowing learners something they presumably know nothing about" (Bruner, 1996, p. 20). We need to ensure that our students are active participants in the critical learning process so that learning throughout their lives will be meaningful to them and beneficial in the future as they seek employment opportunities and pursue fulfilling lives. The Business Coalition for Education Reform (2001) provides a succinct summary for the rationale for teaching CT skills for life in the 21st century:

> Today's economy is vastly different from fifty years ago, fueled now by brain rather than brawn. In order to survive, businesses need individuals who possess a wide range of high-level skills and abilities, such as CT, problem solving…and decision-making skills. (Business Coalition for Education Reform, 2001)

3.4   Factors that Impact the Development of Critical Thinking

The preponderance of evidence from the related literature reveals that factors impacting the development of CT can be placed into three categories – Teacher characteristics, Student characteristics and Institutional characteristics. These characteristics are not mutually exclusive; because of the fact that they are all operating within the educational institution's environment, they are undeniably, inextricably intertwined and the boundaries separating them are quite blurred. Although the factors that impact the

development of CT discussed in this Literature Review, have been based *neither* on findings from within the T&T context, nor from the peculiarities of the students from the IPRO, their applicability and usefulness to this research are undeniable.

3.4.1 Teacher Characteristics

In 2001, Renee Shell conducted a quantitative study "to identify barriers to the implementation of CT teaching strategies by nursing faculty who were currently teaching in generic baccalaureate programmes in Tennessee" (p. 286). One barrier was teachers' lack of exposure to the concept of CT when they themselves were students. These nursing teachers, who were taught by the traditional (chalk, talk/lecture) instructional strategies, confessed that they needed help in teaching CT skills to their students. Rudd (2007) poses a pertinent question: "Do teachers understand the concept of CT well enough to teach students to think critically in and about the discipline being studied" (p. 46)? Mimbs (2005) said that if teachers themselves are not comfortable in the use of CT skills, they cannot make their students comfortable users.

Chee Choy and Kin Chea (2009, p. 205) believe that some teachers may *think* that they are teaching CT skills, when they are really only focusing on the comprehension aspect of learning. Pithers and Soden (2000) corroborate this view and add that teachers are oftentimes unaware of what constitutes "good" thinking; there is therefore some ambiguity as to what they are supposed to be teaching. They further posit that "lack of clarity about the nature of CT … can lead to teaching approaches to problem-solving which are unlikely to develop more widely transferable generalizable CT abilities and dispositions" (Pithers & Soden, 2000, p. 239).

Billett (2013) explains a similar concept. He speaks of personal epistemologies as beliefs or concepts which dictate the ways in which individuals come to engage in, and make sense of their experiences. Wang and Torrisi-Steele (2016) report that:

> A teacher's philosophy of teaching embodies a set of beliefs and values about the purpose of teaching, how learners learn best, the role and nature of the learner, and the role of the educator… In the absence of a philosophy, educators are vulnerable to externally imposed prescriptions. (p. 143)

Billet (2013) wonders though, if teachers do not believe that they themselves are change agents responsible for inculcating critical and higher order thinking skills, how effective will they be if "their commitment to these changes is unclear, ambiguous and their sense of capacity to bring about change in their own and others practice may be quite limited?" (p. 193).

Teachers may not engage in CT teaching strategies because they themselves are uncomfortable/have difficulty when discussing matters of a contentious nature or simply because these strategies are not an integral part of their pedagogy (Kagan, 1992). Although Rodd (1999) reported that training programmes have not adequately equipped teachers with ample professional development activities and opportunities for them to competently engage in CT practices, other researchers (Hatton & Smith, 1995; Kagan, 1992; Kennedy, 1991; Moore & Ash, 2002) believe that teachers adopt a teaching style even before they enter such programmes and these teaching styles remain intact and unaltered even after teachers' attendance at these programmes. However, research conducted by Torff (2015) reveals that teachers' views are slightly tempered as they gain additional education and experience.

Shell's (2001) research revealed another important barrier to the teaching of CT by nursing faculty - teachers' instructional styles. Onosko (1991) reports that many teachers focus on the transmission model with broad, superficial course content. This emphasis on coverage leaves little time for teachers to focus on the development of students' thoughtfulness. This brings to light the issue of transfer of knowledge. Many students, after having acquired knowledge and skills of a particular kind, are unable to transfer what they have learned to another situation. Although Johnson (1996, p. 4) contends that there are several reasons why students find it difficult to transfer knowledge, one of the major reasons is that teachers fail to show students how to develop inert knowledge "- knowledge that is not used in new situations even though it is relevant, into conditionalized knowledge - knowledge about the conditions under which transfer is applicable". This is possibly because teachers are not flexible enough in their instructional strategies (Hall, Strangman, & Meyer, 2003) and they do not employ differentiated instruction. They simply apply the "one size fits all" policy to their training, where students are expected to adapt their interests, experiences, goals

and personal circumstances to the curriculum, instead of the curriculum being adapted to suit their individual needs. By engaging in these ineffective instructional practices, teachers are not creating an environment that stimulates critical inquiry.

Mary Kennedy (1991) puts an additional dimension to these factors when she posits that "some teachers take the path of least resistance and teach for content rather than understanding…leading to a vicious circle of mediocre practice modelling after mediocre practice, of trivialized knowledge begetting more trivialized knowledge" (p. 171). Contradictory findings were revealed in a recent study in which Torff (2015) compared teachers and parents' beliefs about teaching and learning. It was discovered that "significantly more teachers believed in teaching practices that are consistent with student centred pedagogy" (Torff, 2015, p. 61) that emphasizes inquiry, problem solving and CT, than those teachers who believed in teacher-centred approaches.

The type of questions asked by teachers and the manner in which they are asked are also indicators of a teacher's instructional style. According to Gall (1984), teachers are mainly stimulating low-level thinking skills of recall and comprehension. Many beginning teachers are guilty of this practice since, in an attempt to mitigate the inherent challenges of teaching, they abandon unfamiliar/challenging "pedagogies and adopt strategies that maximize classroom control and content coverage" (Kagan, 1992, pp. 141-142). Cartledge (2011) says that vocational teachers should not be complacent about these matters, since they "are preparing generations of learners for *their* tomorrows and not *our* yesterdays" (p. 11).

According to Biggs and Tang (2011, p. 25), the current instructional style that is used to engage teaching and learning fosters a surface approach which is highlighted by isolated facts that do not require the use of CT or the transfer of learning. To engage in a deep approach to teaching and learning characterized by the use of interrelated facts, main ideas, and underlying meanings, students must genuinely *want to perform* meaningful tasks. Teachers must therefore attempt to attenuate those factors that precipitate surface learning.

In a transformational approach that facilitates Problem Based Learning (PBL), instead of testing students' ability to recall teacher provided facts via memorization, students

actually *apply* knowledge to new situations. Kek and Huijser (2014) are of the view that "problem-based learning is an important pedagogical tool in advancing the teaching of critical thinking" (p. 330). The PBL model presents students with contextualized, ill-structured, open-ended problems which they (students) are required to investigate and solve – oftentimes with no one "right" answer. With the PBL model, teachers adopt the role of facilitators of learning. They "guide the learning process and promote an environment of inquiry. Proponents of PBL believe that, as a strategy, it: develops CT and creative skills; improves problem-solving skills; increases motivation; and helps students learn to transfer knowledge to new situations" (Falkus, 2010, p. 9).

Chee Choy and Kin Chea (2009) posit that teachers' perceptions of themselves are reflected in their instructional practices. Pithers and Soden (2000) explain the effect of teachers' instructional styles as follows:

> Any teacher, … who simply agrees or disagrees, just demonstrates and explains, cuts off students' responses, uses reproof rather than praise, shakes the learner's confidence in the value of new ideas or uses basically only retrieval or recall types of questions inhibits thinking. (p. 242)

If these teachers think of themselves as disseminators of information, they will provide minimal time for student input and feedback. They will tend to use the traditional transmission model of teaching, which is characterized by memorization and drills. In the transmission model of teaching, teachers supply students with a designated body of knowledge in a predetermined order. In these situations, teachers believe that they are the sole repositories of knowledge and the meaningful acquisition of CT skills by students is questionable. They engage in the Banking concept of education (explained below). However, as reported by Rudd (2007), "educational institutions [are] responsible for teaching students to go beyond the simple mental activities of recall and restatement of ideas and facts to the higher level skills and habits involved in CT" (p. 46). Therefore, if teachers perceive themselves as mediators of learning, they will provide students with the necessary skills and strategies to learn. Realizing that it is a fallacy to believe that students cannot learn unless the teacher covers the material, they will provide students with ample opportunities to discover, and they will be flexible enough to demonstrate to students that there may be various solutions to a problem (Black, 2005).

Freire's "banking concept of education" refers to teachers' oppressive practice of "depositing" information into their students – the same manner in which money is deposited into a bank – hence the analogy. According to Freire (1972b) " in this view, the person is not a conscious being (corpo consciente); he or she is rather the possessor of a consciousness: an empty 'mind' passively open to the reception of deposits of reality from the world outside" (247). In Micheletti's (2010) article, she says that this practice "is essentially an act that hinders the intellectual growth of students by turning them into, figuratively speaking, comatose 'receptors' and 'collectors' of information that have no real connection to their lives". Meaningful learning occurs when trainees' prior knowledge is used to solidify new concepts. In the banking concept of education, trainees are thought to be mere objects without autonomy and the inability to rationalize and conceptualize knowledge. It is for this reason that the banking concept of education is said to be a system of oppression and control; therefore, the issues of colonialism, postcolonialism and decolonizing methodologies (discussed in the subsequent chapter) again arise.

In an Australian study by Dalley-Trim, Alloway, Patterson and Walker (2007), perceptions are examined through a different lens. Amongst other things, the study focused on career advisers' advising practices with regard to VET in schools (VETiS). The findings of this study revealed that teachers have different agendas for advising different students: high achieving "students are advised to take Vocational subjects in order to attain a higher advantage over their academically-oriented peers" (Dalley-Trim et al., p. 31). They are also advised to take these subjects in an attempt to get "relief from the rigours of academic studies" (Dalley-Trim et al, 2007, p. 31). In contrast, vocational subjects are seen to be *the only* option for non-academically-oriented students. Dalley-Trim et al, (2007) believe that "these weaker students are more suited for softer options than the more rigorous and demanding academic subjects" (p. 31). They further posit that the "direction of [these] non-academic students … is a fait accompli given the perceptions of these students as held by the career advisers" (p. 31).

Although beliefs/perceptions do not always align with behavior (Torff, 2015), they do "influence the way people perceive their world, organize their experiences…and generate behavior" (p. 61). Shell (2001) reports that beliefs held by teachers impact the

development of CT skills by nursing faculty. This point is comprehensively explained by Torff (2006). He begins by identifying learners' advantage level as learners' academic track, achievement level, or socio–economic status. He purports that teachers believe low-advantage learners are incapable of handling high, CT activities such as debates and discovery learning. Teachers are therefore less likely to focus "on high, CT activities for low-advantage learners because of the challenges inherent in high, CT activities. For low-advantage learners they deem it appropriate to engage in low, CT activities" (Torff, 2006, p. 39) such as lecture, drill and practice. As explained by Torff and Warburton (2005):

> When learners are perceived to be high in advantage, CT [CT] activities are thought to be effective and classroom CT-use levels are high; conversely, when learners are perceived to be disadvantaged, CT activities are viewed as ineffective and CT-use levels are comparatively low. (p. 156)

Kaniuka (2009) reports that students who have low advantage-levels and those who are generally deemed 'at risk', are often neglected or receive little CT instruction. He further declares that "this approach is tantamount to educational triage where the students who are deemed most at-risk are given minimal attention and only those deemed 'savable' are provided intensive instruction" (Kaniuka, 2009, p. 788).

In another study by Torff (2011), evidence was revealed which refuted the claim that disadvantaged students are unable to cope with high-CT activities. Zohar and Dori (2003) also conducted a study which demonstrates that students who are disadvantaged with respect to their former educational opportunities and social-economic status, benefited as much as their advantaged counterparts when exposed to instructions geared towards CT. Torff (2011) endorses this view and posits that if given the opportunity, disadvantaged students can indeed handle the rigours of a curriculum that is intended to facilitate the development of CT.

The preceding discussion outlined the following teacher characteristics that impact the development of CT: teachers' lack of exposure to the concept of CT, teachers' lack of clarity about the nature of CT, teachers' philosophy of teaching, teachers' instructional styles, and teachers' perceptions of themselves and their students. It must be reiterated

that these factors not only interact amongst themselves, but they also interact with the student and institutional characteristics which will now be discussed.

3.4.2   Student Characteristics

In Shell's (2001) research, one of the greatest impediments to the use of CT teaching strategies is *student characteristics* such "as lack of motivation, resistance to active learning, students' expectation of lecture format, and their concerns about getting good grades versus learning". This view is corroborated by Stone III and Aliaga (2005) who "explored the relationship between students' background characteristics, curriculum concentration and key educational outcomes" (p. 125). They advanced the view that social origins affect school achievement. Family background which includes socio-economic status, race and family characteristics often determine the level of CT activities that are inculcated in the classroom. The works of Bourdieu (1977), and Bourdieu and Passeron (1977), provide us with a valuable framework with which to understand family background and its impact on student achievement. Bourdieu explains that the economic resources of upper-class families enable them to access structural opportunities such as superior schools and after-school enrichment activities that, in turn, enable them to procure educational capital such as knowledge, skills and abilities. Upper-class families seem to be able to convert the benefits of cultural capital into educational capital that encourages and elicits the exercise of CT.

Additionally, Tsui (2003) says that members of the elite class tend to have a high value for CT activities. They engage in occupations that demand high levels of decision-making and the regular exercise of CT skills. They appreciate the need for nurturing CT skills. Parents of students from upper classes can therefore motivate their children to acquire CT skills. As Tsui (2003) summarizes, "upper-class parents serve as valuable social capital to their children since the disposition towards CT that is promoted through their work and leisure activities are likely to have a beneficial germinating effect on their offspring" (p. 324).

If it is thought that CT comprises only cognitive skills, then the acquisition of CT can be facilitated by anyone, regardless of one's class. Indeed, the definitions of CT as outlined previously in this Literature Review - *Conceptualizations of CT,* do not speak of the

term "CT" with reference to any class status; nevertheless, it is clear to see how one's class can impact the development and practice of CT. Children from working class backgrounds do engage in, and acquire CT; but, the acquisition, development and practice of CT is easily and readily facilitated by those from upper-class backgrounds where the behaviours of critical thinkers are constantly reinforced by family members. Therefore, there are perhaps influences of one's "class" that affect not so much an individual's acquisition of CT, but his or her predisposition to apply it in different settings.

Motivation is yet another powerful student characteristic that can impact the degree to which CT activities are implemented in the classroom. Rieg (2007) says that "motivation is often associated with qualitative changes in the way students view themselves in relation to the task, engage in the learning process, and then respond to the learning activities and the learning situation" (p. 215). Our adult trainees are extrinsically motivated by things such as better jobs or increased salaries. However, it is widely acknowledged that the most meaningful motivators are those that occur intrinsically, and these are the motivators which are moulded by caring family members – "increased job satisfaction, heightened self-esteem, better quality of life and personal growth and development" (Chalk & Devlin, 2012, Slide 14).

Whilst explaining the differences between intrinsically motivated learning and extrinsically motivated compliance, Ames (1990) noted "that students who demonstrate high levels of intrinsic motivation, initiate learning activities, and maintain an involvement in learning as well as a commitment to the learning process" (p. 410). They readily engage in reasoning skills and learning strategies that are associated with the CT process. However, their intrinsically motivated tendency to learn is oftentimes thwarted by teachers who seem to favour students' "vulnerability to passivity" (Ryan & Deci, 2000, p. 76) and reward students' compliance, and convergent thinking. This undermines, rather than promotes, academic motivation.

In keeping with Torff's (2015) theory, that beliefs/perceptions "influence the way people perceive their world, organize their experiences … and generate behavior" (p. 61), beliefs held by students can greatly impact their development of CT skills. If adult

students view themselves as productive, valuable and worthwhile, their behavior tends to reflect this belief. However, if they perceive themselves as "lazy, incapable and dumb, their actions will reflect this attitude as well" (Knight & Hunt, 2000, p. 24). These authors refer to the relationship between the Pygmalion Effect (discussed in the subsequent chapter) and Self Concept as cyclical, whereby how students feel about themselves influence how teachers feel about them, and how teachers feel about students influence how students feel about themselves.

Students' interest in a particular topic is another factor that can differentially impact the level of thinking that is applied by the student. If the student sees no personal relevance in the topic being studied, his/her interest in the topic and his/her willingness to effectively engage in the topic will diminish. Conversely, if the topic holds high interest for the student, s/he will be willing to exert more effort that may be required for meaningful participation. Fletcher (2006) finds that relevance helps to keep students interested and motivated in schools. "Motivation stems from the realization that what they are learning has a practical application to the world of work" (Castro, 2002). Lewis (2000) states that VET has the "potential to help achieve general educational goals by providing learning experiences that have more relevance and utility than the typical academic subjects" (p. 577).

Feinkohl, Flemming, Cress and Kimmerle (2016) posit that another factor impacting the development of CT in students is their level of prior knowledge in the topic or subject, where "prior knowledge was operationalized as immediate background knowledge of the topic at hand" (Feinkohl et al., 2016, p. 216). These researchers found that a positive relationship exists between students' prior knowledge in a given subject and their performance in the subject. They speculate that this is because prior knowledge serves as a basis or platform upon which new, integrated material and knowledge can be built. Based on this theory, students with limited prior knowledge of a topic will encounter challenges with new concepts. While prior knowledge does, in fact, heavily impact students' ability to grasp new concepts, I have found that oftentimes, prior knowledge of incorrect techniques and procedures can prove to be extremely difficult to erase, thus inhibiting the development of correct "ways" of doing things. This theory is endorsed by Cordova, Sinatra, Jones, Taasoobshirazi, and Lombardi (2014). They posit that when

there is a high confidence in inaccurate prior knowledge, it "could negatively impact the [student's] willingness to engage in new, contradictory information" (p. 164). However, when the level of prior knowledge is complete, accurate and accessible, it can be highly beneficial.

"Approaching the human mind exclusively from an intellectual standpoint", Elder and Paul (1996) advance a stage theory of CT which states that there are six (6) predictable stages through which each individual must proceed before developing as a critical thinker – "the unreflective thinker, the challenged thinker, the beginning thinker, the practicing thinker, the advanced thinker, and the master thinker". One of Elder and Paul's (1996) beliefs is that "the progress from one stage of development to the next is dependent upon a necessary level of commitment on the part of an individual to develop as a critical thinker. It is not automatic, and is unlikely to take place 'subconsciously'"; therefore, the developmental levels of students' cognitive abilities have a significant impact on their attainment of CT skills. Leming (1998) categorically states "that school aged students are developmentally incapable of the cognitive tasks required by a curriculum intended to develop higher order thinking skills" (p. 66) such as CT. Conversely, Lai (2011) states "that students of all intellectual ability levels can benefit from CT instruction" (p. 23). Furthermore Silva (2008) reports that although there is no specific age at which "children are developmentally ready to engage in complex ways of thinking" (p. 631), children have been observed to think critically.

Kuncel, Rose, Ejiogu and Yang (2014) "examined cognitive ability and socio-economic status in predicting work performance" (p. 203). They found a direct connection "between cognitive ability and occupational attainment" (p. 204) through educational attainment. "The relationship between ability and attainment appears to be never ending", for as these authors explain, "workers will move up or down in occupational status, when there is a mismatch between their ability and the complexity of the job" (Kuncel et al., 2014, p. 204). They further explain "that family wealth and education do not have [any] direct effect on ability" (p. 207). Having been a teacher for over 22 years, I can endorse the fact that socio-economic status does not have a *direct* effect on cognitive ability; however in keeping with Bourdieu's (1977) theory, I also acknowledge the fact that families with high socio-economic status seem to be able to

convert the benefits of cultural capital into educational capital that encourages and elicits the exercise of CT, which enhances cognitive ability.

The above student characteristics that have proven to impact their development of CT skills - their lack of motivation, resistance to active learning, expectation of lecture format, concerns about getting good grades versus learning, social origins/family background, beliefs/self-efficacy concept, interest in a topic, prior knowledge of the topic, and the developmental levels of their cognitive abilities, cannot be detached from the institutional characteristics in which they are situated; therefore the institutional characteristics which impact the development of CT will now be discussed.

3.4.3   Institutional Characteristics

Mandernach (2006) espouses the view that many factors that impact the development of CT stem from the practical constraints of traditional classrooms. Teachers are only given specific time frames within which to instruct their charges and this instruction is invariably done in face-to-face classroom environments. This "dictates a more didactic teaching strategy in which the instructor leads students through a prearranged set of content material with minimal time spent on individual interaction or critical analysis of the information presented" (Mandernach, 2006, p. 42). Generalized instruction is therefore mandated in an attempt to "be applicable, understandable, and paced to simultaneously meet the needs of a large number of diverse students" (Mandernach, 2006, p. 42). Johnson (1996) says that:

> Part of the problem is that education has been driven by assessment practices and philosophies that emphasize the importance of knowledge gain rather than knowledge application. Efforts to increase students' factual knowledge seem to impede the development of intellectual skills. (p. 1)

Concurring with this perspective, Flores, Matkin, Burbach, Quinn and Harding (2012) posit that the "needs of society are generally congruent with deep content knowledge" (p. 220) ; but these authors remind us that in a knowledge economy where "problems unprecedented in their scope and nature" (p. 220) appear continually, the practice of simply imparting knowledge is no longer serving society. Along a similar thread, English (2006) speaks about credentialing based on static knowledge which produces students who can perform to the test but who possess narrow thinking skills. These

students lack a dynamic knowledge base that facilitates CT. Flores at al. (2010) further lament the fact that "without changing how success is defined, it would be virtually impossible to change the output" (p. 225) of students.

On the issue of time, Mimbs (2005) advises that CT skills are difficult to measure and they take time to develop. Teachers need additional time to develop authentic assessment techniques that would demonstrate students' mastery of CT and problem solving skills. "Teachers find it challenging to teach the CT approach and to develop and implement new learning material" (Mimbs, 2005, p. 14), since they have predetermined work to cover in the curriculum and they are required to teach each topic in an in-depth manner.

Collier et al. (2002) have advised that the challenges of traditional classrooms are further compounded and reinforced by standardized assessments and readily available assessment tools which measure content knowledge as opposed to thought processes. Teachers are thus forced to "teach to the test". Like Costa (1991), they believe that what is inspected is expected. Thus the traditional uses of norm-referenced, standardized tests have dictated what should be learned and have influenced how they should be taught. Paul and Elder (2006) endorse this opinion and report that "this habitual cycle impedes the integration of CT instructional techniques" (p. 34). Mandernach (2006) further explains that "instructors may be uncomfortable or unfamiliar with alternative classroom strategies; assessments may not be readily available to measure student's mastery of CT skills; and students may be resistant to altering their focus towards nonfactual learning" (p. 42).

Reporting on the "hierarchically organized educational system" (p, 139) in China, Liu, He and Li (2015) confirm that all subjects in middle schools are structured according to specified objectives which are assessed by standardized examinations. Since the results of these examinations determine whether or not students will gain entry into top-ranking academic senior schools, Zhang & Lee (1991) espouse the view that "both teachers and students try to maximize achievement scores attained in the examinations" (p. 8). Similarly, in Trinidad and Tobago, the results of the Secondary Entrance Assessment (SEA) examination determine whether or not students get the opportunity to attend

"prestige" secondary schools. Teaching is therefore "strongly teacher-guided, text-oriented, and exercise-based" (Zhang & Lee, 1991, p. 8). Teachers are oftentimes unable to measure the effectiveness of their CT instruction since standardized test scores "do not provide significant insight into how students actually reason and formulate judgments" (Vacek, 2009, p. 46).

The culture and climate of the learning environment can indeed impact students' willingness to embark on difficult, challenging and unfamiliar concepts inherent in CT instruction. This point is further explained by Kerssen-Griep, Hess and Trees (2003) as follows: "classroom social environments motivate learning when they help students feel that they self-initiate and regulate their own actions, understand and feel efficacious about performing learning activities and develop secure and satisfying connections with others" (p. 359). These authors further posit that "classroom environments offer optimal challenge, interpersonal involvement, acknowledgement of feelings, choice-making opportunities, chances to evaluate their own and others' learning, and informational, mastery-oriented, non-threatening feedback" (Kerssen-Griep et al., 2003, p. 359).

Educational institutions receive their mandate from their various ministries that are obligated to adhere to the dictates of the government; therefore these educational institutions are inextricably linked to governmental policies and procedures. Oftentimes, there exists a dichotomy between the state's conceptions of the goals of education and those of the educational institutions themselves – this affects the practices that abound in classrooms. This point is eloquently and thoroughly explained by Unah (2012). He begins by reminding us that the traditional aim of education is:

> The pursuit of knowledge and learning for its own sake: feeding the intellect with general principles of which reality is constructed, ways in which reality can be known, and how humans ought to comport themselves to achieve social, environmental and psychological peace. (Unah, 2012, p. 1)

However, there are times when educational institutions are required to respond to the dictates of industries that require technical and trade specific education that are geared towards the organizational objective of profit maximization. Unah (2012) contends that:

> Mandating educational institutions to meet the desperate industrial needs is tantamount to…reducing man to a straight jacketed robot; alienating him from his

essences; it would deny the very purpose of education itself; which is to promote human curiosity and inquisitiveness that animate civilization and development. (p. 2)

This dichotomy may impact teachers' perceptions of their role as change agents and their abilities to foster the development of CT in their charges. This concept is directly related to the human capital theory which will further be explained in the Theoretical perspectives.

The aforementioned factors which impact the attainment of CT skills have been based *neither* on VE in Trinidad and Tobago *nor* the peculiarities of adult learners. My research is thus intended to address this deficiency by seeking responses to this specific research question, "What factors impact the development of CT in adult VE students of the IPRO in T&T"? In addition to enabling me to formulate my research and sub-research questions, the literature reviewed above and that which continues below, have enabled me to approach and conduct my research from an informed perspective.

3.5   Conceptualizations of Vocational Education and Training

Skilbeck, Connell, Lowe and Tait (1994) contend that definitions of VET may be fluid and lack consistency due to their situational and contextual nature; nevertheless, the forthcoming discussions of VE and its related terms will be as coherent and thorough as possible in an attempt to avoid ambiguities.

Razzak and Khaki (2015) advise that VE, VET and Career and Technical Education (CTE) are terms used interchangeably to refer to "education that prepares learners for jobs that are of a manual or practical nature and totally related to a specific trade, occupation or vocation" (p. 27). As Uddin (2013) posits, "VET can be described as any form of education whose primary purpose is to prepare beneficiaries for gainful employment in an occupation or group of occupations" (p. 296). Subran (2013) opposes definitions of VET which emphasize the development of skills required by employers, "with very little being done to develop the trainees as living human beings, with individual dreams and aspirations, who must be capable of participating in the processes of democratic societies and interacting satisfactorily with clients and fellow workers" (Subran, 2013, p. 82). Dewey (1916) also rejects the idea of students being passive,

uncritical receivers of instructions dictated by market economy forces. He believed that VE "should be included as part of a comprehensive curriculum to help students develop a greater range of personal capacities that expand, rather than limit, their future occupational options" (Dewey, 1916, p. 316).

The limited view of VE expressed above, is also lamented by Winther and Achtenhagen (2009) who posit that "we need a broader approach [to VE] which incorporates, in addition to subject-related competencies, those skills individuals need to participate effectively as members of a flexible, adaptable, and competitive workforce" (p. 88). Cornford (1998) also speaks of the need for VET to include higher order thinking and problem solving skills that have been mandated by changes to the nature of knowledge, work and the recent conceptualizations of "skill" and skilled performance. Subran (2013) endorses this need for higher order thinking in VE. He explains that:

> The preparation of vocational students to meet the rapidly changing needs of contemporary life means that students will have to acquire knowledge, skills, and dispositions that have been traditionally associated with academic subjects as part of their range of employability skills. (p. 85).

Technical and vocational education and training (TVET) is also used synonymously with the terms VET and CTE since learners are accorded the opportunity to "directly develop expertise in a particular group of techniques or technology" (Razzak & Khaki, 2015, p. 27). Uddin (2013) advances this view by saying that TVET "brings about technological advancement and aims to fit new [human resources] for employment and provide continuing training for [persons] already qualified, so that they can keep pace with modern and emerging work environments" (p. 296). UNESCO (2001) provides a comprehensive definition of TVET as follows:

> It embodies those aspects of the educational process involving, in addition to general education, the study of technologies and related sciences, and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life. (UNESCO, 2001, p. 7)

Subran (2013) opposes the argument that VE is used as the dumping ground for students who are deemed to be unsuitable for academic education. He explains that workers of today are required to be "skillful, innovative, productive and resourceful" (p.

85). It is therefore critical for them to be able to apply principles of the academics in the execution of their tasks. There is "very little room for those who cannot apply academic principles in working and living" (Subran, 2013, p. 85). He poses this insightful question, "To what extent can someone who is academically challenged function effectively in the construction industry, where accuracy and quality are important performance criteria" (p. 86)? Subran (2013) also questions the phrase "not academically inclined", for he firmly believes that this "deficit" is temporary and reversible if the appropriate teaching strategies are utilized.

Although inculcating general employability, transferability and adaptability skills that can be applied across industries is highly desirable, the focus of many VET institutions in T&T is on the acquisition of firm and industry-specific skills. However, with the introduction of the Caribbean Vocational Qualifications (CVQs) in T&T, general employability, transferability and adaptability skills are now gaining prominence in VET. These skills have already been mentioned in Chapter 2 of this document.

Since VE prepares trainees for professional positions in various fields of endeavor, it is vital to correspondingly prepare trainees "to respond adequately to the challenges of globalized competition" (Agboeze et al., 2013, p. 118) by inculcating in them, CT skills that will enable them to become more flexible and adaptable to the constantly accelerating changes of the 21st Century. However, before CT can be inculcated in VE students, all stakeholders need to be fully cognizant of the genesis of the stigma attached to VE which has limited its potential to achieve meaningful effects.

3.6   Vocational Education: Sources of its Low Esteem – its Stigma

In many countries, including the Caribbean, VE - in spite of "being a significant and long-standing educational sector, continues to suffer from low status and negative societal sentiments" (Billett, 2014, p. 2). Agreeing, Hutton (2009) said that VE has remained on the periphery of the school system in both developed and developing countries for many years. Hutton and Dixon (2016, p. 102) posit that "the division between practical education, which prepares one for a career, and the liberal arts or general education, which focuses on providing education for its own sake, was well entrenched in the education system for many decades". This statement is endorsed by Cartledge (2011)

who also speaks about the "parity of esteem" (p. 4) and says that "divisions between [VET] and higher education are so socially entrenched that it would require an extraordinary level of cooperation and collaboration to span the chasm between the two sectors" (p. 5).

Throughout human history, the societal status and standing of occupations have been dictated by "privileged others" such as "aristocrats, theocrats, bureaucrats, academics… and societal elites" (Billett, 2014, p. 1). Greek societal elites such as Aristotle and Plato referred to occupations that used their hands (and not their minds) as "low standing and of limited worth, and those engaging in them of inherently limited capacities - unable to innovate or respond to new requirements and challenges" (Billett, 2014, p. 4). Although these sentiments may have been misguided, they have endured throughout the ages.

Within the Caribbean, our forefathers, some of whom were former "slaves of European or coloured masters, had internalized a great deal of the cultural habits of their masters" (Campbell, 1996, p. 3). They accepted unquestionably, the social structures that had been created by their colonizers. Campbell (1996) said that the society that had been perpetuated looked "like a three-tier colour and class pyramid with the black masses at the bottom, the coloured as the middle class and the whites at the top" (p. 3) of the pyramid. Taking another approach, Lloyd Braithwaite (1960) "assigned all whites, irrespective of their class, to an impenetrable caste at the top of society, while the Amerindian survivors, the hundreds of heterogeneous immigrants and the black masses" (p. 816) all dwelled at the bottom of society.

The dominant culture grew out of the British colonizers who, believing that learning in an academic setting was more prestigious than learning through manual/practical means, "sent the sons of their aristocratic landowners to college to become managers who would not get their hands dirty" (Aring, 1993, p. 397). Only the lower classes were deemed fit to perform manual labour. Social status was significantly associated with occupation, and "manual work was a major discriminating factor in occupational classification" (Stevenson, 2003, p. 15). Wanting their children to enjoy a better standard of living than they had, parents sought to send their children to higher academic education – they saw this as the ticket to a better life. Education was viewed

"as a hierarchical structure with universities at the top and VET institutions at the bottom" (Lehmann, 2009, p. 144). Medical and law occupations heralded the "ultimate achievement in success and respectability" (Lehmann, 2009, p. 144). It is somewhat ironic though, that all pilots, dentists, surgeons, veterinarians, machinists, and nurses, among others, have undergone intensive vocational preparation and training. It becomes clearly evident that vocational training is only accorded a low status for some vocations.

Engaging in VE signaled academic failure and was looked down upon as only appropriate for dull minds. It was referred to "as the neglected stepchild of education reform" and "a relic of an earlier agricultural and industrial era" (Epperson, 2012, p. 1870). To this day, VE continues to be regarded as an inferior, less challenging and less prestigious form of education. It is viewed as a second class alternative for students who do not succeed academically. Klee (2002) argued that if VE is perceived as a dumping ground for "academic failures and delivered as such, then it is doomed" (p. 53).

Many of the criticisms that have been levied against VE centre on the notion that it fosters an educational dichotomy which perpetuates economic inequality. Epperson (2012) explains this statement. She says that academically inclined students oftentimes undergo the type of education that prepares "them for higher education, economic mobility and greater life opportunities" (p. 1867). This is diametrically opposed to the training received by students who are deemed "at risk". These "students receive limited training with less academic instruction that prepares them for jobs with little potential for economic and career advancement" (Epperson, 2012, p. 1867). This dichotomy is particularly debilitating for VE students who are thus deprived of "vital skills necessary for long-term growth and achievement, and would further entrench economic segregation" (Epperson, 2012, pp. 1867-1868).

Becker and Hecken (2009) posit that "usually, working-class families decide in favour of a short and less ambitious education…[while] the upper classes exploit higher education for social reproduction" (p. 234). While I may agree with Becker and Hecken's (2009) statement that "because of privileged conditions of socialization, education, and encouragement within the families, children from upper social classes

may reach higher achievements" (p. 245), I definitely disagree with the latter part of the statement which says that, "working-class children undergo fewer cognitive developments and may achieve less during school years" (p. 245). In my opinion, if teachers of working class students provide the necessary experiences that may have been deficient at each stage of development, these working class students will have the opportunity to attain the CT skills that privileged students attain. Having been a teacher for several years, I have actually witnessed some students from less privileged backgrounds achieve more academically than privileged students, as a direct result of teachers who were committed to bridge any gaps that family backgrounds may have imposed on less privileged students.

I have also found Lehmann's (2009) theory to be quite accurate. He proposes a powerful, alternative view to Becker and Hecken's (2009) theory, when he speaks of transforming the existing habitus. I can confirm the fact that students and parents of working classes possess the desire and ability to transform their habitus. Lehmann (2009) develops his argument by saying that:

> Parental experiences and lifestyles carry the possibility of actually transforming rather than reinforcing, existing habitus. Coupled with a persuasive and persistent public discourse that equates high formal education with life course success … students [can] develop very powerful dispositions that seem easily to transcend the barriers that habitus may pose. (Lehmann, 2009, p. 143)

Bestor (1956) criticized VE as suffocating the creativity of students – rendering them incapable of independent thought. His devaluation of VE stems in part, from Rene Descartes' (1596-1650) mind/body dualism. This Cartesian philosophy which privileges the "mind as the source of immutable truths and understanding and condemns the body as the source of irrational appetite, sensory error, and moral instability" (Hyslop-Margison, 2001, p. 26), has contributed significantly to the stigma of VE. Cartesian philosophy which endorses the view, "I think, therefore I am", has resulted in intellectual ability being thought of as superior, hence it "is afforded a higher social status than activities involving manual labour" (Hyslop-Margison, 2001, p. 26).

Scheffler (1995) disagrees with this "dubious" mind/body distinction since he believes that the successful acquisition of knowledge can only be attained through the interaction

of both mind and body. Endorsing this view, Langley and Tsoukas (2017) say that "mental facts cannot be properly studied apart from the physical environment of which they take cognizance" (p. 74). In his criticism of Descartes' mind/body dualism, Johnson (2006) contends that there can be no mind without a body; neither can there be a body without a mind, for *the body is in the mind*, just as much as *the mind is in the body*.

Although using different terms, Ryle (1951) expressed a similar view to Descartes' mind/body dualism. He contends that "meaning" can be of two forms: "knowing-that" something is the case (associated with the academics), and "knowing-how" to perform an activity (associated with VE). He acknowledges that, to this day, many authors think of "knowing-that" as more fundamental and important than "knowing-how", hence the reason for them having high regard for the theoretical work done in universities, as opposed to the practical work done by skilled craftsmen in the various trades.

The historical structures that have perpetuated the stigma of VE have been highlighted in an attempt to reiterate the need for "policies that will expeditiously counter the lingering public bias against TVET" (Morris & Powell, 2013, p. 17). Tikly (2013) is of the view "that the academic/vocational divide created under colonialism remained intact in the post-independence period, and that academic qualifications were perceived to lead to more and better opportunities in the labour market" (p. 5). Hutton and Dixon (2016) say that "this view continues to persist even today in many developing countries" (p. 103). However, they bring a ray of hope when they also say "that the distinction between general education and the acquisition of skills … [and] the divide between liberal arts and skills-based education will cease to be an issue for the education system in the not-too-distant future" (p. 119). When one considers the numerous benefits to be derived from engaging in VE, this too may serve as a catalyst towards the elimination or alleviation of the bias against VE.

3.7 Benefits of Engaging in Vocational Education and Training

The negative perceptions which our nationals have created with respect to VE are deeply imbedded and entrenched in our society; nevertheless it is anticipated that this

stigma will be greatly diminished if we are made aware of the benefits to be derived from engaging in this type of education.

Engaging in VE is beneficial. VE prepares individuals for work. Kuchinke (2013) is of the view that work enables an individual to engage in the full spectrum of human experiences. It is also the means by which individuals can provide life's necessities for themselves and their families. Billett (2014) eloquently explains the benefits of engaging in VE when he says "the goals and processes of VET are directed to meeting salient societal, economic and personal purposes. These purposes…develop the capacities for providing the goods and services societies need to function and secure their continuity and progress" (p. 1). Because of the crucial nature of "work" which is inherently imbedded in VE, this topic is given significant attention in the realms of education.

Cornford (1998) believes that "VE and involvement with practical performance issues in the real world of work have the potential for broadening, enriching experiences which stimulate intellectual development and hence overall efficiency" (p. 179). Although Miller (2001) refutes this claim, Sweet (1995) reports that students who engage in practical activities have increased confidence and self-esteem. I fully endorse Sweet's perspectives. My experience as a teacher has demonstrated unequivocally, that the successful completion of practical activities does indeed result in students' elevated confidence and self-esteem.

Agboeze et al. (2013) state that VE can adequately respond "to the challenges of global competition, high numbers of low-skilled workers and youth unemployment" (p. 118). Additionally, Hutton and Dixon (2016) are of the opinion "that the role of both general education and technical education is being heralded as vital to the performance of a modern approach to economic development" (p. 100). Referring to the T&T situation, former Minister of MSTTE, Fazal Karim, says that "the government recognizes 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 modern societies" (MSTTE, 2010, p. 5).

One of the hallmarks of a successful VET programme is the ability of its students to use the knowledge, skills and capabilities learned to become self-employed entrepreneurs. Agboeze et al. (2013) recognize the fact that the creation of businesses is "the ultimate determinant of the economic performance of nations and regions of the world" (p.116). Concurring, Baumol (1990) notes that economic growth and innovation are driven by entrepreneurship and associated activities.

The competencies gained at VET institutions enable vocational students to become successful entrepreneurs by developing in them, what Kerka (1992) refers to as the "cognitive skills needed for a productive, full and satisfying work life" (p. 2). Since the technical and employability skills learned in VET institutions are consistent with today's labour market needs and meet industry standards, students can progress from the VET institution smoothly into the world of work. Students benefit, and so do industries since these industries do not have to invest large sums of money in the training and re-training of new employees.

In keeping with the views expressed above, Ziderman (1997) says that the "firmest justification" for engaging in VE is that it "enhances productivity through the provision of marketable skills that are in demand" (p. 360). In the UNESCO (2001) recommendations it is explained that by making individuals employable, VE can increase national economic productivity. It can also enable persons to become more marketable and it has the potential to reduce social inequity.

The UNESCO (2001) recommendations further state that by helping individuals to gain employment they can escape poverty and marginalization. Diwakar and Ahamad (2015) add that "the economy becomes more productive, innovative and competitive through the existence of more skilled human potential" (p. 79). Uddin (2013) says that this important role of TEVT "in curbing unemployment in any developing nation cannot be over emphasized…. [Additionally] it reduces human resource wastage by providing training opportunities for persons who would have been liabilities to their families and the nation" (p. 296). With particular reference to the T&T setting, The MSTTE (2010) report states "that higher levels of participation [in VET] are linked to increased productivity and greater social and economic development, as well as to better health,

lower crime rates and the development of more cohesive and inclusive communities" (p. 10). As has already been stated by Kerka (1992) VE is therefore "the vehicle for developing the cognitive skills needed for a productive, full and satisfying life" (p. 2).

Benefits to be derived from engaging in VE have been discussed above. The discussion has brought to the fore the vital role VE plays in Caribbean education and in the development of the region. Indeed, as Hutton and Dixon posit, "TVET is rapidly moving from being an incidental aspect of the education process to becoming an integral part of education, especially in many developed countries" (p. 101). It is anticipated that an acknowledgement and appreciation of the benefits derived from engaging in VE will further its momentum throughout the Caribbean and indeed, the world.

3.8 Summary

This literature review has sought to illuminate issues that have direct relevance to the research topic, "Conceptualizations of CT in VE and Perceptions of Factors that Impact the Development of CT Skills in Adult VE Students in T&T". It has accomplished its objectives by highlighting areas of concern related to the two major constructs of the topic – *CT* and *VE.*

Since no single definition is sufficiently encompassing to reflect the numerous meanings associated with the term "CT", the chapter initially sought to reveal the various conceptualizations that researchers have formulated for "CT". As Buffington (2007) posits, "we need to create working descriptions of critical thinking that can guide our practices and conscientiously work to involve our students in lessons that involve critical thinking" (p. 22). She justifies her statement by saying that "without a clearly articulated description of what critical thinking entails, each individual is, essentially, working independently" (p. 20). Unveiling participants' conceptualization of "CT" is a direct intent of this research; therefore this section's inclusion in the literature review is undeniable.

Accelerating economic, technological, informational, demographic and political forces have dictated that CT should be an un-eliminable part of life in the 21st century; therefore a sound justification for engaging in studies on CT for life in the 21st century

with particular reference to the Caribbean was provided. Factors that impact the development of CT in VE, another direct intent of this research, were then highlighted. This section's significance to the literature review is unquestionable.

Definitions of VE may sometimes be fluid and lack consistency due to their situational and contextual nature; therefore the subsequent section commenced with conceptualizations of VE. Trinidad and Tobago has encountered severe obstacles that have retarded the growth of VE in the country: obstacles that have been promulgated by our forefathers whose "unfavourable public reactions to words like 'apprenticeship' and 'indentures' [words related to VET]…were unpleasantly associated with black slavery and Indian indentureship" (Campbell, 1996, p. 161). In spite of VE's "significant and long-standing existence in the educational sector it continues to suffer from low status and negative societal sentiments" (Billett, 2014, p. 2). I therefore considered it prudent to include a discussion on the sources of VE's low esteem. Benefits to be derived from engaging in VE then followed, since it is anticipated that the stigma of VE may be attenuated if we are made aware of the benefits to be engaged in it.

This Literature review has sought to highlight the issues surrounding two constructs of the research topic – CT and VE. It established issues and previous research that were of relevance to my research questions. As Wellington, Bathmaker, Hunt, McCulloch and Sikes (2011) state, "referring to and discussing existing literature will enable [me] to make substantial claims about [my] area of study" (p. 73). It will also enable me "to avoid sweeping generalizations, by rooting my claims in the context of other studies and previous research" (Wellington et al., 2011, p. 73).

Acknowledging the constantly emerging needs of contemporary societies, "VET-related career paths should begin to be viewed as a legitimate and valued alternative" (Hiebert & Borgen, 2002, p. 132). If this is done, "our Vision 2020 goal of developing a highly-skilled, talented and knowledgeable workforce which will stimulate innovative-driven growth and development" (Tesheira, 2009, p. 26) will be realized.

This extensive Literature review has informed my research and sub-research questions. It has also enabled me to approach my questions and indeed my participants, with a sound knowledge of what various experts on the topics of CT and VE have postulated.

CHAPTER 4: THEORETICAL PERSPECTIVES

4.1 Overview

Kilbourn (2006) posits that our interpretations of data are always filtered through one or more theoretical perspectives or frameworks. These frameworks help researchers to organize and synthesize knowledge within a field and assist in "describing, explaining and predicting behaviours" (Doolittle & Camp, 1999). The theoretical perspectives presented in this chapter satisfy these criteria: they may enable me to describe and/or explain my participants' responses; and they may enable me to predict my participants' future behaviours. Additionally, the data generated by my participants may possibly be used to extend existing theory. Kilbourn (2006) contends that by basing our data on sound principles, our findings are seen to be "intelligible to an academic audience" (p. 545). I contend that grounding data on various theoretical perspectives will render the data intelligible to all readers.

Porsanger (2004) cautions though, that whilst exploring frameworks to determine their applicability in describing and explaining data, care must be taken to ensure that the research is carried out in an ethically correct and culturally appropriate manner. Whilst examining these frameworks, I therefore employed the use of a decolonizing agenda (discussed in Chapter 5). This enabled me to think critically about my research processes and outcomes with the interests, experiences and knowledge of my participants as central to the research.

This chapter will commence with a discussion on the relevance of the following theories to CT in VE: Constructivism, Andragogy, Social Reproduction/Social Transformation, Human Capital Theory, Self-Fulfilling Theory and Post-Colonial Theory. At first glance, and without the benefit of theoretical elaboration and explanations these theories may be perceived to be disjointed and irrelevant to the research. For this specific reason, I have included in the latter part of the chapter, a table which is followed by a discussion of how these theories are interrelated, and how they may be manifested by vocational educators.

4.2 Constructivism

Doolittle and Camp (1999) and Wang and Torrisi-Steele (2016) contend that although behaviourism is a leading philosophy in CBET, constructivism may be a more appropriate theory for VE in light of the fact that reforms in VE are now incorporating higher order thinking, problem solving and collaborative work skills which are not adequately addressed by behavioural theories. Doolittle & Camp (1999) make a powerful statement when they say that VE students are no longer the "behaviour machines of the behaviourists; rather they are self-regulated, mental model building, socially interacting, meaning-making individuals of the constructivists".

Constructivism views the learner as actively and dynamically constructing knowledge, as opposed to knowledge simply being transmitted from a more knowledgeable person through lectures, drills and rote memorization, to another (Liu & Chen, 2010). Stevenson (2003) contends that rather than viewing learners as empty vessels into which knowledge is poured - Freire's "banking concept of education", constructivism emphasizes the way in which learners construct meaning. It is the movement away from teaching abstractions and symbolic manipulations to more practical interactions with "the immediate, real materials at students' disposal" (Cornford, 1998). Halpern (1996) also endorses this fact and explains "that knowledge is not static but rather dynamic as current knowledge builds on old knowledge, which in turn generates new knowledge" (p. 212).

Flores et al. (2012) are of the belief that when we combine "the knowledge acquired from prior experiences with CT in formal education within a constructivist development framework" (, p. 213), attributes of leadership and entrepreneurship are developed and this essentially, is the direct relationship between CT skills necessary for the successful completion of tasks in VE, and constructivism. Flores et al. (2012) posit that because these concepts are so closely intertwined, CT may determine the developmental stage from which adults operate within the VE setting.

The above discussion highlights the relationship between VE, CT and constructivism: in VE, students use their CT skills to connect new knowledge and experiences with their prior knowledge in an attempt to initially master their skill, but ultimately, to develop

new processes and methods which lead to an entrepreneurial mindset. I am therefore of the opinion that constructivism may prove to be a useful lens through which findings from my research can be viewed. Constructivism also influenced my research design, since I was seeking the perceptions of various stakeholders in the educational process who have constructed meanings out of their everyday interactions. Are our vocational instructors using their knowledge of constructivism and the importance of utilizing students' CT skills when connecting their (students') prior knowledge to present situations? Responses to this question will have significant implications for the practices that abound in vocational instructors' classrooms and students' acquisition and development of CT skills. The constructivist theory may enable me to describe and explain my participants' responses.

4.3 Andragogy

Many of the theories of adult learning have been derived from Organizational Development (OD) and the term "andragogy" was coined by OD in an attempt to separate this type of learning from traditional pedagogy. McGrath (2009) is of the view that "andragogy is centered on the idea that the lecturer does not possess all the knowledge and that students are encouraged to participate in the classroom by utilising their own experiences" (p. 102). Andragogy views the learner as "a mature, motivated, voluntary, and equal participant in a learning relationship with a facilitator whose role is to aid the learner in the achievement of his or her primarily self-determined learning objectives" (Rachal, 2002, p. 219). It is thought that by understanding what makes adult learners different from traditional learners, educators can improve their instructional practices and increase adults' chances of success. Kenner & Weinerman (2011) say that "adult learners bring learning styles and life experiences that may either be critical foundations for future success or deeply entrenched beliefs that hinder learning in the educational environment" (p. 87). By recognizing how adult learners differ from traditional learners and by using their life experiences and wisdom to enhance learning, educators can make the journey of adult learners easier and more fulfilling.

Malcolm Shepherd Knowles, one of the pioneers in the field of adult education, used the term andragogy synonymously with adult education, and andragogy soon became

known as the art and science of adult learning. Knowles' (1980) theory of andragogy is a constructivist approach to learning that encourages the use of former experiences to create new knowledge. According to Cox (2015), "Knowles argued that readiness to learn is linked to the relevance of the learning to adults' lives and that they bring an expanded pool of experiences that can be used as a resource for that learning" (Cox, 2015, p. 29). Building upon theories from OD, Knowles (1980, pp. 43–44) discussed the following characteristics of adult learners. These characteristics seem to influence how adults learn:

> ***Adults need to know***: Before undertaking new tasks, adults need to understand how these new tasks will help them to solve real-world problems. They need to recognize the purpose of their learning and the objectives of the lesson must be clearly identified. Referring to Knowles' adult theory, Pappas (2013) says that adults are interested in learning things that are of personal and professional relevance to them. They are practical in nature. When adults engage in practical activities, they are given the opportunity to apply their theoretical knowledge to hands-on problem solving where they actually see how this knowledge applies to life and work. According to Kearsley (2010), as persons mature, they move from postponement of application to immediacy of application; therefore their orientation shifts from subject centeredness to that of problem centeredness. They become problem-centric as opposed to content-centric. Engaging our adult trainees in real-life problems facilitates this shift in orientation.

Adults are relevancy-oriented. According to Pullagurla (2014) "one of the best ways for adults to learn is by relating the assigned tasks to their own learning goals". Educators therefore need to show their students how the "activities in which they are engaged, directly contribute to achieving their personal learning objectives. They will then be inspired and motivated to engage in projects and successfully complete them" (Pullagurla, 2014). Alternately, if the instructors of the IPRO do not ensure that trainees are aware of how particular tasks benefit them in their personal or professional lives, and if they do not highlight the relationship between what trainees are currently doing and their future endeavours, this will have a negative impact on trainees' desire to engage in activities that foster higher-order thinking skills.

Adults are self-directed: The Adult Higher Education Alliance - AHEA, (2003) posits that adults choose what they want to learn based on their learning objectives. They "take responsibility for their own actions and resist having information arbitrarily imposed upon them" (Kenner & Weinerman, 2011, p. 88). Chen (2013) says that viewing adults as self-directed learners, "shifts the focus away from the teacher as the sole repository of knowledge, and instead views the teacher as a facilitator and collaborator of knowledge who continuously guides the learner and helps co-create an environment for self-directed learning" (Chen, 2013, p. 407). Instructors at the IPRO therefore need to facilitate the process of goal-setting. They also need to give their adult students the freedom to assume responsibilities for their own actions and choices.

Adults have an abundance of life and work experiences: As persons mature, they accumulate a growing reservoir of learning styles, beliefs and life experiences that form the basis of their learning activities and future success. They are not "blank slates" (Chen, 2013): their life experiences become the media through which new information is learned. Being mindful of this, instructors of the IPRO need to encourage their adult trainees to connect their past experiences with current activities. Instructors themselves need to be well-versed in strategies that enable trainees to bring relevant prior learning and experiences to bear on current situations and knowledge.

Adults possess a readiness to learn: Since most adults return to higher education voluntarily, they are likely to engage in the learning process more readily. However, many adults who enter the IPRO have not voluntarily done so; they were forced by "significant others" to enter. They are oftentimes unwilling to participate in the learning process – their sole purpose is to receive their stipend. Instructors therefore have the unenviable task of ensuring that trainees acquire "a liking"' for the end product, to which current activities lead.

> ***Adults are motivated to learn***: Adult students often return to tertiary education for a specific goal. Knowles proposed that their motivation therefore tends to be intrinsic. However, despite Knowles' claims, I have found that adults do not always possess intrinsic motivation. Some respond to external motivators and engage in those activities which result in an internal payoff. As has already been stated, many trainees from the IPRO lack the motivation to learn – they attend classes for a variety of reasons unrelated to learning. Oftentimes, instructors of the IPRO have brought in former trainees as resource persons to try to motivate current trainees. The monetary gains to be made in completing the courses are strong motivators for many trainees.

Knowledge of Andragogy will ensure that educators at the IPRO present effective instructions that will enable their trainees to use and further develop their CT skills in a meaningful way.

4.4 Social Reproduction and Social Transformation Theories

Reproductionist theory holds that schools are not institutions that promote the equality of opportunity; rather, they are institutions created to maintain, reinforce and reproduce the inequalities of social structure and cultural order (Collins, 2011). This theory is made quite explicit by Bourdieu (1977) and Bourdieu and Passeron's (1977) analysis of how social inequity is maintained and sustained by the reproduction of cultural capital. For them, "cultural capital refers to language use, skills, and orientations, dispositions, attitudes, and schemes of perception (also collectively called habitus) that children are endowed with by virtue of socialization in their families and communities" (Lin, 1999, p. 394). Through this familial socialization, children from upper-class status are afforded more opportunities for them to acquire the appropriate kind of cultural capital that promotes their success in schools. Conversely, the habitus of children from lower-class families does not furnish them with appropriate capital to compete equally with their counterparts. Tsvetkova (2008) contends that this intergenerational transmission of parental socio-economic status acts as a conveyor belt for students in the educational arena. Since students do not compete from equal positions, this perpetuates social stratification and reproduction.

Tushin (n.d.) proposes another reason why social reproduction might be fostered in schools. He espouses the view that the powerful elites in society are the ones who perpetuate social reproduction in an attempt to maintain their "entrenched positions". He further states that "rather than promoting democracy, social mobility and equality, [educational institutions] reproduce the ideology of the dominant groups in society".

Many of the instructors at the IPRO are "elite and powerful" and have "entrenched positions" in their respective fields. Whether they prescribe to the social transmission theory, or whether they are believers in social transformation of their students will have a significant impact on their instructional practices.

"Social transformation is the process by which individuals *alter* the socially ascribed social status of their parents into a socially achieved status for themselves" (Thippeswamy & Reddy, 2015, p. 19). These authors further state that while social reproduction looks at intergenerational mobility, "social transformation focuses on how an individual can alter the class culture to which they feel aligned" (p. 19). According to Lin (1999), the effects of habitus on students from lower-class families can be alleviated by competent, knowledgeable teachers who are committed to the transformation of these students: teachers who also employ "a critical pedagogy which enables students to question and challenge posited domination, and undermine the beliefs and practices that are alleged to dominate" (Riasati & Mollaei, 2012, p. 224). The transformation of which I speak therefore involves the social transformation of students by helping them achieve a critical consciousness which, according to Horkheimer (1972), "seeks human emancipation from slavery" and acts as a "liberating and stimulating influence" (p. 246). The development of critical consciousness is of particular importance to citizens of our country, since our entire system of education has evolved "from an historical background of slavery and colonialism" (James, 2010, p. 1). We need to develop our students' CT abilities so that they will challenge the social and institutional forms of domination that have been allowed to prosper and that have plagued us for generations.

Social reproduction and social transformation theories discussed above are of significance to this research since the aims of both OrgX and the IPRO are to inculcate

entrepreneurial skills and attitudes in trainees, thus transforming the way in which they think about themselves, the extent to which they can propel their skill, and the extent to which they question and challenge the social and institutional structures that have inhibited them from achieving their full potential.

It is my firm conviction that the application of both the social transmission and social reproduction theories will be of relevance to this research.

4.5   Human Capital Theory

The "field of education and economic development has been dominated by the Human Capital Theory" - HCT (Lauder, 2015, p. 491), because within this theory, there exists a strong connection between education and training, and economic growth. According to Jermolajeva and Znotiņa (2009) the origins of HCT can be traced to the works of two key theorists – Gary Becker (1930) and Theodore Schultz (1902-1998) who espoused the view that HCT is defined as "knowledge and skills obtained by people as capital in the process of vocational and technical education" (Jermolajeva & Znotiņa, 2009, p.1). Modern conceptions of the term can be accredited to Jacob Mincer (1922-2006), and according to Jermolajeva & Znotiņa (2009) HCT is an "investment in human capital - input in education and professional qualification [as well as], health care, and other activities which allow people to be more economically efficient" (p. 1).

HCT views education as a form of economic investment where "the value of education is measured by its contribution to economic growth, increased employability, and a higher standard of living" (Ramsaroop, 2001, p. 68). Tan (2014) adds that implicit in this definition, is the fact that education is an investment in the individual because through education, an individual can increase his/her productivity and earnings, whilst also contributing to economic growth.

When the term "human capital" was formally introduced in the 1950s, it was severely criticized due to its negative connotations with slavery, where "humans" were thought of as mere commodities or pieces of machinery that could yield economic returns. Indeed, our former minister of MSTTE, Fazal Karim, says that "human capital development is a major contributor to economic growth and sustainable wealth

creation" (MSTTE, 2010, p. 3). In recent times however, the definition of human capital has widened to encompass "competencies, attributes, and attitudes such as reliability, honesty, self-reliance and individual responsibility" (Becker, 2002, p. 6). Additionally, proponents of HCT are now recognizing its "nonmonetary gains to the individual - its social, cultural, intellectual and aesthetic benefits which are termed 'positive externalities'" (Tan, 2014, p. 413).

In my opinion, this human capital theory has the possibility of impacting my research in either positive or negative ways. Positively, HCT "emphasizes how education can increase the productivity and efficiency of workers" (Jermolajeva & Znotiņa, 2009, p. 2); it can yield improved economic outcomes for both individuals and societies; it can contribute to personal social development and reduce social inequality. Additionally, Jermolajeva & Znotiņa (2009) speak about the "indirect impact of education as being expressed in the sharing and dissemination of knowledge which is characteristic of the working environment of well-educated people" (p. 3). Despite these benefits associated with HCT, in my opinion, its greatest benefit is reflected in Babalola's (2003) reason for investing in human capital: The new generation [of trainees] should be motivated to utilize their knowledge to optimum capacity – to creatively conceptualize and develop innovative production techniques which lead to the generation of novel products.

If our vocational instructors view HCT in this light, they would encourage our students to use their CT skills to experiment with new methods and techniques so as to arrive at novel products which can ultimately compete in the local and global marketplace. However, if used negatively, educators would view their trainees as commodities for consumption on the labour market - this will thwart the CT process, especially when used in conjunction with the credentialist perspective which promotes the belief that education depends more on the acquisition of formal credentials than on specific content.

It would be noteworthy to discover whether the data generated by my research validates the positive or the negative aspects of HCT, or whether it can modify or extend the theory in some manner.

4.6 Self-Fulfilling Prophecy/Pygmalion Theory

Al-Fadhli and Singh (2006) contend that teachers oftentimes "develop expectations for the performance and behavior of their students" (p. 53). They further explain that expectations refer to "inferences that teachers make about future academic performances and behaviours of their students" (Al-Fadhli & Singh, 2006, p. 53). A number or student characteristics may be responsible for teachers' expectations of students' performance. According to Rubie-Davies, Hattie and Hamilton (2006) some of these include gender, ethnicity, social class, personality and social skills, and physical attractiveness. These authors, together with others, believe that although these determinants may be important for initial expectancies, "other, more academically pertinent information gleaned from interacting with children… become more important for expectancy formation" (Dusek & Joseph, 1983, p. 330).

Numerous studies have been conducted which corroborate the view that there is a positive "correlation between teacher expectation and academic achievement – the higher the teacher expectation, the higher the student achievement" (Craig, 2011, p. 4). Trouilloud, Sarrazin, Martinek and Guillet (2002) however, argue that correlation does not inevitably denote causality. They refer to the "conceptual model of relations among teacher expectations, student attributes and student achievement" (p. 592) advocated by Jussim (1991) which illustrates that there are three possible reasons for the existence of this relationship: 1) "teacher expectation can be confirmed because they lead to the self-fulfilling prophecy; 2) perceptual biases; and 3) accurate expectations" (Trouilloud et al., 2002, p. 592).

The first reason mentioned above predicts "that teacher beliefs about students will transform [students'] behaviours in ways that confirm the initial expectations" (Trouilloud et al., 2002, p. 592) of the teacher. This phenomenon is known as the self-fulfilling prophecy by Merton (1948) or the Pygmalion theory. This theory suggests "that instructors have the ability to make their creations come to life" (Rubie-Davies, 2010, p.121) through expectations: when teachers believe their students are high achievers, these teachers "interact with their students in ways which promote their academic development" (Rubie-Davies, 2010, p.121).

According to Trouilloud et al. (2002), perceptual bias, the second possible reason for the relationship between teacher expectation and student achievement refers to situations where "teachers' judgement of students' achievement may be biased by their expectations" (p. 593). In these instances, the confirmation of the teachers' beliefs arises not in the students' actual performance, but only in the teachers' minds.

Teachers interact with students on a daily basis: they therefore can make accurate predictions of students' future achievement, based on valid sources of information such as students' test scores and cumulative record cards. This situation explains Jussim's (1991) third possibility for the relationship between teacher expectations and student achievement – accurate expectations. As Dusek and Joseph (1983) postulate, teachers do not form expectations "in the void of other information. Daily interactions with students help shape and even change expectancies" (p. 342).

Teachers' expectations of students' abilities have direct relevance on this research. The majority of adult trainees at the IPRO are from low socio-economic backgrounds and Craig (2011) reports that there is evidence which supports the claim that some teachers believe "students from low socio-economic status cannot perform well academically" (p. 5), in light of their "deficits". Trouilloud et al. (2002) contend that this results in differential treatment being accorded to students from high and low abilities. They further their argument by saying that "differential treatment in the class may affect students' self-perceptions and motivation, and in turn, their achievement" (p. 596). Al-Fadhli & Singh (2006) contend that some teachers even give "more praise and feedback to high-ability students while ignoring low ability students" (p. 54). In other instances, Brophy reports that teachers waited less time for responses from low-ability students than they did for high-ability students – thus reflecting their differential treatment.

In spite of the above discussion on teacher expectations and students' abilities, Rubie-Davies, Peterson, Irving, Widdowson, and Dixon (2010) are of the belief that teacher expectations seem "to dissipate as students move through the educational system and become more accurate in self-assessment, more autonomous and less easily influenced by teachers" (p. 38). It would be worthy to determine the degree to which the instructors

at the IPRO apply the self-fulfilling prophecy and the resulting effects on their instructional practices:

4.7 Postcolonialism

Postcolonialism and one of its associated terms – Hegemony, offer well-suited perspectives from which my study may also be viewed. According to Abrahamsen (2007) postcolonial theory is "multiple, diverse, and eschews any easy definition or generalization" (p. 112); therefore, locations from which postcolonialism can be explored are varied. It can be viewed as the period *after* former colonized nations gained independence; or it can be viewed as the "period *prior to* colonization in which the cultural productions and social formations of the colony before colonization are used to better understand the experience of colonization" (Kanu, 2003, p. 68). Mawere and Van Stam (2016) posit that, "postcolonialism speaks about the human consequences of external political control and economic exploitation of indigenous people and their lands" (p. 59). Loomba (1998) extends this conceptualization by saying that postcolonialism is a "way of thinking in which cultural, intellectual, economic or political processes are seen to work together in the formation, perpetuation and dismantling of colonialism" (p. 54). Kanu (2003) also agrees with this position against imperialism, and says that "it is postcolonial as a stance against Eurocentrism, that is of importance" (p. 68). However, Mishra (2015) adds that by 2010 the discourse on postcolonialism had moved from being largely centered on a "self-conscious, radical, anti-colonial agenda" (p. 370) to what Ponzanesi (2000) refers to an intentional discourse that acknowledged "voices often excluded by the invisible rehegemonizing power of ex-colonial languages" (p. 19).

When T&T became colonized, our colonizers forced their "superior" and "civilized" values on us. Our traditions and values were eroded over generations of being a colony and we soon adopted Western traditions, cultures and languages through a process of hybridity – the cross-fertilization of cultures. These values became engrained and entrenched in us, so much so, that when T&T became an independent nation in 1962, residues of colonialism still lingered and were omnipresent amongst our people. This is what postcolonialism seeks to eradicate, as we strive to regain our distinctiveness, our

self-confidence and our individuality. Postcolonialism "seeks human emancipation from slavery", and acts as a "liberating … influence" (Horkheimer, 1972, p. 246). The aims of the postcolonialism of which I speak are clearly explained in the introductory paragraph of the Stanford Encyclopedia of Philosophy (2005) - Post colonialism "aims to explain and transform all the circumstances that enslave human beings… [It thus] decreases domination and increases freedom in all their forms".

Hegemony - a term associated with postcolonial studies, looks at the way imperial power dominated without physical coercion or direct military rule. According to Gregory and Halffb (2013), it "ruled by the threat of force and implied power" (p. 418). These authors explained that the dominant classes presented their version of reality in such a convincing way that subordinates thought it was *the only way* of seeing things. This resulted in "widespread acceptance of particular ideologies and consent to the practices associated with those ideologies" (Roper, 2005, p. 70). Gregory & Halffb's (2013) explanation of hegemony further explains this. They contend that "hegemony refers to a process of moral and intellectual leadership through which dominated or subordinate classes *consent* to their own domination by ruling classes, as opposed to being simply forced or coerced into accepting inferior positions" (p. 418).

Sheared and Sissel (2001) have advanced the view that hegemony may be partially responsible for the way we think about adult education and learning, and have examined the ways in which hegemony may have silenced the voices of those who have been marginalized. Sheared (2002) has described marginalization "as the silencing of lived experiences…through legislation and policies created by the dominant culture, which either 'commatizes or negates' the political, economic, historical and social realities of those living in the margins of society" (p. 1). The majority of adult students enrolled in VET in T&T live in the margins of society, and Sheared and Sissel (2001) challenge all educators to examine the ways in which they may be overtly or inadvertently perpetuating the notions of hegemony and marginalization.

Postcolonial theory and hegemony may prove to be particularly beneficial for my study since, in spite of having attained independent status in 1962, our current educational system is heavily impacted by our colonized past where the voices of our people have

been silenced. Do my participants unconsciously perceive themselves to be the colonizers who impose structures and control over their trainees whom they treat as "the colonized?" Do they dictate the kinds of knowledge and the ways in which that knowledge should be "transmitted" to their trainees; or do they view their trainees as autonomous learners who have the capacity to acquire CT skills? Postcolonial theory and hegemony may enable me to explain and understand the responses to these questions, and they may also enable me to predict vocational educators' future behaviours and the implications of these on the trainees' acquisition of CT skills.

The above discussion highlights the relevance of the 6 theories to this research. It has tried to illuminate the ways in which the theories may be used to interpret, describe or even predict my participants' behaviours. The following section of this chapter engages a discussion on the ways in which each theory is connected to another. For ease of reference Table 1 has been provided to reveal the interrelatedness of the theories. The following discussion adds value and provides theoretical elaborations for the diagram.

Table 1: Interrelatedness of Theoretical Perspectives

Critical Thinking in Vocational Education					
THEORY	**Constructivism**	**Andragogy**	**Human Capital**	**Social Rep. & Social Trans.**	**Self Fulfilling**	**Post Colonialism**
Constructivism	------	A Constructivism and Andragogy	B Constructivism and Human Capital	C Constructivism and Social Reproduction & Social Transformation	D Constructivism and Self Fulfilling Prophecy	E Constructivism and Postcolonialism
Andragogy	A Constructivism and Andragogy	-------	F Andragogy and Human Capital	G Andragogy and Social Rep & Social Trans	H Andragogy and Self Fulfilling Prophecy	I Andragogy and Postcolonialism
Human Capital	B Constructivism and Human Capital	F Andragogy and Human Capital	------	J Human Capital and Social Reproduction & Social Transformation	K Human Capital and Self Fulfilling Prophecy	L Human Capital and Postcolonialism
Social Rep. & Social Trans.	C Constructivism and Social Reproduction & Social Transformation	G Andragogy and Social Rep & Social Trans	J Human Capital and Social Reproduction & Social Transformation	-------	M Social Reproduction & Social Transformation and Self Fulfilling Prophecy	N Social Reproduction & Social Transformation and Postcolonialism
Self Fulfilling	D Constructivism and Self Fulfilling Prophecy	H Andragogy and Self Fulfilling Prophecy	K Human Capital and Self Fulfilling Prophecy	M Social Reproduction & Social Transformation and Self Fulfilling Prophecy	-----	O Self Fulfilling Prophecy and Postcolonialism
Post Colonialism	E Constructivism and Postcolonialism	I Andragogy and Postcolonialism	L Human Capital and Postcolonialism	N Social Reproduction & Social Transformation and Postcolonialism	O Self Fulfilling Prophecy and Postcolonialism	------

KEY:

A – Constructivism and Andragogy

B – Constructivism and Human Capital

C – Constructivism and Social Reproduction & Social Transformation

D – Constructivism and Self Fulfilling Prophecy

E – Constructivism and Postcolonialism

F – Andragogy and Human Capital

G – Andragogy and Social Reproduction & Social Transformation

H – Andragogy and Self Fulfilling Prophecy

I – Andragogy and Postcolonialism

J – Human Capital and Social Reproduction & Social Transformation

K – Human Capital and Self Fulfilling Prophecy

L – Human Capital and Postcolonialism

M – Social Reproduction & Social Transformation and Self Fulfilling Prophecy

N – Social Reproduction & Social Transformation and Postcolonialism

O – Self Fulfilling Prophecy and Postcolonialism

4.8 Interrelatedness of Theoretical Perspectives

A) *Constructivism and Andragogy*

Constructivism emphasizes the way in which learners actively and dynamically construct new meaning based on their past experiences. Andragogy is a constructivist approach to learning that encourages the use of former experiences in the creation of new knowledge. It outlines how adult learners differ from traditional learners. Educators who are aware of the characteristics of adult learners and who understand the critical role that past experiences play in adults' construction of new knowledge, can improve their instructional practices by designing sessions based on knowledge of the characteristics of adult learners, thus making the experiences of these adults more meaningful and fulfilling.   Educators who are aware of constructivism and andragogy will desist from engaging in lectures, drills and rote memorization since these are not effective methods through which adults acquire new knowledge; instead, they will utilize students' CT skills when connecting their (students') prior knowledge to present situations.

B) *Constructivism and Human Capital theory (HCT)*

HCT views education as a form of economic investment. Educators who think of their trainees as mere commodities or pieces of machinery that could yield economic returns, will not motivate their trainees to utilize their CT skills and knowledge to optimum capacity – to creatively conceptualize and develop innovative production techniques and novel products.   These educators will focus on the transmission model of teaching rather than the transformational model which "focuses on learning through task-oriented problem solving and determination of cause and effect relationships" (Walsh Coates & Sirrakos, 2016, p. 87). They will not encourage their trainees to use their CT skills to experiment with new methods and techniques so as to arrive at novel products which can ultimately compete in the local and global marketplace.

C) *Constructivism and Social Reproduction & Social Transformation*

Teachers who are competent, knowledgeable and committed to transforming their trainees' social status can alleviate the effects of habitus on students from lower-class families. These educators will not focus on the recall of teacher provided facts via memorization; rather, they will encourage their trainees to actually *apply* their CT skills and knowledge in the construction of new knowledge, thereby enabling these trainees to create novel products which will ultimately lead to income generation. This has the potential to not only transform trainees' social status, but their entire future prospects as well. Trainees are thus motivated to use their CT skills to transcend the boundaries of their social and physical realities.

D) *Constructivism and Self-fulfilling theory*

Constructivism and the self-fulfilling prophecy are closely linked because instructors' perceptions of their trainees will have an impact on the manner in which they enable these trainees to construct meanings. There is evidence which supports the claim that some teachers believe "students from low socio-economic status cannot perform well academically" (Craig, 2011, p. 5) in light of their "deficits". The majority of trainees from the IPRO come from low socio-economic backgrounds. If our educators believe that the incorporation of high CT activities into instructional practices are simply "a waste of time" on their trainees, they will not engage trainees' CT, creative and problem-solving skills when making meaning from new experiences.

E) *Constructivism and Postcolonialism*

In spite of having attained independent status in 1962, the current educational system in T&T is heavily impacted by our colonized past where the voices of our people have been silenced. Silencing the voices of our trainees prevents them from engaging in dialogues and collaborative endeavours. However, in her review of David Skidmore and Kyoko Murakami's (2016) book *"Dialogic pedagogy: the importance of dialogue in teaching and learning"*, Díaz (2017) "highlights the centrality of dialogue in the learning process and in interpreting and negotiating meaning as well as co-constructing knowledge among classroom interactants" (p. 1). The Southwest Consortium for the Improvement of Mathematics and Science Teaching (1995) further explains that "Social

discourse helps students change or reinforce their ideas – students present what they think and hear others' ideas… they build a personal knowledge base… Only when they feel comfortable enough to express their ideas will meaningful classroom dialogue occur" (p. 2). In the constructivist classroom, students are urged to engage in discourse and be actively involved in their own process of learning by creating new knowledge from past experiences. Constructivist educators who take a postcolonial stance know that their trainees are not empty slates – they do not silence their trainees' voices. They value their trainees' past experiences - they encourage them to use their existing knowledge to create new knowledge. Educators who do not value their trainees past experiences advise them to leave their past experiences at the door and engage in "sanitized" learning.

F) Andragogy and Human Capital Theory

Andragogy focuses on how adults learn, and it outlines the characteristics of adult learning. By recognizing how adult learners differ from traditional learners and by using their life experiences and wisdom to enhance learning, educators can make the journey of adult learners easier and more fulfilling. Human capital theory values human beings for their ability to contribute to economic productivity. If educators view trainees as mere commodities in the production process, they will see no need for trainees to use their CT skills and their wealth of previous knowledge in the meaningful construction of new knowledge. These educators will merely present their trainees with facts and figures, and will teach them the practical aspects of their skill in a "do as I do" model, with little theoretical elaboration, no rationale for why things are to be done in a particular manner and with minimal underpinning knowledge. They will not be engaged "in producing the autonomous and creative employees needed to add value to [our nation]" (Rear, 2008, p. 5).

G) Andragogy and Social Reproduction & Social Transformation

Knowles theory of Andragogy states that it is the "job of the adult educators to [transform] adult students from their old learning into new patterns of learning where they become self-directed, taking responsibility for their own learning and the direction it takes" (Knowles, Elwood, Holton III & Swanson, 1998, pp. 66-69). Educators who

believe in perpetuating the status quo where social stratification and reproduction abound, will not see the importance of engaging in the principles of Andragogy. These teachers oftentimes think of themselves as disseminators of information, and provide minimal time for student input and feedback – activities which are favoured by Andragogical principles. They tend to use the traditional transmission model of teaching, which is characterized by memorization and drills. If however, educators want their trainees to experience social transformation – if they want their students "to foster individualistic and independent-minded" (Rear, 2008, p. 2) thinking, Pappas (2016), in his introductory paragraph, posits that they will engage their trainees in "experiences which create meaning, and which lead to a change in their behavior, mind-set, and beliefs". These trainees seem to have the potential to transform their social status.

H) Andragogy and Self-fulfilling Theory

Educators have the ability to shape their trainees' behaviours by their beliefs in these trainees. These beliefs act as strong forces which have the power to propel behaviours in significant ways. If an educator believes that a student has the mental capacity and physical ability to perform well in classroom activities, and communicates this belief to the student by words or deeds, the student himself/herself begins to believe in this prophecy and engages in activities that lead to the prophecy's fulfilment. Similarly, if the educators at the IPRO believe that their trainees have the ability to cope with the rigours of a curriculum that is intended to facilitate the development of CT, and if they are aware of the characteristics of adult learners, and engage their trainees in activities that are principled along the lines of andragogy, it is likely that these trainees will succeed in their undertakings.

I) Andragogy and Postcolonialism

Several years after we have become an independent nation, various colonial and hegemonic practices persist, especially in VET where in many instances, students have been marginalized by the silencing of their lived experiences and where power and domination are often imposed by those who administer and instruct them. One of the aims of postcolonialism is to explain and transform all the circumstances that enslave human beings… [It thus] decreases domination and increases freedom in all their

forms" (Stanford Encyclopaedia of Philosophy, 2005). Educators who adopt a postcolonial stance will seek to engage their trainees in activities that enable them to "challenge ideology, contest hegemony and unmask power" (Wang & Zheng, 2016, p. 1326). These educators who realize that "educational institutions [are] responsible for teaching students to go beyond the simple mental activities of recall and restatement of ideas and facts to the higher level skills and habits involved in CT" (Rudd, 2007, p. 46), will take their trainees out of their comfort zones into "disorienting dilemmas" (Roberts, 2006, p. 100) thus encouraging them to develop the skills necessary for critical consciousness. Realizing that trainees will only develop into the critical beings that are needed to challenge the hegemonic practices that have been perpetuated by our colonizers, educators will engage their trainees in meaningful construction of knowledge by employing the use of all the characteristics of adult learners when they are instructing them so that the experiences that are created will be enriched, sensitive and relevant to their needs.

J) Human Capital Theory and Social Reproduction & Social Transformation

Since the beginning of the 20th century "the power of human capital in the enhancement of economic production" (Morris & Powell, 2013, p. 1) was realized, and even though it was also recognized "that knowledge that prepares an individual for complete living" (p. 2) was to be deemed the most worthwhile, many educators still believe that human beings are mere commodities in the process of economic production. These individuals neither believe in the holistic development of their students nor do they believe that students have dreams and aspirations that need to be fulfilled. If the educators at the IPRO are such individuals, they will not see worth in the social transformation of their students. They will not engage their students in meaningful construction of knowledge. Their focus would be on the maintenance, reinforcement and reproduction of the inequalities of social structure and cultural order (Collins, 2011). Their focus would be on the delivery of a designated body of knowledge in a predetermined order.

K) Human Capital Theory and Self-fulfilling Theory

HCT can be combined with the self-fulfilling prophecy since the amount that is invested in vocational students depends on administrators' beliefs about the purposes of

education and their students' capabilities. This is quite apparent in the T&T setting where, after the 2016/2017 national budget was read, it was realized that the budgetary allocation to all VET institutions was severely cut. At OrgX, our budget was cut by 58% thus leaving us to conduct our operations with 42% of our annual budgetary allocation. While we understand that severe economic constraints have mandated that drastic measures by taken by our government, we also noticed that the traditional educational sector's budgetary allocation remained relatively constant. This is sending a powerful and resounding message that our government does not place a heavy emphasis on VET. These actions reveal that they do not recognize "that higher levels of participation [in VET] are linked to increased productivity and greater social and economic development, as well as to better health, lower crime rates and the development of more cohesive and inclusive communities" (MSTTE, 2010, p. 10). If, like our government, the educators at the IPRO hold VET in such low regard, their commitment and dedication "to moving [their] adult students away from their old learning and into new patterns of learning where they become self-directed, taking responsibility for their own learning" (Knowles, Elwood, Holton, & Swanson, 1998, pp. 66-69), will be minimal.

L) *Human Capital Theory and Postcolonialism*

The view that human beings are mere commodities in the production process is one that has been promulgated through generations. It can be likened to the belief of Greek philosophers such as Aristotle and Plato, who referred to occupations that used their hands (and not their minds) as "low standing and of limited worth" (Billett, 2014, p. 4). This belief can be seen as a form of oppression, and postcolonialism "attempts to help students question and challenge domination, and the beliefs and practices that dominate" (Riasati & Mollaei, 2012, p. 224). If the educators at the IPRO adopt a postcolonial stance, they will attempt to dismantle the taken-for-granted notions and practices that have been inherited from our colonial forefathers. They will attempt to eradicate these residual effects of colonialism that have been allowed to proliferate through the ages. Recognizing that they are not the sole repositories of knowledge, instead of simply pouring information into their students to make them more efficient in the generation of income, they will engage their students in issues which "challenge ideology, contest hegemony and unmask power" (Wang & Zheng, 2016, p. 1326): they

will engage in practices which systematically question and deconstruct colonial power. These educators will guide their students through a process whereby they understand the relevance and logic of information presented rather than simply engage in a process of assimilation. They will "do substantially more than simply impart information" (Connolly, 1996, pp. 38-39) to their students, which is oftentimes characteristic of the teaching that abounds in classrooms where students are merely valued for their contribution to economic growth.

M) Social Reproduction & Social Transformation and Self-fulfilling Theory

Social reproduction and social transformation connect automatically with the Self-Fulfilling prophecy since teachers beliefs in their students will determine, to a large extent, whether their habitus can be transformed or whether it is to be reproduced and maintained. If educators believe that their students' habitus cannot be changed then they will engage in instructional practices that foster the development of "passive and non-participatory [students] with little ability in the type of critical inquiry which is so valued" (Rear, 2008, p. 2). If however, they believe that their students have the ability to transform themselves and are "able to exercise independent judgement skills unbound by conventional thinking" (Rear, 2008, p. 1), they would seek to instruct them by methods which foster a critical mind-set.

N) Social Reproduction & Social Transformation and Postcolonialism

Speaking about the aims of postcolonialism, the Stanford Encyclopaedia of Philosophy (2005) says that "it seeks to explain and transform all the circumstances that enslave human beings… [It thus] decreases domination and increases freedom in all their forms". Educators who take a postcolonial stance therefore introduce instructional activities that enable their students to "(a) examine issues of race, class, gender, sexual orientation, cultural beliefs and customs, economics, politics, and religion" (Brizee et al., 2015). These educators recognize that instructing students in the 21st century requires a "distinctive approach in that it aims to do substantially more than simply impart information to participants" (Connolly, 1996, pp. 38-39). This type of education is in contrast to the traditional transmission model in which teachers believe that they are the sole repositories of knowledge and the meaningful acquisition of CT skills by

students is questionable. Whether educators take a postcolonial stance and encourage their students to "challenge ideology, contest hegemony and unmask power" (Wang & Zheng, 2016, p. 1326); or whether they take the passive, uncomplicated route of reproducing their students' social status, will have critical implications on the findings of this research.

O) Self-fulfilling Theory and Postcolonialism

Postcolonialism speaks about empowering those who have been oppressed. Empowerment "refers to the political, social or economic strength of individuals or groups. It often involves the empowered developing confidence in their own capacities" (Behal, 2011, p. 38). When taken from a postcolonial stance, empowerment will provide opportunities for students to confidently question and deconstruct colonial power. Our society is fraught with remnants of our colonial past and various forms of oppression and domination - political, cultural and economic have been allowed to thrive and flourish by societal elites who seek to retain control of the systems that have favoured them. Educators who believe that their students have the cognitive capacity to effectively question current forms of colonialism will empower their students by providing relevant opportunities for them to practice skills involved in, but not limited to: "analysing, evaluating and challenging fallacies and assumptions; recognizing and evaluating cause and effect relationships; evaluating and analogizing relationships between pieces and sources of information and determining the relevance and validity of information in structuring and solving problems" (Agboeze et al., 2013, p. 119).

The self-fulfilling prophecy can be easily combined with Postcolonialism since administrators' perceptions of students will determine whether or not they are allowed to engage in higher order thinking skills that are required for challenging instances of oppression.

4.9 Summary

Wellington at al. (2011) speak of an eclectic mode of engaging with theoretical perspectives in which various theories are combined. The initial sections of this chapter have highlighted the way in which CT in VE is interwoven with each of the 6 theories.

Since these theories were presented in a linear manner, their interconnection may have been blurred. In an attempt to illuminate their interrelatedness, a table was presented and this was followed by a discussion which explained the manner in which the theories were intertwined within the VE context. It must be noted though, that due to constraints of space, the way in which more than 2 theories could be combined - a highly likely scenario, was not attempted.

The eclectic array of theoretical perspectives discussed above will be engaged through a Decolonizing agenda thus minimizing the potential for "perpetuating colonial values and an ideology of cultural superiority" (Bishop, 1998). It will also ensure that the interests, experiences and knowledge of my participants are central to the research.

CHAPTER 5: METHODOLOGY AND RESEARCH METHODS

5.1   Overview

The preceding chapter engaged a discussion on the theoretical frameworks which, while using a decolonizing methodology, may be helpful in analyzing the data. The purpose of this chapter is to justify how the research approach I have taken is appropriate to my particular study, and to examine the ways in which it fosters a decolonizing agenda. I shall commence by discussing the term "decolonizing methodologies" and explain why they are of significance to this research. Since my positionality as a researcher has the potential to influence my entire research design, I shall discuss how I am positioned in the research. An analysis of the philosophical assumptions and beliefs that undergirded my research and dictated that I conduct a Case Study Research in the Qualitative Paradigm will then be presented. Justifications for uses of both the Case Study Research Design and the Qualitative Research Paradigm will precede an analysis of the specific methods that were used to obtain data. The various techniques that I used to analyze data will be justified, and before I conclude, I shall provide both a rationale for my participant selection and a very brief description of my participants and the roles which they occupy in my research.

5.2   Decolonizing Methodologies

Tuhiwai Smith (1999) says that all forms of research begin with human curiosity and a genuine desire to solve problems. At its very core, research is an activity of hope: yet, according to Tuhiwai Smith (1999), for many former colonized societies like Trinidad and Tobago, research has been characterized by a history of hegemonic exploitation and the dehumanizing tendencies of Euro-American researchers. It has been essentially, "a relationship of power, domination and varying degrees of complex hegemony" (Said, 1978, p. 89). Releasing ourselves from the frames and chains of colonialism that have subjugated our knowledge and silenced our voices requires that we engage in research that uses decolonizing methodologies which, according to Porsanger (2004) are methodologies that are based on principles of respect, reciprocity and feedback (p. 113).

Engaging in these methodologies will bring a measure of hope to my participants, who will be given the opportunity to voice their opinions and concerns.

Decolonizing Methodologies are those approaches to research that seek to obliterate the residues of colonialism; colonialism being defined by Dei and Asgharzadeh (2001) as "all forms of dominating and oppressive relationships that emerge from structures of power and privilege inherent and imbedded in our contemporary social relations" (p. 308). Employing Decolonizing Methodologies may therefore enable me to minimize potentially dominating, oppressing and imposing situations that may arise throughout my quest to acquire knowledge, and ultimately, to disseminate that knowledge. Embracing a decolonizing agenda will also enable me to exercise reflexivity – "a process whereby researchers place themselves and their practice under scrutiny, acknowledging the ethical dilemmas that permeate the research process and impinge on the creation of knowledge" (McGraw, Zvonkovic & Walker, 2000, p. 68). Being a reflexive researcher will mandate that I deconstruct my own work and the motives behind it. It will encourage me to critically interrogate "where, how and why I have made particular decisions at particular stages of conducting my research, the power embedded in each stage of my research, and the ways in which I attempt to eliminate this power" (Hamdan, 2009, p. 391).

Before one can truly understand my motives for making particular decisions at particular stages of my research, one needs to know "what it is about me and my peculiar interface with this world that has led me on the particular path I took" (Jones, Torres & Arminio, 2014) – one needs to know about my Positionality.

5.3   Positionality

According to Wolf (1996) a researcher assumes various positions within research based on his/her individuality - personal belief systems, preferences, and prejudices. Anyidoho (2008) is of the belief that this positionality "is an important concept because it has implications for the nature of knowledge produced, and how that knowledge is received" (p. 28).

Jones (2004) contends that we researchers approach work with, "a hidden agenda … of our background, culture, experience, preference and prejudice" (p. 274). Peshkin (1988) therefore urges researchers to "seek out their subjectivity systematically [so as] to determine how it might be shaping their inquiry and research outcomes" (p. 17).

Endorsing the fact that my positionality as a researcher has the potential to influence my entire research design, I shall now explain how I am positioned within the research from three (3) differing lenses – the personal, the professional and the political.

5.3.1 Personally

I am of East Indian descent. My socio-economic status is oriented towards the middle to upper class. My mother - a disciplinarian, was the daughter of an upper-class, elite group of estate owners. My father, (invariably attired in well-tailored, long-sleeved shirts and trousers, matching executive jackets and solid coloured ties), worked in a lawyer's office in the city. Most of the inhabitants of the rural district in which we lived thought that my father *himself* was the lawyer – an identity of which he was quite proud; actually we all were!

We were disdainfully referred to as "The White People" in the village, neither because of our complexion nor our ethnicity – but because of our socio-economic status and the way in which we were instructed to walk, talk, dress and comport ourselves. My siblings and I were forbidden to have friends in the village or to mingle with the "common" folk. At a very tender age I was introduced to the concept of "the other". I was never allowed to associate with "the other" villagers because I was made to believe that I was better than they.

For as long as I can remember, vocational subjects have always been my passion, much to the disgust and disappointment of my parents. For them, VE was a sign of academic failure and was looked down upon as only appropriate for dull, "inferior" minds. Their preference for the academics as opposed to vocational subjects, which itself, can be seen as a form of "othering", perpetuated the belief that vocational subjects were certainly not suitable for their proud, superior, "larger-than-life" child that I was made out to believe that I was!

Indoctrinated into the belief that VE was an inferior, less challenging, less demanding and less prestigious form of education, my entire formal education has been academic. This was rather problematic for me, for although I was forced to excel in the academics, my love for vocational subjects never dwindled. I was therefore torn between my love for the vocational subjects and my parents' insistence on acquiring solely academic qualifications.

Although every effort was made to conduct my research in an ethically correct manner, I still kept wondering: Were traces of my former association with the concept of "othering", lingering and perpetuating colonial values? Was I conducting this research in a culturally appropriate manner with the interests, experiences and knowledge of my participants as central to the research? Being conscious of this, I made a concerted effort not to "other" my participants or their culture by imposing my "biased" views on their responses. I treated them as competent knowers and co-researchers. They were not treated as *objects* of the investigation. I did not just gather data: I constructed meanings from their stories (Holmes & Crossley, 2004).

5.3.2   Professionally

Most of my professional life has been spent as a teacher – a position of power and control. It is ironic that although I was always inclined to Vocational Subjects, my students were not usually permitted to engage in these – there was never enough time, and besides, my parents' voices always echoed through my mind, "What kind of job will you get with *these* subjects?" Just as failure was never an option for me as a student, failure was not an option for the students in my classes. I did whatever it took to make them succeed academically. Unfortunately, this meant drills, rote memorizations and extensive content coverage. It did not matter if they were developing their thinking capacities, as long as they were succeeding in their exams.

Nine years ago I left the teaching profession and became a Curriculum Development Specialist in the IPRO conducted by OrgX – a job that is as demanding as it is rewarding. Here, I am afforded the opportunity to write VE curricula and supervise their implementation. Through my interactions with vocational educators, I realized that their complaints and concerns were similar to those of academic teachers – students were not

acquiring "thinking" skills. This caused me to reflect on my former teaching practices. I always got the job done as a teacher (after all, my students passed their exams), but was I preparing them to function effectively in a dynamic world? Was I inculcating in them the CT skills essential for life in the 21st century?

I therefore began wondering – Are students not thinking critically because teachers don't teach them how to think critically? Do teachers know how to teach CT skills? Do teachers themselves know what are CT skills? Are they aware of the contested definitions of the term "CT"? Are they aware of the economic and social benefits of engaging in CT? Have any policies been formulated that would facilitate the development of CT skills? Therefore, even though my research sought to unveil answers to these questions, did I already come to a conclusion based on my experiences and the findings of the literature review that was done? Were my subjectivities so intense that I found nothing more than what I was specifically looking for? Would my preconceived expectations prevent me from observing the subtle, yet significant nuances of my research participants' character and speech? Being cognizant of these questions, I made a conscious effort not to impose my existing beliefs and preconceived notions - I tried my utmost to interpret and analyze my data using the previously outlined theories.

5.3.3 Politically

According to Tang (2002, p. 11), interviewers and participants are never equal. Endorsing this view, Porsanger (2004) says that "any research is indissolubly related to power and control" (p. 108), and my research certainly had the potential to exhibit elements of power and control. My position as Curriculum Development Specialist at OrgX is a senior position. I supervise the vocational instructors and my report of their performances, determines to a great extent, whether they are recruited for the forthcoming cycle. I also evaluate the performance of the IVs, and my evaluation also determines their tenure at the programme. Although my position is "on par" with the regional managers and the other specialists, I am considered to be senior, since I joined the programme much longer than they did. Additionally, I was conducting research on a topic of which they apparently knew very little *(their own words).* Most importantly, I was completing my Doctorate – a qualification for which many aspired but few pursued.

All these factors contributed to my perceived position of power and control. Ball (1990) cautions researchers "to weigh the impact and effect of their presence, their personae and the respondents' perceptions of them, for the status, usefulness, and limitations of the data recorded" (p. 43). Throughout my research I therefore wondered: Did my participants merely give me answers that they thought I wanted to hear? Did they purposefully try to discredit my research by providing me with "faulty" responses?

Hammersley (1995, p. 109) disagrees with the view that researchers have total "power". He argues that researchers' power is negligible since participants can decide if, when, where and how their participation will be granted – they have the power! The experiences which I gained throughout this research journey, have demonstrated that Hammersley's opinions are in fact, valid, for there were numerous occasions when participants did not show up for predetermined and confirmed interviews. I therefore tried my utmost to create situations where there was equilibrium between my perceived power and the acknowledged power of my participants.

Although this is "my" research topic based on "my" interests and "my" prejudices, the Chief Executive Officer (CEO) of the IPRO has also expressed his staff's concerns about the development of "thinking" amongst our trainees. Therefore, while my research will enable me to get my doctoral qualification and will ultimately contribute to the body of academic knowledge, it is also intended to advance the interests, agendas, and concerns of members of staff of the IPRO as expressed by our CEO.

5.4 Philosophical Anchors

Ponterotto (2005) has advised that researchers should understand, and have a firm grasp of the "philosophical parameters anchoring their work" (p. 127). These reflect the researchers' assumptions and beliefs, and are encapsulated within their research methodologies.

5.4.1 The Ontological Assumption

The ontological assumption speaks to the nature and relations of being, of truth and reality. Multiple realities that are socially constructed characterize my ontological

assumptions. For me, truth is relative and entirely dependent on one's perspectives. Following Pring's (2000) advice, I therefore "approached this research with the belief that there is no single 'truth' to be discovered [out there]; rather there are many 'truths', multiple realities and multiple interpretations of the same events" (Pring, 2000, p. 253). I acknowledge that the different people in my research (the researcher, the participants and those reading and interpreting the study) may experience different realities even though they are presented with the same stimuli. I am also aware that my participants' responses were mere "interpretations and not *truths* in the positivist sense" (Jones, 2004, p. 98). I sought "answers to questions that stress how social experience is created and given meaning. The essence was to capture participants' point of view - to capture how they interpret the world" (Tang, 2000, p. 5).

5.4.2 The Epistemological Assumption

The Epistemological Assumption addresses "how the world is known and understood, and how people come to believe in the ideas that they hold as important" (Duffy & Chenail, 2008, p. 23). As Tang (2000) postulates, "the epistemological implication of my ontological assumption is that the knower and the known are interdependent" (p. 5). Therefore, my epistemological assumption is that the participants whom I interview, have come to know things through their mere consciousness – their feelings, biases, perceptions, experiences, imagination and intuition. They know things through hearsay, gossip, myths and personal theorizing, and not necessarily through "objective" reality. I embarked on this research fully cognizant of the fact that no one ever approaches a topic in a vacuum. As Nixon, Walter and Clough (2003) state, "neither we, nor the subjects we seek to understand, are blank social slates – we are embedded within particular biographies and the communities from which we take our identities" (p. 102). During my research I needed to create a forum whereby my participants felt that they could trust me enough, to reveal the knowledge that they had created. Holmes and Crossley (2004) advise that one way to ensure this is to adopt a collaborative research methodology – that is "research carried out *with* people, rather than *on* or even *for* people" (p. 203). I therefore treated my participants as "competent knowers and co-researchers" (Shuttleworth, Somarton & Vuilliamy, 1994, p. 94).

5.4.3   The Axiological Assumption

The Axiological Assumption deals with values, and Duffy & Chenail (2008) ask the question, "What values or ethical principles should be adhered to in conducting research (p. 23)? Colonial practices deny/reject the idea that participants have ideas of their own, can create new ideas and possess a rich knowledge-base from which to draw. I wholeheartedly embraced the idea that my participants *do* have ideas of their own, *can* create new ideas and *do have* a rich knowledge-base from which to draw. Therefore, even if my participants responded to questions in a manner inconsistent with my beliefs, my preconceptions and the findings of former research studies, I was still ethically bound to consider the multiple realities which they have socially created and constructed, as valuable and worthwhile data. My Axiological assumptions demanded that my research was based on sound principles of respect, reciprocity and feedback (Porsanger, 2004, p. 113), with ethics permeating all stages of the research.

5.5   Research Ethics

Ethics in research pertains to "doing good and avoiding harm" (Orb, Eisenhauer & Wynaden, 2000, p. 93). Although Alcadipani and Hodgson (2009) caution that research ethics "is constantly negotiated and re-negotiated and often constitutes a constant struggle … as it is interwoven within power relations" (p. 140), Orb et al. (2000) are of the belief that **"**harm can be prevented or reduced through the application of appropriate ethical principles" (p. 93). The following discourse in an account of the ethical procedures that were employed when conducting this research.

Prior to commencement, I sought permission to pursue this research from the Minister who was assigned to the IPRO at that time. This permission took the form of a letter detailing the nature of my research and what would be required of my participants. After waiting four months on a reply from his office, I sought a meeting with him. Due to his unavailability, I was granted the privilege of speaking to his personal assistant, who applauded my attempts at undertaking such a "difficult" yet "noble" research. He assured me that the Minister had not received my request, for he would not have hesitated to respond in the affirmative. We exchanged personal cellular phone numbers, and to ensure that we had saved the numbers correctly, we called each other before the

meeting had concluded. He promised that I would hear from the Minister's office within one week's time. After several months of constant telephone calls to the personal assistant's number that was never answered, I concluded that permission had not been granted. This refusal of permission to engage in what I considered to be an extremely beneficial research, had a devastating effect on me, and no further work was done on my research for approximately eighteen months that followed.

After mentally ruminating on this refusal, it struck me that my research was somewhat negative – at that time, it was "Perceptions of the factors that *inhibit* the development of CT skills in VET". With my supervisor's approval, I therefore substituted this negative word (inhibit) for *"impact"* and sought permission to conduct the research in another company that offered vocational training. The CEO of this company gave his consent unreservedly and his secretary gave me the telephone number of the individual who had access to all tutors' contact numbers. After the initial conversation with this individual however, we realized that he had previously sought employment with the IPRO but was denied. Unfortunately, I was a member of the panel of interviewers who had interviewed him and had found him to be unsuitable for hire. Whether or not his refusal to give me the relevant numbers had any bearing on that initial encounter at the interview, is a matter of conjecture.

After waiting four months of unfulfilled promises, I again sought an audience with the CEO who had been on extended vacation. Unfortunately, after returning from vacation, the CEO had been asked to vacate his office and a new CEO was appointed. Shortly after this, the said company became defunct and again, my research suffered.

Hope was restored in 2011/2012 when the IPRO became subsumed under OrgX (with a CEO and a new board of Directors), and I was free to proceed with my research. Participants were purposefully selected and details of the proposed project were explained verbally (on the telephone or in person) to all prospective participants. Following the advice given by Orb et al. (2000), they were made to understand the process in which they would be engaged, why their participation would be beneficial, how their information would be used and to whom it would be reported. They were given one week's time within which to consider whether or not they wished to participate in the research. Participation was therefore sought, prior to the

commencement of the research, without any duress. Adhering to the advice given by the British Education Research Association - BERA (2004, p. 6), persons were also informed that they had the right to withdraw from the study for any or no reason, and at any time. Those who were interested in participating in the research were required to sign a consent form *(Appendix 7),* and an Information Sheet *(Appendix 6)* was also given to supplement the verbal explanations that were given previously.

The participants who consented were all interviewed during working hours for a period of approximately 45 to 60 minutes, in the safety and security of my office or theirs. At the end of each interview, another date was arranged when any questions arising from my interpretation of their responses could be clarified. Transportation was provided to those participants who did not own vehicles and who were required to remain after working hours for the purpose of being interviewed; this afforded all participants a significant measure of personal protection.

Many researchers have reported that teachers lack exposure to the concept of CT; therefore prior to the commencement of data collection, all participants (many of whom expressed concerns about their ability to speak fluently on the topic of CT) were provided with three widely acknowledged operational definitions of CT mentioned in Chapter 1. Additionally, seven participants requested that I indicate to them, the nature of possible interview questions; I therefore obliged. On hearing that possible interview questions were provided to these participants, three other participants requested the interview questions. It was then that I decided to disseminate possible interview questions to all participants.

The IPRO is a relatively small organization; therefore the level of anonymisation of the participants was critical. Anonymity was sought by identifying participants through a 5 letter code. This code consisted of the first letter of their: a) street name; b) mother's maiden name; c) month of birth; d) father's first name; and e) favourite food. Participants were then asked to reorganize the combination of these letters. However, when I began to transcribe my data, I realized that referring to my participants by means of codes was a form of "othering": I therefore called each participant and asked them to identify a name by which they wished to be referred in my research. Many participants could not suggest alternative names, so with their approval, these were provided by me.

This minimized the possible link between the participants and their true identities. No mention was made of participants' specific duties that may have linked others to their identities.

The data generated by the study were analyzed and kept by me in the privacy of my home library, where the necessary security procedures and precautions were adopted. The data were not made public to anyone. I did not bring the study into disrepute by falsifying, sensationalizing or distorting my participants' responses.

Although the ethical procedures explained above, paint a neat, clean and orderly process, it belies the realities of academic work and studentship, "the realities of power relations in the field and the pragmatic requirements of maintaining access and completing the research project" (Alcadipani & Hodgson, 2009, p. 140). I fully endorse this statement, for my research was fraught with power relations from the onset, as the second paragraph of this section details.

The above discussion highlights the ethical principles that were used to guide the research. However, as Orb et al. (2000) postulate, "These principles *cannot ensure* ethical research – they *can contribute* to an understanding that ethical responsibility in qualitative research is an ongoing process" (p. 96). At each stage of this research therefore, principles of ethics had to be carefully thought out and observed.

5.6 Why the Qualitative Research Paradigm?

The position of Specialist in the area of Curricula is one where a positivistic approach to research is the expected norm. However, since I wanted the emphasis of my research to be on my participants' voices and the interpretations of their experiences, I selected the interpretative, Qualitative Research paradigm – the paradigm that "translates experiences into words" (Duffy & Chenail, 2008, p. 26). My philosophical assumptions of the nature of reality and knowledge also dictated that I select an approach that values "multiple realities": one that gives credence to people's subjective perceptions, one that would give me the opportunity to hear my participants' voices and retell their stories - the Qualitative Paradigm enabled me to do this. It gave me the opportunity to "make sense of, or interpret phenomena in terms of the meanings people bring to them"

(Denzin & Lincoln, 2005, p. 3). Engaging in Qualitative research afforded me the opportunity to interpret the varied realities that the participants had constructed from their everyday experiences.

Patton (1990) remarks that "the credibility of qualitative research is especially dependent on the credibility of the researcher, because the researcher is the instrument of data collection, and centre of the analytic process" (p. 461). Lincoln and Guba (1985) coined the term "human-as-instrument" (pp. 193-194) to demonstrate the unique position that is occupied by the qualitative researcher. Menzies (2008) further state that the "human-as-instrument is the only instrument which is flexible enough to capture the complexity, subtlety, and constantly changing human experience" (p. 200). In an attempt to capture the dynamics of my research participants and their context, I needed to adopt a methodology that was fluid and flexible. Popay, Rogers and Williams (1998) posit, "the hallmark of good qualitative methodology is its flexibility rather than its standardization" (p. 346). Qualitative research was therefore perfectly suitable for my research.

5.7   Why Case Study?

A case study research design was selected because of "its applicability to real-life, contemporary, human situations ... [that] relate directly to the common reader's everyday experiences and facilitates an understanding of complex real-life situations" (Grauer, 2012, p. 77). Yin (2003) espouses the view that "a case study is an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly defined" (p. 13). In this study, the phenomenon (the use of CT skills) was not distinct and apart from the context in which it was used (the classrooms of vocational instructors and the environment of the administrators and internal verifiers). There cannot be a divide between the use of CT skills and the environment in which they are to be taught.

Stake (1998) contends that a single case study is an intensive study of a single case. He further states that we do not study a case in order to understand another case – our primary purpose or "obligation" is to understand the particular case. "The immediate, if

not ultimate interest is intrinsic" (Denzin & Lincoln, 2005, p. 447). Baxter and Jack (2008) add that "an *intrinsic* study is conducted when the researcher is aware that the results will have limited transferability" (p. 550). I am aware that my findings will have limited transferability; but transferability is not my intention – my primary purpose or obligation is to study the particularities and complexities of this unique case. Like Spindler (1982), I believe "it is better to have in-depth, accurate knowledge of one setting than superficial and possibly skewed or misleading information about isolated relationships in many settings" (p. 8).

Yin (2003, p. 6) advises "that a case study design should be considered when we seek to answer 'how' and 'why' questions". This is precisely what I wanted to do – find out "how" participants conceptualize CT and "why" the development of CT skills amongst trainees of the IPRO is not being enhanced. During the research I was desirous of finding out "how" vocational instructors incorporate CT skills in their instructional practices. I also tried to find out "why" participants saw the need for students to possess CT skills and "how" these views have influenced their preparation for teaching CT skills.

A case study involves "watching people in their own territory and interacting with them in their own language, on their own terms" (Gall, Gall & Borg, 2003, p. 438). According to these authors, watching my participants "in their own territory and interacting with them in their own language, on their own terms" (p. 438) will give them "autonomy and authority to construct their story lines with the cultural metaphors, and images used in their own language" (p. 438) - a major aspect of decolonizing methodologies.

Orum, Feagin and Sjoberg (1991) state "that a principal argument for case study research is that it provides a way of studying human events and actions in their natural surroundings" (p. 7). This is exactly what I did – interact with my participants in their own environment where I could not only hear their voices (through interviews), but I was afforded the opportunity to actually observe their practices. Orum et al. (1991) contend that when the perspectives of the participants are not obtained from their

natural setting, the "flesh and bones of the everyday life world is removed from the substance itself, thereby diminishing the usefulness of the research" (p. 7).

Creswell (1998) believes "that a case study is an exploration of a bounded system or a case…over time through detailed data collection involving multiple sources of information rich in context" (p. 61). The following discussion will focus on the various data collection methods that were used in this research.

5.8   Methods

Qualitative approaches to case studies attempt to explore phenomenon and uncover meanings through the "analysis of non-numerical data that come from multiple sources of information" (O'Connor, 2002, p. 80). Baxter and Jack (2008) report that the use of multiple sources of information ensures that the phenomenon "is explored through a variety of lenses which allows for multiple facets of the phenomenon to be revealed and understood" (p. 544). They further reiterate the importance of this by stating that "a hallmark of case study research is the use of multiple data sources" (Baxter & Jack, 2008, p. 554). Dooley (2002) advises that the ability of case study research to use multiple sources and techniques is one of case studies' major strengths. Both Stake (1998) and Yin (2003) have identified several sources of data for case studies. Interviews, field notes and direct observations where documents were analyzed and physical artifacts were examined, provided the sources of data for this research.

Walsham (1995, p. 78) has stated that interviews "are arguably the primary data source where interpretive case study research is undertaken as it is through interviews that researchers can best access case participants' views and interpretations of actions and events". Open-ended and semi-structured interviews which were audio taped, proved to be particularly beneficial in this research. These semi-structured interviews, as described by Robson (2002, p. 270) consisted of pre-determined questions (an interview guide – See *Appendix 8*), in which the order and content of the questions were changed according to the context. Semi-structured interviews gave me the flexibility to allow the participants to expand on issues that were of relevance to them.

Rather than being rigid, my line of questioning was fluid, so that even though the questions were consistent, they simply guided the conversation (Rubin & Rubin, 1995). Through these interviews I was afforded the opportunity to "probe deeply into respondents' beliefs, attitudes, and inner experiences" (Gall et al., 2003, p. 222). Additionally, these interviews facilitated the development of mutual trust and easy rapport between the participants and me. This acted as a catalyst for them to "open-up" and render insightful information that may not have been easily obtained by any other data-collection method.

In an attempt to increase the probability of success in my actual interview schedule *(Appendix 8),* prior to the official commencement of data collection, I pre-tested the schedule on one participant. In this pre-test I tried to assess how realistic and user friendly the schedule was and I also tried to ascertain if amendments to the wording or ordering of questions needed to be made. I also tried to gauge whether or not my questions were causing any form of distress or unease. Since I had already informed my participants that the length of the interviews would be between 60 to 90 minutes, I also tried to pace my questioning appropriately to facilitate this time span.

In my opinion, no alterations to the interview schedule were deemed necessary: the pilot test progressed smoothly. I therefore used this piloted interview as an "official" interview where the findings were analyzed with those obtained from the other fourteen participants during data collection.

Darlington and Scott (2003) advise that any audio-recorded data must be transcribed if they are to be systematically analyzed. The data that were generated were thus transcribed. During the process of transcribing, identification of long pauses, the dynamics of words and phrases (very loud or very soft), and emotions such as laughing and sighing were noted in brackets. This is in congruence with Riessman's (1993) statement that says "something said in a whisper, after a long pause, has a different importance than the same words said loudly, without a pause" (pp. 19-20). Since it was evident that a great deal of contextual material could not be contained in the transcriptions, comprehensive field notes were taken from all the interviews that were conducted. Wellington (2000, pp. 84-85) described field notes as "valuable aids to

transcribing from tape". They provided information about the time and place of the interviews, the setting, and the participants' disposition at various stages in the interview. Having taken field notes, I would agree that field notes which accompany recordings and transcriptions "improve the accuracy and quality of data evidence" (Wellington, 2000, p. 85).

Observations are other common methods that were used for collecting data in this case study. Direct observations provided a more "complete description of phenomena than would be provided by just referring to interview statements" (Gall et al., 2003, p. 267). These observations enabled me to "formulate [my] own version of what was occurring, independent of the participants" (Gall et al., 2003, p. 267). Without these observations, I would have had to rely solely on participants' self-reported data; but as Carr and Kemmis (1986, p. 96) explain, oftentimes, "people's characterization of their actions may be at variance with what they are really doing". As has been already mentioned, only observations of three instructors could have been done during the data collecting period of this research. The cycle had ended before the other three instructors could have been observed.

The use of multiple sources of information ensured that the phenomenon was explored through a variety of lenses. Revealing several aspects of a phenomenon, rather than a one-sided account, is another aspect of a decolonizing methodology that perpetuates the accurate analysis of data.

5.9   Data Analysis

"Data analysis is the process of making sense out of the data" (Merriam, 1998, p. 178). With respect to my research, data analysis began as soon as the first pieces of data were collected. I began reviewing the data and mentally processing it for patterns that were evident or emerging. I kept the data "close to me". I constantly returned to the research questions to remind myself of what I was trying to find. Bassey (1999) views it "as an intellectual struggle with an enormous amount of raw data to produce a meaningful and trustworthy conclusion which is supported by a concise account of how it was reached" (p. 84). Miles and Huberman (1994) describe three (3) major phases of data analysis –

data reduction, data display and conclusion drawing and verification. These phases formed the bedrock on which my data analysis was built.

DATA REDUCTION

"Data reduction refers to the process of selecting, focusing, simplifying, abstracting, and transforming the data that appear in written up field notes or transcriptions" (Miles & Huberman, 1994, p. 10). This reduces the "large volumes of unassimilated and uncategorized data" (Berkowitz, 1997, 4-4) and makes them more intelligible and manageable. I commenced data reduction by immersing myself with the details of the transcripts several times in their entirety. I then read the transcripts with the audios to identify words or phrases that were stressed by my participants, and I took note of instances when there were long pauses - indicating that the response was not within the participant's immediate knowledge. I kept constantly reading and re-reading my transcripts in their entirety to comb through the raw data to determine what was significant. As Darlington and Scott (2003) contend, "listening to the tapes again, with the transcripts in hand, can be an invaluable way of getting a fuller sense of what the text is about" (p. 144) before it is broken up into parts. This aspect of data reduction involved me constantly referring to my research questions which were always used as a base or starting point.

Words, phrases, or sentences that expressed ideas relevant to my research questions were colour coded in all the transcripts. Then all alike colours from the 15 transcripts were placed in separate folders and each folder given a code name - which in my research was simply a phrase, for example "do-as-I-do", "only good with hands", "can't perform", "failed at everything", "focused on qualification" etc. Contents of each folder were then scrutinized - again and again (and again) to see which could be further combined. When this was done I tried to merge codes. Codes that shared sufficient similarities were placed into categories. For example, codes "focused on skill", and "focused on qualification" were combined and then categorised as "Commitment to Skill". For me, this categorization simply meant "placed into another folder and given a name or phrase" which encompassed 2 or more codes. Data that were ambiguous or did

not fall into any particular category, again necessitated that I revise the categorization to ensure that all data relevant to the research questions were placed into a category.

DATA DISPLAY

Data display – the second stage in Miles and Huberman's (1994) data analysis was then performed, so as to compress the information and give me a general sense of all emerging categories. Categories were combined and 4 themes emerged as follows:

1) Categories - "Commitment to Skill", "Focused on CVQ qualification" and "Lack of Knowledge of Organizational Goals" were combined and placed under the theme **DILEMMA BETWEEN POLICY and PRACTICE;**

2) Categories - "Inconsistencies with Conceptualizations", "Lack of Certainty about Value of CT", and "Limited Knowledge of Teaching and Learning Strategies for Adults" were all placed under the theme **VARIATIONS in CONCEPTUALIZATIONS AND PERCEPTIONS;**

3) Categories **–** "Low Probability of Success", "Deficient in Cognitive Ability", "Good at Manual Work" were placed under the theme **VE's LOW ESTEEM;**

4) Categories – "Difficulty in Providing Response", "Constant Repetition" and "Irrelevant Information" were placed under the theme **RESTRICTIVE RESPONSES to FACTORS that IMPACT the DEVELOPMENT of CT in VE.**

INTERPRETATIONS AND CONCLUSIONS

Miles and Huberman (1994) contend that the final stage in data analysis is the most critical phase of the analysis process. It involves interpretations, conclusions and verifications. According to Best & Kahn (1998), "interpretation involves explaining the findings, answering 'why' questions and attaching significance to particular results" (p. 258). At this stage, "final" conclusions regarding conceptualizations of CT in VE, and perceptions of factors that impact the development of CT skills in adult VE students were drawn. Following Berkowitz's (1997) advice, I began to draw conclusions by "stepping back and systematically examining and re-examining" (p. 4-13) what the analyzed data meant. I tried to avoid prematurely leaping to conclusions without giving the data proper scrutiny.

The "final" conclusions were supported by actual excerpts from the interviews. My participants were therefore the centre of my research process, since my findings were grounded in the narrations of their experiences (Birbal, 2014). Although I was cognizant of what the experts in the literature reported with respect to my research questions, I tried my utmost not to undermine or belittle my participants' knowledge - I gave them control/power over what was considered acceptable and thus reported.

5.10 Participant Selection

In an attempt to acquire the perspectives of a wide cross-section of individuals, it was my intention that all persons who hold key administerial positions at the IPRO (the Director, the 2 Regional Managers, the 2 Curriculum Specialists and 2 Training Specialists) would comprise a subset of my sample. With the exception of the Director whose time did not permit her participation in the study, these 6 persons, together with 3 Internal Verifiers from different occupational sectors and 6 Vocational Instructors whose classes were supervised by me, comprised the sample.

Rationale for Sample Selection

At the IPRO, the administrators (managers and specialists) perform the functions of leaders of the programme. They formulate policies, ensure that the policies are enacted, and they oversee the efficient and effective delivery of the programme and services. They have the authority to chart the destination of the IPRO. "By selecting which goals they choose to pursue (and which to forego) [they] have the potential to exert a tremendous influence on the direction of the [programme]" (Rosser, Johnsrud, & Heck, 2003, p. 2). Their views are therefore of significance to this research.

Additionally, Morris and Powell (2013) support the inclusion of *Managers* since they believe that managers can devise strategies that will "expeditiously counter the lingering public bias against TVET" (p. 17). *Curriculum Specialists/Writers'* perspectives have been sought since the way in which they write curricula greatly impact the manner in which they are implemented. Subran (2013), who also iterates the importance of including the latter group, contends that if these curriculum writers continuously change existing curricula and "adopt new approaches to curriculum development" (p. 83),

education and training will be more relevant to students of the 21st century. The inclusion of *Training specialists* has been justified, since, according to their job description, they are responsible for designing and conducting training programmes that will improve employees' workplace performance in accordance with organizational values. The vision statements of both the OrgX and the IPRO allude to fostering an entrepreneurial mindset in our trainees; therefore our Training specialists have a crucial part in executing sessions that are geared towards facilitation of this objective.

The internal verification process is a key feature of the quality initiative of the IPRO and it is defined as "a process by which assessment decisions and practices are sampled and evaluated, and findings are acted upon, to ensure consistency and fairness" (Home Learning College, 2012, p. 2). Internal Verifiers play a critical role in ensuring that assessments are appropriately conducted and that any possibility of malpractice is minimized. "They are responsible for ensuring the validity of internal assessments and the reliability of assessors' judgements" (Scottish Qualifications Authority, 2011, p. 3). Additionally, they are responsible for ensuring that vocational instructors adhere to established guidelines, and they assist, advise and support them (the vocational instructors) in their teaching and training deliveries. Their perceptions are seen to be crucial to this research. Since "there are specific types of critical thinking that are characteristic of different subject matter" (Willingham, 2007, p. 8) and CT may be viewed differently for persons who are from different occupational sectors, I purposefully selected internal verifiers from each of the following 3 sectors: Construction; Hospitality and Tourism; and Creative Industries. These internal verifiers interact with me on a continuous basic and are usually able to articulate their opinions clearly and concisely.

Six vocational instructors were also selected to participate because they are ideally positioned to provide insightful information with respect to the factors that may impact the development of CT in their adult students. They "are powerful role models and have the capacity to create significant intellectual and emotional connectedness between learners and knowledge" (Palmieri, 2004, p. 7). They play a pivotal role in their adult students' learning experiences and their holistic development. Additionally, vocational instructors are directly responsible for assisting the trainees in achieving the objectives

of the programme which are to produce persons who possess the relevant knowledge, skills, attitudes and competences which will enable them to gain suitable employment or to become micro entrepreneurs. These 6 vocational instructors were also purposefully selected by me because of my familiarity with them and because of their perceived ability to provide insightful information with respect to CT in VE.

These 15 participants – 6 Administrators, 3 Internal Verifiers and 6 Vocational Instructors comprise powerful groups of stakeholders whose conceptualizations and perceptions were explored and analyzed in this research. They are all responsible for ensuring that the programme's objectives of nurturing a critical mindset necessary for successful employment or entrepreneurship are achieved.

5.11 Description of Participants

Although I do recognize the importance of providing readers with clear, detailed descriptions of my participants, this section deliberately does not attempt to do so in any comprehensive manner. The IPRO at OrgX constitutes an extremely small number of persons who can be easily identified if details are provided. In an attempt to foster anonymity, the following descriptions are deliberately minimal in nature:

5.11.1 The Administrators

The administrators comprise two managers (Saro and Maddie), two training specialists (Laura and Daisy) and two curriculum specialists (Charlie and Pam) who have all been employed at the IPRO for over five years. With the exception of Charlie, they have all previously been teachers at either primary or secondary schools with two of them formerly holding the reigns of principals. They all have a passion for teaching. Two of them have received their Master's degree from foreign institutions, while the other four acquired theirs locally. One of the administrators is over the age of 60 years, while the other five administrators range in ages from 35 to 55 years. None of these administrators has either attended any profession development sessions specifically designed for CT or have they had any previous training in strategies that facilitate CT. However, with the exception of Charlie, they have all been introduced to the concept of CT while they were teachers.

5.11.2 The Internal Verifiers

Of the three internal verifiers (Ali, Sue and Chris), Sue and Chris are the newcomers – they have worked in the programme for under two years. Two of them possess Doctoral degrees – one of which is in the field of Education. This IV formerly worked in the secondary school system. Two of the IVs are over the age of 60 years, while the other is considerably younger. One holds the unique position of being both an IV and an instructor at the programme. None of them has attended any profession development sessions specifically targeted to CT or have had any previous training in strategies that facilitate CT. However, having worked in the education system for a number of years, one of the IVs is aware of CT and strategies that facilitate its development, and is also comfortable with the use of CT related terms.

5.11.3 The Vocational Instructors

The six instructors (Lynn, Morris, Sally, Moka, Shari, and Kay) are all professionals and are considered to be amongst the best in their chosen fields in our country. One holds a Doctoral degree while the others hold first degrees and diplomas (applicable to their skill areas) from recognized worldwide institutions. They have all been practicing their skills for over 20 years and conduct their lucrative private businesses outside the realms of the IPRO. With the exception of Moka, they do not have former "official" teaching experiences, but throughout the years, they have all conducted small training sessions in their private businesses. They all range in ages from approximately 40 years to 60 years. Again, with the exception of Moka, none of these instructors has attended any profession development sessions (other than those provided by the IPRO and those that are related to their specific skills) or have had any previous training in strategies that facilitate CT.

5.12 Summary

It was the intent of this chapter to: 1) justify the methodological approach that was taken to conduct this particular research project; and 2) analyze the ways in which the selected approach embraced a decolonizing agenda. I began my discourse by discussing "decolonizing methodologies" - methodologies that illuminate the interests, experiences

and knowledge of my participants. Prior to an analysis of my ontological, epistemological and axiological assumptions, I explained my positionality from three (3) differing lenses – *the personal, the professional and the political,* since my positionality as a researcher had the potential to influence my entire research design. I also wanted the emphasis of my research to be on my participants' voices and the interpretations of their experiences; I therefore selected the interpretative, Qualitative Research paradigm, and further justifications for selecting this paradigm were presented. Arguments for using a case study research which studies "human events and actions in their natural surroundings" (Orum et al., 1991, p. 7) were then forwarded.

Having done this, I outlined the methods that provided the opportunity for me to access my "participants' views and the interpretations of their actions and events" (Walsham, p. 78). These methods also afforded me the opportunity to "probe deeply into my respondents' beliefs, attitudes, and inner experiences" (Gall et al., 2007, p. 228). The methods were congruent with my philosophical assumptions which reiterated the fact that multiple realities that are socially constructed, do indeed, provide valuable and worthwhile data, and participants come to know things through their mere consciousness. Justifications for using Miles and Huberman's three (3) major phases of data analysis were then presented and this was followed by a rationale for my participant selection. A brief description of my participants was also provided.

Chapter 6 will serve to synthesize and illuminate the findings that were generated from my data. It will also provide a detailed analysis and discussion of themes that also emerged from my data.

CHAPTER 6: FINDINGS, ANALYSIS AND DISCUSSION

6.1 Overview

Chapter 6 represents the most significant part of my thesis, for it provides me with the opportunity to give "voice" to my participants: it enables me to demonstrate my decolonizing agenda. The chapter proceeds with a summary of the findings that emerged from the data. It presents this summary along the lines of the research and sub-research questions. Four significant themes that pervaded the data also emerged, and the simultaneous analysis and discussion of these themes with supporting data from my participants will then be presented. The critical examination of these themes revealed the specific responses to my research questions and these will be presented in the final section of the chapter.

6.2   Findings

6.2.1   Research Question 1

Research question 1 sought to ascertain participants' conceptualizations of critical thinking in VE. It is alarming to note that many participants encountered challenges in articulating their conceptualizations. Similarly, they experienced difficulties in providing synonyms for CT in VE. These participants spoke about matters that were unrelated to the question posed, and attempts at steering the discussions back to its original focus proved lengthy and sometimes futile. However, seven participants were, in fact, able to converse and provide coherent responses, and five of these will be presented.

Pam sees CT in VE as enabling an individual to anticipate what will occur in the future, based on past experiences. She says that this is done so that the necessary measures can be taken to accentuate the positive outcomes and minimize or eliminate the negative outcomes. Saro believes that CT in VE involves constant assessment and evaluation so that informed decisions can be made. She also alludes to the fact that CT in VE should be an outcome based activity with clearly defined goals and activities leading to outcomes.

Kay uses words that are somewhat similar to proactivity and evaluation: for her CT in VE is all about the inference of something that is unknown, based on something that *is* known. With some assistance, Shari was able to equate CT in VE to problem solving. She was also able to expand her thinking to encompass problems of a broader scope.

Maddie questions why things are done the way they are, and considers the consequences of doing these things in other ways. She says that by constantly challenging and questioning things, the potential for the creation and discovery of new products is enhanced.

Although many of my participants were unable to comprehensively articulate their conceptualizations of CT in VE, the terms that were used by the five participants above, do in fact coincide with definitions of CT in the academics. This demonstrates similarities in conceptualizations of CT in VE, and CT in the academics.

6.2.2 Research Question 2

Research Question 2 sought to ascertain participants' perceptions of the factors that impact the development of CT in VE. The limited number of factors voluntarily supplied by my participants unequivocally demonstrates the extent of their restrictive responses to this question.

My participants' responses revealed four major factors impacting the development of CT in VE. The most frequently listed factor was socio-economic status (SES). Daisy and Saro reported that the extent of the impact of socio-economic status on CT depends on the existence of other conditions. Daisy also believes that encouragement and belief from significant others impact the development of CT. Pam believes that students from low socio-economic backgrounds are forced to practice CT - their survival depends on it. Pam's view is that socio-economic factors can either aid or hinder the development of CT.

Ali and Maddie, although concurring with the fact that SES affects CT, bring completely different perspectives. According to Ali, desperation stifles the growth of CT in persons from low SES, while Maddie says that the rate of economic gains impacts one's CT development. She explains:

Persons from a higher economic background will have more time to research… more time to spend on experimenting, more resources to experiment with. These things will develop their CT skills more than the person from a low background who is just trying to get the money fast. (Maddie)

Seven of my participants believe that Educational Attainment can affect CT in VE. Pam believes that there is a positive correlation between educational attainment and CT – the more education a person possesses, the greater the potential for that person to be a critical thinker. While acknowledging the importance or educational attainment, Ali thinks that it is the quality of the education obtained at the institution that is of importance.

Morris and Moka view a person's level of reading as being a significant factor: As Moka says, "*Reading is what develops the mind and the more you read is the more you start to question things"*. Other factors - culture and religion have been listed by Sally, Chris and Saro: As Chris posits, "*Limits placed by culture and religion can prevent the development of CT"*. Attitudes have been listed as major factors affecting the development of CT in VE by Pam, Lyn and Laura.

The above paragraphs summarised the major factors (socio-economic status, educational attainment and level of reading, culture and religion, and attitudes) that were perceived to impact the development of CT skills in the trainees at the IPRO.

6.2.3   Sub-research Question 1

This question sought to ascertain participants' perceptions of the importance of CT skills in VE to life in the 21st Century. Participants' responses were varied – it was noted that no two participants provided similar responses.

Daisy speaks about CT being important for making choices. She says that possessing CT skills and being able to use these skills appropriately in the context of modern life to solve novel problems, is critical to our survival. She also says that if we are to survive in the 21st century, we need to make the appropriate choices by using our CT skills wisely. For Ali, CT skills in VE are important, since specific facts and knowledge learnt today cannot be applied to the dynamic issues of the future. He notes that oftentimes,

individuals are perplexed since they are required to repudiate their past in an attempt to accept what is considered the norm today. He says that CT will "set you free".

Kay says that CT is needed because of global competition. She says, *"Global competition is forcing us to change the way we produce items. Pressures to keep up with foreign competitors are also forcing us to rethink our strategies; CT skills are therefore undeniably important, now, more than ever."* For Laura, CT skills are important if we are to proceed with a Flexible and Blended approach to learning.

Moka and Chris bring differing perspectives. Moka says that CT skills are necessary as a life skill, but he does not think that these skills enhance or impact the development of students pursuing Levels 1 & 2 CVQ/TTNVQ courses in any significant manner. Chris' perspective is that CT skills can act as a bridging mechanism for persons who do not possess academic qualifications.

Responses made by Moka and Chris are quite useful since they deviate from the norm. They both provide platforms from which subsequent research may be conducted.

6.2.4 Sub-research Question 2

"How effective are current instructional strategies (teaching styles/methods) in facilitating the development of critical thinking?" This was the Question asked in sub-research question 2. Nine of my participants think that our current instructional strategies are not effective in fostering the development of CT in our adult VE students. They have provided several reasons for this.

Daisy says that our teachers do not have a tradition of encouraging CT, but admits that within recent years, this tradition is being changed. In Laura's opinion, current instructional strategies are not effective in facilitating CT because, *"our instructors simply don't know how to teach adults for CT"*. Chris has a similar point of view. He says that instructors themselves do not know what constitutes CT skills; if teachers have to teach students to think critically, they themselves need to know what constitutes CT. Charlie, Lyn and Moka are all of the opinion that CT is not the focus of the IPRO, hence the reason that our instructional strategies do not foster the development of CT in our

students: as Lyn says, *"CT is just not our focus! It never has been. We just ensure that trainees get their CVQ."*

Kay and Pam are two participants who agree that our instructional strategies are effective in facilitating CT in VE. They say that our instructors constantly engage in repetitions, discussions, constructive criticisms and feedback, and they pose many thought provoking questions to their students.

6.2.5   Sub-research Question 3

It was the intent of this sub-research question to find out what are the roles and responsibilities of my participants in enhancing the development of CT in their adult VE students. Most of my participants are committed to ensuring that their students acquire the relevant knowledge, skills, attitudes and competences for their particular skills, but there is some ambiguity with respect to their role in fostering: 1) students' acquisition and development of CT skills; and 2) their development of an entrepreneurial mind-set in trainees. Nevertheless when asked, many of my participants were able to explain how they foster students' CT skills and 3 of them spoke about developing CT skills that can lead to an entrepreneurial mind-set.

Daisy works in collaboration with her instructors. She provides assistance and guidance, and nurtures them whenever it is deemed necessary. She sees it as her responsibility to ensure that CT skills are incorporated in instructors' practices. In her opinion, these skills will help trainees in the advancement of their skill.

Charlie coaches and guides her instructors. Being aware of Bloom's taxonomy for developing higher-order thinking skills, Charlie sees it as her primary responsibility to factor these objectives into the curricula that she writes. She also assists in training the instructors on the various strategies for incorporating CT and she offers advice when she visits their classes to perform her clinical supervision duties.

Saro, an administrator, sees her responsibility in developing trainees' CT skills as indirect. Although she says that she can assist in professional development sessions with the instructors and she can meet the trainees in clusters where she could share CT

strategies with them, in her opinion, fostering the development of CT skills in our trainees is the primary responsibility of the curriculum and training specialists

Laura, Maddie and Sue are the only participants who try to develop CT skills in students with the intent of advancing their entrepreneurial skills. Laura is fully aware of her dual role of enabling trainees to acquire their skill, and her role in assisting instructors to formulate strategies that would facilitate the development of an entrepreneurial mind-set in our trainees. Laura knows that her instructors are oftentimes unconsciously aware of these strategies - her task is to enable them to articulate and develop these strategies in their trainees.

The development of creativity is Maddie's driving force. She understands the significance of creativity in VE. She explains that it is creativity that is marketable, so her role is to facilitate the development of CT and other relevant skills that are essential for fostering creativity - ultimately leading to marketability and thus entrepreneurship.

Sue, the final participant to be interviewed, proved to be quite knowledgeable and insightful with respect to the goals of our programme and the direction in which trainees should be propelled.

6.2.6   Sub-research Question 4

This sub-question asked, "What changes (if any) can be made to the design of the IPRO to ensure that subsequent trainees are afforded ample opportunities to further develop their CT skills?"

Hereunder are some of the recommendations made by my participants:

Daisy says that a specialist should be paired with an instructor. The specialist would help the instructor to incorporate CT strategies throughout his/her sessions. Charlie speaks about being futuristic – organizing projects that call for the extensive use of CT skills. She suggests that we organize competitions that require students to produce novel items with familiar raw materials. Morris says that we could introduce a CT module in all curricula – he says, "*Although CT skills cannot be taught, they can be developed*".

Moka suggests that we increase the length of some courses to give instructors more time to focus on trainees' development of CT skills.

In Lyn's opinion, we should organize professional development sessions that specifically deal with strategies for developing CT, while Pam suggests that we utilize some of the in-house training sessions to sensitize instructors to the importance of developing theirs and their students' CT skills. In order to hold instructors more accountable for their students' development of CT skills, Sue recommends that we administer a pre-test and post-test to students.

The above paragraphs provided a summarised, factual account of my participants' responses without any attempt at analytical elaboration. As was previously stated, four significant themes pervaded the data and the simultaneous analysis and discussion of these themes with supporting data from my participants will now be presented.

6.3   Analysis and Discussion along Themes

6.3.1   Theme One - Dilemma between Policy and Practice

Alan McCluskey (2007) posits that a policy is a "statement of the practice required of actors by policy-makers, while practice is the organised behaviour of the actors of a given system". Since policy is meant to dictate practice, and practice resides in human experiences which are varied, there oftentimes arises a dilemma between policy and practice. The following discussion attempts to illuminate how this dilemma originates and manifests itself at the IPRO in OrgX.

The goal of OrgX which is widely acknowledged as our policy statement, is to be an innovator in providing internationally benchmarked TVET "to build human capacity that facilitates improved productivity and entrepreneurial opportunities for a competitive economy" (YTEPP, 2015). Since the IPRO is subsumed under OrgX, its policy statement is similar - "to produce a competent and skilled labour force equipped to compete effectively on the local market". It also has the development of entrepreneurship as a significant feature; therefore, in addition to offering training in vocational skills geared towards "a competent and skilled labour force", it is the intent of the programme to foster the development of CT, because according to Alain Fayolle,

(Prof. in Entrepreneurship – Lyon, France), CT skills are essential to becoming a successful entrepreneur and to developing an entrepreneurial mind-set in which innovation, new value creation and the ability to calculate risks are inherent.

The data generated from this research alludes to the fact that the majority of my participants, who are supposed to ensure that the programme's policies are practised and implemented, view their roles and responsibilities as exclusively geared towards facilitating the development of skill competences in our trainees, to the detriment of the development of their entrepreneurial skills. According to my participants, the hallmark of success for our VET programme is trainees' acquisition of the knowledge, skills, attitudes and competences of their particular skill; resultantly, their roles and responsibilities reflect the same. While this is indeed *one* of the goals of the programme, it is not *the only* goal. In addition to this, the programme's thrust is that of entrepreneurship, and the enhancement of this additional goal seems to be neglected by most participants.

The views of some of my participants with respect to their roles and responsibilities are presented hereunder. It will be noticed that absolutely no mention is made of the word "entrepreneurship" by these participants and I specifically did not include it. It was my intention to discover if participants do, in fact, view entrepreneurship as important.

Daisy says:

> *I work along the lines with instructors… observing them in their instruction…observing them in their teaching… and asking them or encouraging them to incorporate CT in their training towards the skill. My role is to ensure that instructors use CT strategies. You see… these will help the trainees learn their skill more easily and they will get their full CVQ. … CT skills are those higher order skills. Those thinking skills. So trainees will think more critically in every stage of whatever they're doing, and this will ensure that the end product is what we want.* (Daisy)

According to Charlie, her responsibility is:

> *… to write Bloom's taxonomy and higher order things into the curriculum… first and foremost. You want trainees to develop CT because it will help them perform better in their skill. They will know why they are doing certain things. They will know what NOT to do. So I would look for CT strategies in lesson plans and*

> *objectives. If they aren't there, I'd offer different strategies to instructors.* (Charlie)

Saro says,

> *The responsibility of developing CT skills in our trainees lies directly on the shoulders of the training specialists and curriculum specialists… CT is definitely important for our trainees – they need it to perform better at their skills, but since I do not interact with these trainees, it's not really my responsibility.* (Saro)

The misconception reflected in Saro's last sentence, is probably one of the reasons why CT towards skills training *and* entrepreneurship is not fostered by many participants. Managers, like Saro, can influence what activities are pursued. They have a direct role to play in advancing the company's goals which, in our scenario, are geared towards skills training *and* entrepreneurship. It is therefore Saro's direct responsibility to ensure that CT for successful skills training *and* entrepreneurship is propelled. As Saro correctly reports, managers do not have the opportunity to interact with trainees in any significant manner, but they can certainly influence what happens to them by guiding and monitoring the specialists and instructors who constantly interact with the trainees.

No mention was made by any of the above participants to the acquisition of CT towards the development of entrepreneurship. It appears that my participants view the successful completion of a particular skill as the ultimate goal of the programme. No mention was made of trainees acquiring CT skills as a means of seeking opportunities for self enhancement - of liberating, emancipating and widening their scope. There is no evidence that trainees are encouraged to use their CT skills to transform their future prospects: to use their newly honed skills to further enhance their standard of living by opening their own small businesses; they are not encouraged to change their outlook on life – to aspire for greater heights. Training is one tracked – trainees are only encouraged to see the development of CT as a means towards the successful completion of the skill. Trainees are not encouraged to use their CT skills to transcend the boundaries of their physical and empirical realities; their habitus is thus maintained and society is reproduced. The dependency syndrome persists.

In my opinion, viewing students' successful acquisition of a particular skill as the ultimate goal of our programme, can be tied to "doctrines of economic growth" (Ramsaroop, 2001, p. 68), where our students are transformed "into commodities for

consumption on the labour market" (Eliot, 1992, p. 144). The education provided to our trainees is thus relegated to a mere supplementary component of business and industry. Referring to Nussbaum's (2010) book and Ball's (2010) journal article, Tan (2014) says that education "is no longer conceived as an integrated strategy to promote freedom, self-enrichment, and human development but rather, as a business activity driven by profit or a commodity in the market" (p. 429). The "broader aims and purposes of education are submerged, and our trainees are reduced merely to 'human capital' – not as lives to be lived, but as mere economic potential to be exploited" (Gillies, 2011, p. 225). Resultantly, "the curriculum will consist of objects to be possessed in the form of facts and skills rather than objects of thought" (Eliot, 1992, p. 144). Freire's banking concept of education will thus be maintained. Concurring with Brown (2001), I believe that this "reductivist" tendency to view our trainees as mere "bundles of technical skills" (p. 13) is lamentable.

This type of education is not geared towards promoting students' self-development, their freedom, or their self-enrichment. It appears to be somewhat like a business activity driven by profit maximization. Our trainees seem to be valued because of their economic potential. When the ultimate goal of our programme is conceptualized as this narrow, limited version of the Human Capital Theory, the development of trainees' CT skills and "attitudes such as reliability, honesty, self-reliance and individual responsibility" (Becker, 2002, p. 6) needed for an entrepreneurial mind-set are forfeited.

Of the fifteen participants interviewed, only three made mention of their role in enhancing the entrepreneurial development of our trainees. One was Laura who says:

> *Remember we're not just training these trainees to be either CVQ Level 1 or Level 2 workers; we are training them to become self-employed entrepreneurs… so my role is to help the TPs develop their students' entrepreneurial skills. The instructors know these skills because they are business people, but I have to help them develop it in their trainees.* (Laura)

Maddie is also aware of the function of CT in facilitating entrepreneurship. She says:

> *My role is to help trainees develop their creativity through the skill… Creativity is what is marketable. So I can see a trainee having a successful business because of their creativity which came about because of the CT, the problem-solving, the analytic thinking and all the other skills that they have developed through their skill.* (Maddie)

Sue envisions the full spectrum of possibilities that could be entertained through the development of CT. Additionally, she wants her trainees to develop a critical imagination – a critical consciousness. The imagination of which Sue speaks is not that of simply "daydreaming": it is "an imagination that is inspirational, creative, innovative and problem-solving in nature" (Maxcy, 1991, p.112). Similar to Freire (1974a) who coined the term "critical consciousness", Sue wants our trainees to become more aware of contemporary issues and act against those which are found to be oppressive. For Sue, it is only through the development of a critical imagination that trainees can have the freedom and authenticity to change their situation from being the oppressed in society. Sue wants our trainees to use their CT skills to rise beyond the boundaries of their expectations; to think the unthinkable and to imagine the unimaginable – to be transformed. She says:

> *So they can do their skill well. The question is how can I help the trainee to use this skill in their community… how can they develop society using what they have? We want these students to be able to sustain themselves afterwards, to become entrepreneurs. So it has to do with moving their thinking… their CT. We want to give them an imagination. It's all about imagination … that freedom to think about what they can do with what they learn in the classroom, and that is the social transformation that we want. (Sue)*

Social transformation is of great significance to us at the IPRO. Many of our trainees have no vision of the heights that can be achieved by taking their skill to another level; it therefore implies that our responsibility is to transform their thinking - to empower them. Empowerment can serve as a mechanism for effecting deep and broad-based transformation. This transformation can be greatly facilitated by us at the IPRO. We, the educators at the IPRO, therefore need to encourage our trainees to move from their present (less desirable) state, to an aspired (more desirable) state.

The IPRO's goals are ultimately geared towards the transformation of our trainees – a change in their mind-set; "stretching or pushing them beyond the boundaries within which they normally think and feel" (Midida, Gakure, & Orwa, 2013, p. 7); enabling them to see the world through a new lens of knowledge; mobilizing them towards a future never before envisioned. Cassel and Congleton (1993) recommend that instruction should, "encourage exposure, recognition, and acceptance of multiple viewpoints by individuals and encourage providing opportunities for individuals to use

critical thinking" (p. viii). From the interpretation of my participants' responses, many of them view their goals as simply enabling trainees to achieve competence in their skill, and while this may improve their chances of success by securing employment, it nevertheless, represents a limited conceptualization of the organization's goals and what is implemented in the classrooms. This mismatch reflects a dilemma between our programme's policy and the practices that are implemented.

The critical analyses of the quotations presented above, highlight the dissonance between our programme's policies and the practices that abound in our classrooms. Whilst performing these analyses, discussions on various theories and perspectives contained in former chapters of this document were engaged. These discussions allude to the fact that several forces, sometimes competing, sometimes working in harmony, are acting upon the systems that encompass the policies, the policy makers and those entrusted with the responsibility of implementing these policies – in this case, the administrators, IVs and instructors of the IPRO.

6.3.2   Theme Two - VE's Low Esteem

Another theme that emerged from my analyses of data was VE's low esteem. Of the fifteen participants interviewed, nine alluded to VE's low esteem, four made no comments regarding their perceptions of VE and two had other points of view. Although these sentiments were not explicitly stated, they were undeniably conveyed through the responses made by my participants.

Shari simply instructs her trainees because she believes this is what the standards dictate. She says that the policy-makers do not think CT in VE is of significance; it is therefore not factored into the standards. She also explains that this kind of teaching – actually instructing, is what "these" trainees want and expect. She says:

> *Trainees are at the basic level where you are being told what to do, like do this and do that, add this to that, we're being instructed to a specific task, that is robot like. And this is what these kind of trainees want. That is what they expect you to do. They're not into this problem-solving and CT and analysing and… and…all these things. You are just carrying out instructions - that is not CT. But this is how they learn… by doing what they are told to do. But, CT isn't really specifically stated in the standards, it means that whoever wrote the standards didn't think it was important for these trainees. You need to remember that, well… it's not that*

> *they can't think for themselves… but at this level, and for these trainees, you basically just have to tell them what to do – they can't think for themselves. Well most times they can't …!* (Shari)

Shari's comment is similar to a comment made by another participant who also instructs his trainees – Moka, who had said in his interview that, "*teaching these trainees CT skills is like throwing water on ducks' backs",* indicating that for him, it was futile to attempt any other teaching style with "these" trainees. For Shari and Moka, the ends (acquiring the CVQ) justify the means (ordering and instructing trainees). Although Shari herself finds that this kind of teaching – instructing, is 'robotic', she acts in good faith, and does what she thinks is required of her in the standards.

Moka, Shari and other instructors who think that their primary mission is to get trainees to "pass" their CVQ examinations, are clearly demonstrating what was referred to in the Theoretical perspectives as the credentialist perspective. This theory states that the possession of "that piece of paper" – that certificate which demonstrates competence, is what counts in the world of work. Therefore, the way in which specific content is obtained is irrelevant – as long as formal credentials can be acquired. This issue of credentials is not singular to vocational education, it transcends to the academics as well. Indeed our former minister, Minister Fazal Karim, always spoke about education versus certification and lamented the fact that many employers prefer the latter rather than the former.

Kay's perspectives are somewhat different. In my opinion, she sees her trainees as being helpless – they really cannot do anything else. She says:

> *Quite frankly, some of these trainees don't really want to learn anything, but because they have nothing else to do, and some really can't do anything else, they come here…So, so I teach them to (…) as fast as possible and when we're finished, then I teach them the frills – like CT and the generic skills. These people here? Huh! They're not really here to learn anything. You know? They're just really here only to bide the time until something better comes along.* (Kay)

Kay and many other persons at the IPRO see their trainees as attending classes only on a temporary basis - as soon as the opportunity presents itself, they will leave the class; but that is the reality of the situation we face at the IPRO. As soon as a job becomes available, trainees leave our classes because they cannot comprehend the long term

effects of mastering their skill. Instructors therefore tend to teach the practical aspects of the skill as fast as time permits. However, when learning is engaged in, as a temporary measure, it becomes tangential and superficial, and teaching and assessment approaches often encourage a surface approach. Higher order thinking such as CT and problem solving techniques cannot be addressed in any great measure because teachers are emphasizing coverage at the expense of depth, and they are not bringing out the intrinsic structure of topics (Biggs &Tang, 2011).

In my opinion, by constantly referring to "these" trainees, the tone used in the conversations above, allude to the low esteem placed on trainees pursuing VE qualifications, and the genesis of VE's low esteem has been explained in the Literature Review. In spite of the fact that VE and involvement with practical, authentic, real-world performances " have the potential for broadening and enriching experiences that can stimulate intellectual development and overall efficiency" (Cornford, 1998, p. 179), VE "continues to suffer from low status and negative societal sentiments" ((Billett, 2014, p. 2), and this has been clearly proven by the quotations discussed above.

Conceptualizing and regarding VE as being low-standing reflects a colonial mentality. When our island was a colony, it was thought that our colonizers had the intellectual capacity to envision and effectuate change, while our forefathers - the slaves who worked on the plantations possessed the manual labour to put the colonizers' policies into practice. Occupations that required the extensive use of cognitive skills were thought to be superior to occupations that were manual. Even today, several years after we have become an independent nation, various colonial and hegemonic practices persist, especially in VE where in many instances, students have been marginalized by the silencing of their lived experiences and where power and domination are often imposed by those who administer and instruct them. It is for this specific reason that trainees need to develop their CT skills to challenge instances of oppression, control and power.

In spite of the fact that my participants all work in a VE environment and some have themselves been vocational students, they still view VE as a sign of academic failure

and only appropriate for dull minds. They make inferences about their trainees' future performances simply because they are engaged in VE.

One such inference was made by Lynn:

> *The mandate of the IPRO is to take people who are underprivileged, people who have fallen through the cracks of our educational system, people who have basically failed at everything. So those trainees that we have, I cannot really see them excelling in anything! Of course, there are the few odd ones who surprise you. But really… some of our trainees really cannot think critically, because they …. How should I say this… they…They just can't!* (Lynn)

Like Shari, Lynn seems to be acting in good faith. She does not "blame" the trainees for not having acquired a secondary education: she simply states that these trainees are our mandate. However, like Ali, Lynn is saying that because our trainees have not acquired academic subjects at Secondary schools, they have failed at everything; she therefore makes an inference that they will not excel in any future endeavours. This is a common misconception at the IPRO. Many members of staff hold this belief; however, they seem to be unaware that becoming a critical thinker is a developmental process and that the level of CT displayed, depends on the manner in which trainees were encouraged to use their CT skills when they were constructing knowledge at the different stages of their development. These participants seem not to be aware of their part in developing their trainees into critical thinkers.

Another similar inference was made by Morris:

> *You see… they know that paying to attend a course would be a waste of time. They know… well....they're almost sure… they think… that they would fail. That is why they come to us, so when they fail, they don't really lose any money.* (Morris)

In Morris' statement, the use of the word "when" predicts that, in his opinion, trainees' future endeavours will be unsuccessful. Like the other participants quoted above, he has made inferences simply based on the fact that his trainees are currently engaged in VE.

The positive correlation between teachers' expectation and students' academic achievement has been discussed in Chapter 4 under the Self-fulfilling Prophecy/Pygmalion theory. Rubie-Davies (2010) explains that when teachers believe their students are high achievers, these teachers "interact with their students in ways

which promote their academic development" (p. 121). Conversely, when teachers believe their students are low achievers (as was demonstrated in the above excerpts) they provide limited instructions that do not require higher-order thinking skills. However, having been a teacher for a number of years, I can attest to the fact that if given the opportunity, disadvantaged students or those thought to be low-achievers, can indeed handle the rigours of a curriculum that is intended to facilitate the development of CT.

The Literature review mentioned that teachers' expectations seem to have a minimal effect as students become more autonomous and confident in their own efforts. However, this is hardly likely to occur with our trainees, since minimal avenues for the development of their autonomy are afforded by their instructors.

Sue, one participant who does not view VE as low standing and of limited worth, illuminates another perspective. She says:

> *We think that children who come to school with low socio-economic background, that they are deficit. When it is we who are deficit and we don't know what to do with them. I does say "he dee day, he dee day dong day" (he was there, he had been down there) - you find out what to do with me! You find out how to reach me! But no!! It's the other way around. We the teachers are deficit and we don't know that. They are our capital… that is what we get … We must never feel that because they come from low socio-economic backgrounds they are not learning because of that! They are not deficit. That's their natural, organic self - coming to us, so what can we do to teach them?* (Sue)

What Sue is implying is that instructors need to find appropriate ways of using trainees' knowledge to further the development of their skill. They need to be flexible in their instructional strategies so as to facilitate the various learning styles that their trainees possess - they need to employ differentiated teaching styles as reported in the Literature review. They need to see themselves as the change agents responsible for inculcating critical and higher order thinking skills that will enable their trainees to rise above and overcome their present situations. However, as Billet (2013, p. 193) questions in the Literature Review, how effective will instructors be as change agents if "their commitment to these changes is unclear, ambiguous and their sense of capacity to bring about change in their own and others practice is quite limited?"

What is suggested here, is that instructors need to transform *their* way of thinking before they can effect transformation in their trainees; however, they will only progress towards transformation if the following three conditions are satisfied:1) they need to understand that their present actions are not resulting in their trainees' acquisition of the CT skills necessary to propel our organization's goal of entrepreneurship; they also need to be mindful of the repercussions of this on their trainees' futures, their own future employment at the IPRO, and the sustainability of our programme; 2) they can visualize a more desirable state where trainees possess the relevant CT skills and the practical competences needed to secure employment as either employees or employers; and 3) they believe that their present actions do have the power to propel the attainment of these desirable states. This more desirable state would be made clearer if instructors are reminded of the benefits of engaging in VE, as discussed in the Literature Review.

Another important issue arising from Sue's above comment is that of Constructivism. What her comment is implying, is that instructors need to use whatever previous experiences their trainees possess – their heritage knowledge, indigenous knowledge and their everyday lived experiences towards the furtherance of future learning. Sue's additional comments below reveal that some instructors completely ignore their trainees' past experiences or view these experiences of minimal worth. Some may also think that their trainees have NO previous knowledge – that they are blank slates – 'tabula rasa'.

> *When students come to the classrooms, they leave all their experiences in a bag at the back of the classroom, and then you come in to have this falsification of what we call learning – we put all their experiences and we leave it by the classroom door and the students do their false way of learning and schooling, not education, and then we send them out.* (Sue)

In addition to saying that some instructors ignore their students' past experiences, Sue's powerful comment above, talks about the "falsification of learning". Falsification of learning occurs when learning takes place for a specific purpose and not for the sake of learning in itself. So for instance, our trainees come to our programmes for a number of purposes: some may attend classes to avoid boredom; some attend classes to socialise with their peers; some attend classes just because they want to get "some free time" and be away from their family members who are oftentimes abusive; some attend because

they were sent to "do something useful with their lives"; and some attend classes for the stipends. Very few trainees come to learn the skill in itself, and this is what is referred to as the falsification of learning.

Stevenson (2003) contends that rather than viewing learners as empty vessels into which knowledge is poured - Freire's "banking concept of education" which follows the transmission model of education, constructivism emphasizes the way in which learners construct meaning. Since the meanings that trainees construct have such a profound effect on their behaviours, it is imperative that instructors ensure meaningful construction of knowledge. Rather than viewing trainees as "self-regulated, meaning-making", autonomous learners, educators who prefer to disregard the advantages of employing constructivism techniques, are viewing trainees are "behaviour machines" (Doolittle & Camp, 1999), and are thus engaging trainees in a false way of learning and schooling.

One of the characteristics of adult learners, as explained by Knowles (1980) is that they have an abundance of life and work experiences and these form the basis of their learning activities and future success – in other words, these life experiences become the media through which new information is learned. Being mindful of this, instead of ignoring trainees' past experiences, instructors of the IPRO should encourage their adult trainees to connect these experiences with current activities.

Through the critical analysis of this theme – "VE's Low Esteem" and the purposeful examination of my participants' responses, many theories explained in both the Theoretical Perspectives and the Literature Review were found to be applicable. Although VE's long-standing, low societal esteem has been socially entrenched, and its minimization would require an extraordinary level of commitment on the part of my participants, there exists a ray of hope. If participants recognize the numerous individual and societal benefits to be realized from engaging in VE, and if they understand the severe repercussions of not engaging their trainees in meaningful learning through VE, VE's low societal esteem would be greatly attenuated.

6.3.3   Theme Three - Variations in Conceptualizations and Perceptions

Another theme that resounds throughout my research is that of variations in conceptualizations and perceptions. While there are uncertainties about what constitutes CT in VE, my research has revealed that there are also variations in the perceived benefits to be derived from engaging in CT in VE in the 21st Century, and variations in my participants' understanding of Andragogical theories and practices. In an attempt to coherently present the critical analyses of these findings, my discourse will proceed along the headings of: *a) Variations in Conceptualizations of CT in VE; b) Variations in Perceptions of the Importance of CT in VE in the 21st Century;* and *c) Variations in the Understanding of Andragogical Theories and Practices.* Presenting my findings in this sequential manner, will ensure that coherence is maintained for the reader.

Variations in Conceptualizations of CT in VE

Many participants were unable to articulate their conceptualizations of CT in VE. However, the few participants who were able to do so, provided variations. Though heterogeneous, these variations in conceptualizations of CT in VE were united in their advocacy for the betterment of our trainees; therefore semblances of similarities may be detected from the underlying meanings conveyed through their voices.

Pam says:

> *I think that CT is being pro-active. You are like … like… sort of reflecting on your past to anticipate future events. It's like stepping into the future, by acknowledging the mistakes of the past. I think that CT is being pro-active – taking actions before disasters occur.* (Pam)

For Saro, CT is similar to evaluation. She says that evaluation critically collects and analyses information in an attempt to make informed decisions and judgments about a situation or an activity so as to improve its effectiveness. Additionally, she says that it assists in identifying areas for improvement and can ultimately help in realizing goals more efficiently.

For Kay, CT in VE is all about extrapolation which is the use of projection, extension and expansion of something that is known or experienced, to form an opinion or a hypothesis about an area not previously known or experienced. Kay says:

> *I may have taught you to pickle cucumbers, but when I am finished, you should be able to extrapolate and pickle anything. So if I teach you to pickle cucumbers today, you should be able to pickle carrots tomorrow.* (Kay)

In my opinion, what Kay calls extrapolation, is what is termed "the transfer of learning" – the application of knowledge learned in one situation to another situation. The ability to transfer learning, as explained in the Literature review, depends on several factors, one of which is the uncertainty of knowing when it is appropriate and relevant to apply a previously learned strategy. This is a perennial problem for trainees of our programme and is therefore of significance. Our trainees seem unable to apply strategies previously learned in one situation, to another similar situation that facilitates the near transfer of learning. It is possible then, that our instructors are not following the principles under which the transfer of learning is easily facilitated. They need to understand that our trainees must have considerable practice in the task with numerous task variations. This helps trainees to use their skills in new situations, thus solidifying the concept of transfer. It enables trainees to develop a deeper understanding of the task so that they can readily, and without undue difficulty, apply it to another situation or context.

Maddie applies a postcolonial stance to CT in VE. She sees CT in VE as the dismantling of the taken-for-granted notions and practices that have been inherited from our colonial forefathers or from Western forms of knowledge. For Maddie:

> *It's more about thinking about what I'm thinking about, and putting it through a rigorous process to question why are we doing it this way. It is exploring the many avenues to create the same product differently.* (Maddie)

Shari did not say much, but her equating CT to problem-solving was undeniable. With some guidance, she was able to make a meaningful contribution. She says:

> *CT is… it's about…it involves a bit of thinking and understanding and strategizing. It's more like problem solving and playing 'what if' and troubleshooting with different problems and that kind of thing. So yes! So you solving problems in the class and then you can solve other problems.* (Shari)

> *Like…?* (Researcher)

> --------. (Shari)

> *Like what other problems can you solve…?* (Researcher)

> *(Pause) … Ummm …* (Shari)

Ok! So the trainees can solve all the problems related to (---) by using CT skills. Can you say how they can use these same CT techniques learned in this class to solve problems in other areas of life? Like in the classroom... like in their community... in society...in family life? (Researcher)

(Pause) … Well… well… we need money to go to the field trip. So they could send a flyer to the IPRO – they learned how to create flyers when we did the IT unit, and they could go and do the (---) for you all at the IPRO! So we can use the money we get to go to the field trip! (Shari)

Great! Anything else? What about their community? Any problems in the community? Can they use any skill that they learned in class to help out the community? (Researcher)

(Long Pause) … Well... Ummm…Ummm… Trevor learned how to do research real good, and you know Gail could talk! So maybe he could do some research on how the people in the community could fix the ceiling in the community centre for themselves, and Gail could present the info to Mr. Charles – (the Community Centre's secretary*).* (Shari)

The above conversation between Shari and me clearly demonstrates that our instructors do in fact have the knowledge to convert problem solving into a meaningful endeavour for their trainees. Rather than merely recalling information, trainees can actually apply what they learn to solve real-world problems. In the above conversation, Shari was able to use the trainees' knowledge of creating flyers which they learned in the IT unit and turn it into a real-life situation. She was also able to identify a problem in the community – the leaking ceiling, and suggest how the trainees could use skills which they learned in class – researching and presenting, to suggest a possible solution. "Rather than accepting the status quo, true problem solvers are constantly trying to proactively shape their environment" (Watanabe, 2009). They are able to apply what they have learnt to seemingly unrelated endeavours. By asking trainees to identify and solve problems in the classroom, the community and the nation, instructors can ensure that their trainees are being prepared for a future that is characterized by constant changes.

In actuality, Shari was encouraged to use a Problem Based Learning (PBL) strategy, discussed in Chapter 3. Rather than simply asking questions that require the recall of teacher provided facts via memorization, PBL engages students in actually *applying* knowledge to new situations – and this is what Shari was encouraged to do in the above dialogue. This is sometimes not practised by our instructors. In a real-life setting,

problems are rarely well-defined; therefore our instructors need to present students with contextualized, ill-structured, open-ended problems which they (students) are required to investigate and find solutions that oftentimes comprise no one "right" answer. In this way, teachers adopt the role of facilitators of learning. According to Falkus (2010) "They guide the learning process and promote an environment of inquiry" (p. 9). This strategy "develops CT and creative skills; improves problem-solving skills; increases motivation; and helps students learn to transfer knowledge to new situations" (pp. 9-10).

It was the intent of the preceding paragraphs, to illustrate that my participants have variations in their conceptualizations of CT in VE. According to my participants, it has been equated to proactivity, evaluation, extrapolation, rigorous questioning and problem-solving. Although different, there are aspects of CT in academic education that appear to be applicable and similar to these provided by my participants. Besides the variations that were evident in the above responses; several participants were unable to articulate any conceptualizations. This is of great significance, for as Mimbs (2005) posits, if teachers themselves are not comfortable in their ability to articulate concepts related to CT and to practice strategies that facilitate CT, they cannot make their students comfortable users.

Variations in Perceptions of the Importance of CT in VE to Life in the 21st Century

When my participants were asked, "Of what importance are CT skills in VE to life in the 21st Century?" the responses were quite varied. Although no two participants provided similar responses; the majority of them provided responses that were in accordance with the literature and theories that were presented in the earlier chapters of this document.

According to Daisy, we need to make intelligent choices, *"Intelligent decisions in every aspect of our life. There is a vast amount of information in every single area of life - you need to be able to exercise CT skills to make important choices."*

Ali explains that when faced with complex decisions, thinking critically will enable us to make the correct choices. He corroborates Facione's (1990, p. 2) findings, that CT is "a liberating force in education and a powerful resource in one's personal and civic

life". He also agrees that CT skills will enable an individual to "be better prepared to seize opportunities today and be equipped to deal with the challenges of an uncertain tomorrow" (Sizoo et al., 2005, p. 527).

Kay speaks about global competition. Her response alludes to the fact that CT skills "will permit the emergence of a sound, rationally constructed, internationally competitive system" (Vision 2020 Tertiary Education Sub-committee Report, 2002, p. 9). Her response that follows, demonstrates the kinds of questions that must be re-thought, if our citizens are to maintain a competitive edge:

> *In the 21st century we are bombarded by a lot of products coming into the market competing. Our trainees have to be able to…ummm…make a product that is competitive even at the lowest price point - there is no protective market so you are competing with similar type products on the global market. How do I place myself with this product to compete with things that are being brought in, in nicer packages? How do I adjust my everything? Who do I sell it to… where do I sell it …how do I sell it, in what size do I sell it? How should it look when it's finished? That is where the CT comes in. That is why CT is so very important today – in the 21st century, as opposed to the past.* (Kay)

Laura is the only participant who addressed the new direction of the IPRO in terms of CT – Flexible and Blended (FAB) learning. FAB is somewhat of a transformative process at the IPRO. It seeks to reconceptualise and reorganise learning experiences in an attempt to optimise student engagement thus making learning more meaningful. This approach is partially referred to as "blended" since it blends and integrates "classroom face-to-face learning experiences with online learning experiences" (Stacey & Gerbic, 2009, p. 146). It is also "flexible" in terms of time, pace, place, mode of study and teaching approaches. It is supposed to attract a wider variety of trainees at the IPRO. Laura, like many others, believes that FAB totally eliminates the presence of an instructor – and this is one of the misconceptions of the FAB mode of instruction. According to Laura:

> *Because we are leaning towards the flexible and blended learning in the IPRO, we really need CT skills now more than ever! With this kind of learning, no one is there physically to tell them what to do, so CT has to be a part of their everyday processes in the 21st Century - to be able to solve the problems … whether it be with the product … whether it be with the marketing … or whether it's scheduling a meeting with clients from various parts of the world. You definitely need CT skills to do all these things.* (Laura)

While FAB is an excellent mode of learning, it may not necessarily work with the trainees of the IPRO. Members of the Commonwealth of Learning came to facilitate workshops with persons (managers, specialists, internal verifiers and instructors) from the IPRO, and these sessions were, for most of the participants, an exercise in futility. It required a certain level of "technological know-how" which many participants did not possess. If this mode of instruction is difficult for the administrators of the programme to internalize, its effectiveness on our trainees is questionable. Many instructors are already burdened with voluminous paperwork, and they see FAB as an addition to their already overcrowded syllabus. No forum was established where persons were consulted on the introduction of FAB. It was simply "thrust" upon some participants, who were unreserved when they were expressing their displeasure. This can be seen as a form of hegemony, for the voices of my participants were not sought when FAB was being considered as an alternative approach to our traditional form of teaching.

Chris brings a new perspective to the importance of CT to life in the 21st century – a perspective not previously introduced in my research. He suggests that many of our vocational students do not possess academic qualifications, so they need to develop their CT skills to address this "deficit". Therefore, even though our trainees do not have academic qualifications, they will still be able to solve problems and function in society because of their ability to use CT skills - developed in our classes. Chris develops his point of view as follows:

> In vocational areas, often, people are creatives and not many of them are academically inclined. They are able to go through the vocational system to the end, not because of their education; but because of their natural abilities and skills. CT is essential for them to be able to solve technical problems, since they do not have the academic background in the traditional educational system. (Chris)

CT skills are *not* needed for persons pursuing Level 1 and possibly Level 2 CVQ courses, because at these levels, trainees are basically performing robotic tasks. This is Moka's opinion. He says:

> With the CVQ, we are working within defined boundaries. When we infuse CT, we are sacrificing the teaching of skills for life skills. Look at it this way, whole day, every day for 365 days, you just mixing chemical X to chemical Y. How much CT is really taking place there? This is just a repetitive action that could be performed by a robot. (Moka)

He refers to the "defined boundaries" specified in the standards which seem to restrict and stifle the development of CT skills in our trainees. This corroborates Edwards' (2007) statement which explains that by stifling creativity and CT, the culture of education in T&T "has limited the capacity of our citizens to produce at an optimum level in our workforce". It also reflects a colonial and hegemonic perspective; what we are supposed to teach is prescribed and mandated by others. Moka also seems to think that some trainees are quite complacent and really do not want to develop themselves further by acquiring CT skills; but it is the responsibility of instructors to transform their trainees' way of thinking - to act as change agents in their trainees' lives.

This topic of transformation is extremely important, especially for our trainees who have very low self-esteems and who were never before, introduced to the idea of transforming their future possibilities. Transformation can only be facilitated though, if our trainees form an idea of where they want to be, and decide to move from a less satisfactory state to an aspired state. The onus is therefore on my participants to ensure that our trainees satisfy the conditions essential for transformation:

> (1) The trainee must be dissatisfied with his/her current condition - this gives the trainee an incentive to seek a more desirable condition. (2) He/She can conceive of a more desirable state of affairs - this becomes the trainee's purpose. (3) The trainee believes that his/her action has the power to achieve his/her purpose. (Smith, 2014)

Through this transformation our trainees will be able to develop a critical consciousness - a critical imagination – an "imagination that is inspirational, creative, innovative and problem-solving in nature" (Maxcy, 1991, p.112). This transformation into a critical imagination will result in a change in our trainees' mindset: "stretching or pushing them beyond the boundaries within which they normally think and feel" (Midida et al., 2013, p. 7), enabling them to see the world through a new lens of knowledge; mobilizing them towards a future never before envisioned.

The first four opinions presented above, though providing different views on the importance of CT to VE in the 21st century, are aligned to the literature that has been previously presented in chapters 3 and 4 of this research. The final two quotations offered differing perspectives, not previously mentioned in the literature. One spoke of

CT skills as a bridging mechanism, while the last quotation took a postcolonial stance and offered a perspective that differed entirely from "the norm". They both provide plausible ways in which the importance of CT to VE in the 21st Century may be viewed.

Variations in the Understanding of Andragogical Theories and Practices

Andragogical theories are propositions that seek to explain how adults learn. To be an effective teacher of adults, it is important to have a general understanding of how adults learn. From the data that were generated, it is evident that there are variations in my participants' understanding of these andragogical theories and practices. The variations were reflected in their responses to the question, "How effective are current instructional strategies in facilitating the development of CT skills in the adult trainees of the IPRO?"

Daisy seems to have an idea of what andragogical theories and practices entail. Although she says that, "*Historically and culturally we do not have a tradition of encouraging CT",* she speaks of discovery learning and engaging students in real-life projects – both of which have been reported to be beneficial to adult learners. Engaging our adult trainees in real-life situations is beneficial since adults are practical in nature. When they engage in practical activities, they are given the opportunity to apply their theoretical knowledge to hands-on problem solving where they actually see how this knowledge applies to life and work. According to Kearsley (2010), as persons mature, they move from postponement of application to immediacy of application; therefore their orientation shifts from subject centeredness to that of problem centeredness. They become problem-centric as opposed to content-centric. Engaging our adult trainees in real-life problems facilitates this shift in orientation.

Kay and Pam have a different perspective. They see repetition, discussion and feedback as being significant factors in teaching adults. Our programme at OrgX is heavily skilled based and one way to develop a skill is to engage in constant repetition so that the skill becomes subconscious and automatic – repetition is therefore a highly desirable and effective instructional strategy for our adult students. Discussion is also another highly effective strategy for promoting learning amongst adults. Adults possess a wealth of experiences: new information has to be linked to previous knowledge and experience or it will not be remembered. Allowing students the time to discuss how new

information connects with previous experiences and information is a highly effective strategy for teaching adult learners. Additionally, adults thrive on collaboration: discussion facilitates collaboration. Formal and informal, effective and meaningful feedback also helps adults achieve their goals by emphasizing the strengths of their performance and the areas in which improvement is required. It is an indispensable tool for improvement in the quality of education. Here are Pam's and Kay's responses:

> *I would say …effective! Because our instructors go over and over when trainees don't understand….they have them discuss things… They go and help them individually and they give them constructive critiques…they ask students a lot of what if's questions… they ask them why all the time…. they ask them how…, and to explain things to the class. Our instructors ask the trainees to demonstrate to the class.* (Pam)

> *We do the process over and over with different things and we engage them in a lot of discussion. By doing that, we open the possibility of thinking. So I think yes, possibly the CT teaching style of repetition and discussion does cover a lot of it.* (Kay)

For Charlie, Lyn and Moka, current instructional strategies are not very effective in facilitating CT, because, for them the development of CT is not the focus of our programme. However, in my opinion, although the words "CT" may not have been explicitly stated in our programme's objectives, they are implied: we certainly need to nurture CT skills in order to propel our trainees from mastery of their skills to entrepreneurship. Since the idea of entrepreneurship has not been infused into the minds of many of my participants, it is understandable that they will not see CT as being either implicitly or explicitly stated in our goals.

Current instructional strategies are not effective in facilitating CT, because our instructors do not know how to teach adults for CT. This is Laura's opinion. She says, "*It's a case of not knowing how to teach for CT. So you have to help the TP to create real-life scenarios with problems for the trainees to solve*". Creating real-life scenarios is highly effective in teaching adults. Adults are "relevancy-oriented, and one of the most effective ways for helping adults learn, is by relating the assigned task to their own learning goals" (Pullaguria, 2014) . By converting the problem into a real world task that they are likely to encounter in their jobs, trainees will be inspired and motivated to engage in the assignment and pursue it to its successful completion. Since adults are

also practical learners, this method of instruction will be highly beneficial because trainees are given the opportunity to convert their theoretical knowledge into a practical activity.

Chris, another participant who thinks that our current instructional strategies are ineffective for our adult trainees, believes that instructors themselves do not know what constitutes CT skills. Before these instructors can effectively teach CT skills to their trainees, they themselves need to know what the concept entails. Chris says, "*I think that our instructors need to know what is CT, and then they need to know how to develop their own CT before they can impart this knowledge on the trainees*" (Chris).

Chris' statement echoes the question posed by Rudd (2007): "Do teachers …understand the concept of CT well enough to teach students to think critically in and about the discipline being studied?" (p. 46). Mimbs (2005) said that if teachers themselves are not comfortable in the use of CT skills, they cannot make their students comfortable users. They will therefore tend to use the traditional transmission model of teaching, which is characterized by memorization and drills, as opposed to task-oriented instruction. In the transmission model of teaching, teachers supply students with a designated body of knowledge in a predetermined order. This type of instruction will be ineffective to our adult students who are self-directed and autonomous learners and who are motivated by the relevance of their learning.

In order to be an effective teacher of adults, it is important to have a general understanding of andragogical theories and practices. It was the intent of the preceding discourse to illuminate the fact that there are variations in my participants' understanding of andragogical theories and practices.

6.3.4 Theme Four - Restrictive Responses to Factors that Impact the Development of CT in Adult VE Students

The Literature review clearly outlines several factors that impact the development of CT; however, the limited number of factors voluntarily supplied by my participants unequivocally demonstrates the extent of their restrictive responses to this question. As suggested by my participants, the major factors impacting the development of critical thinking are: Socio-Economic Status (SES), Educational Attainment and Levels of

Reading, Culture/Religion, and Attitudes. Due to the constraints under which most writers operate, several important factors that were minimally mentioned by participants will neither be developed nor discussed. These factors, as Figure 2 demonstrates, include: teachers' instructional styles, classroom climate, design of the curriculum, students' expectations, students' physical and mental barriers, teachers' personality, and institutional factors such as time and resource constraints.
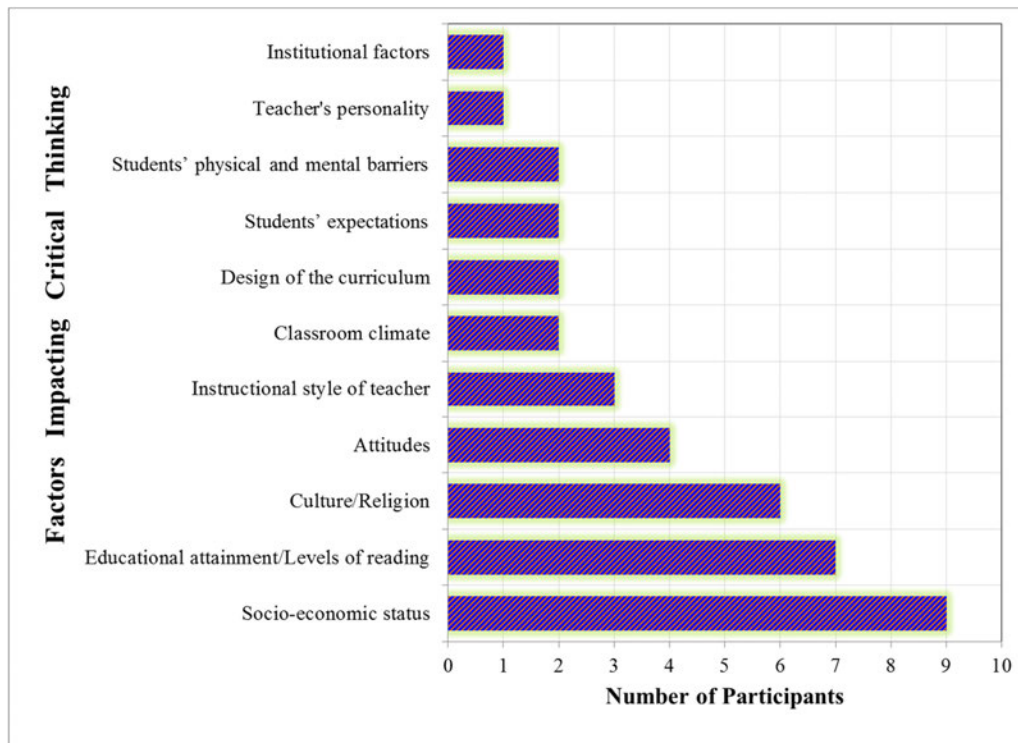
Figure 2: Factors impacting the development of critical thinking in VE

Socio-economic status

- Nine of my participants volunteered socio-economic status as a major factor impacting the development of CT. Daisy and Saro reported that the extent of the impact of socio-economic status on CT depends on the existence of other conditions, one of which is self-confidence. Daisy also believes that encouragement and belief from significant others impact the development of CT. Her comment clearly supports the self-fulfilling prophecy which usually consists of three stages as follows: "1) teachers develop expectations for students' future

achievement; 2) they treat students differently according to their expectations; and 3) this differential treatment influences students' achievement" (Al-Fadhli & Singh, 2006, p. 53). This self-fulfilling prophecy occurs when a "false premise is advanced by actions that can be taken in its service that lead to its realization" (Lewis & Cheng, 2006, p. 94).

Daisy says:

> *I have seen persons from a low socio economic bracket employ an extremely high level of CT skills – but the other supporting conditions were there. These people had confidence in themselves and there was encouragement from significant others… these important people believed in them – they motivated them. But there are those who come from similar circumstances where nobody ever told them these things, so their low SES affected them negatively.* (Daisy)

For Saro, it is poverty and social class, educational and life experiences, coupled with parental interest and attention that impact CT. Since we at the IPRO have minimal control over the extent of our trainees' life and parental experiences, the onus is on us to ensure that their educational experiences are meaningful. It is imperative that we do not simply apply a half-hearted attempt at practising Constructivism. Like Hyslop-Margison and Strobel (2007), I am of the opinion that although many educators are aware of the term constructivism, they do not fully understand what this theory of learning entails and in the absence of conceptual understanding and clarification, constructivism is merely an educational slogan. When teachers assume only a broad, surface interpretation of constructivism, the acquisition of CT skills is not factored into their instructional strategies. Bentley (2003) contends that constructivism means so much more than simply saying that we construct our meanings. He expounds by saying that "the meanings we construct have an adaptive function, helping us make sense of our experiences and orient our behavior and actions".

Daniel Levinson's theory of adult development states that at each stage of adult development, adults make crucial choices in life based on the meanings that they have constructed from past experiences. This highlights the importance of prior knowledge. Michael Watts (1991) explains that "we come to understand things in terms of what we already understand; if we cannot lock new ideas into the ideas we have already generated, then new experiences become meaningless" (p. 54). It is therefore imperative that vocational instructors enable students to connect new knowledge and experiences

with prior knowledge. Bearing in mind the fact that prior knowledge can be obstructive as well as it can be facilitative, vocational instructors need to determine the nature and extent of students' prior knowledge, before they proceed to introduce new knowledge and concepts.

Elder and Paul (1996) espouse the view that developing as a critical thinker is not automatic; therefore teachers must also guide students through each stage of CT development. Since constructivism is based on the premise that students create and develop their ideas (Lunenburg, 2011, p. 4), the role of the instructor is additionally, "to provide the setting, pose the challenges, and offer the support that will encourage cognitive construction" (Lunenburg, 2011, p. 20). According to Boghossian (2012), the instructor's role is also "to aid and facilitate students in their construction of knowledge" (p. 76). Castro (2002) contends that by using practical situations in VE as start and end points, CT and abstract concepts can be introduced by teachers and mastered by students who would otherwise be very low achievers.

An important factor that was mentioned by both Daisy and Saro is motivation. Adults are extrinsically motivated by things such as better jobs or increased salaries. However, the most meaningful motivators are those that occur intrinsically, and these are the motivators which are moulded by caring family members – "increased job satisfaction, heightened self-esteem, better quality of life and personal growth and development" (Chalk & Devlin, 2012, Slide 14).

Pam says that members of upper classes have a high value for CT activities and that they engage in occupations that demand high levels of decision-making and CT. They appreciate the need for nurturing CT skills in their children. This supports the claim that "upper-class parents serve as valuable social capital to their children since the disposition towards CT that is promoted through their work and leisure activities are likely to have a beneficial germinating effect on their offspring" (Tsui, 2003, p. 324). Pam believes though, that students from low socio-economic backgrounds are forced to practice CT - their survival depends on it. She says:

> *Persons that may not be as privileged, may really have to think critically as to how they use their resources. Because it is even more important for them for their survival, their success... to make the best informed decisions they can. Because*

> *every decision you make is critical for your survival so you really have to try and*
> *make the best decisions. SES works both ways.* (Pam)

Pam's latter comment brings to mind, Freire's statement:

> Who are better prepared than the oppressed to understand the terrible significance
> of an oppressive society? Who suffer the effects of oppression more than the
> oppressed? Who can better understand the necessity of liberation? They will not
> gain this liberation by chance but through the praxis of their quest for it, through
> their recognition of the necessity to fight for it. (Freire, 1974b, p. 2)

Like the other participants mentioned above, Maddie and Ali both agree that SES can
indeed impact the development of CT skills; however, they bring completely different
perspectives – perspectives not mentioned in the Literature review. The Literature
alludes to the fact that the cultural capital possessed by persons from high SES can be
easily converted to educational capital - which may result in better CT skills; but
Maddie's view is different. For her, it is the importance of the rate of economic gains
that impacts one's CT development. She thinks that since money is not an issue for
persons from high SES, they have more time to engage in activities that will develop
their CT capabilities. She explains:

> *Persons from low economic backgrounds have that drive to become entrepreneurs*
> *as fast as they can. Their focus is on fast money. So their CT skills may remain at*
> *the same point. But a person from a higher economic background will have more*
> *time to research… more time to spend on experimenting, more resources to*
> *experiment with. These things will develop their CT skills more than the person*
> *from a low background who is just trying to get the money fast.* (Maddie)

Ali sees desperation as stifling the growth of CT in persons from low SES. For these
persons, engaging in a life of crime can be rationalized. Ali explains:

> *If someone is economically and socially disadvantaged, sometimes there isn't a*
> *space for CT - because at the top of their mind is how am I making it through*
> *today. I might have to adopt some kind of approach that would be socially*
> *undesirable. Because of their socially and economically low position, they can*
> *rationalize taking someone else's things. Because they may see a person as more*
> *advantaged - it's not a big thing - they have plenty, so I can take some of what*
> *they have and don't feel badly.* (Ali)

Ali's perspective has encouraged me to reflect on my former criticisms of a view
expressed in Chapter 3 by Facione (1996), which states that CT "has nothing to do with
any set of ethical values or social norms" (p. 14) and that "becoming a skilled critical

thinker does not guarantee" (p, 14) that you will use your expert skills for the benefit of others. This view supports Ali's comment above. I had opposed this belief based on the premise that CT, "by its very nature, is inconsistent with unethical and deliberately counterproductive activities" (Facione, 1996, p. 13) - if a person is an expert critical thinker s/he would not deliberately engage in exploitive actions. The interview with Ali has encouraged me to reflect on my position. Perhaps subsequent research endeavours can elicit other people's perspectives with respect to this issue.

Educational Attainment and Level of Reading

Seven of my participants spoke either about educational attainment or level of reading as factors impacting the development of CT. Pam believes there is a positive correlation between educational attainment and CT. This is not in congruence with research done by Aliakbar and Sadeghdaghigh (2014) which states that higher education does not have any strong effect in the promotion of CT skills of students; nevertheless, this is what Pam's prior experiences have led her to believe. She also alludes to the fact that employers regard the educational level of employees as a sign of their intelligence and their ability to engage in higher order thinking skills. She says:

> *I really think, the higher… the more education you have, the better of a critical thinker you are. Your "education" – if it was truly educating you, would have provided you with many opportunities to analyse, synthesize, and evaluate – those higher order skills which are the CT ones. The same ones which employers want you to have.* (Pam)

Ali's perspective is somewhat different. He thinks that it is not the length of time spent at an educational institution that matters: it is the quality of the education obtained at the institution. He highlights another important point when he speaks about education and certification, and laments the fact that education has been reduced to the acquisition of credentials. The credentialist perspective promotes the belief that education depends more on the acquisition of formal credentials rather than specific content. It further states that employers more readily hire persons who have more credentials, as opposed to persons who are more skilled or productive (Collins, 1979). These employers regard "the educational level of employees as a productivity signal – higher education means higher productivity" (Jermolajeva & Znotiņa, 2009, p. 14). Collins (1979) believes "that educational credentials have become the currency for employment and that students are

expected to attain a sufficient amount of this 'artificial good' in order to obtain respectable positions" (Collins, 1979, p. 183). Vocational educators who believe in the credentialist perspective may view students as passive, uncritical receivers of instructions dictated by market economy forces. Their major focus would be students' acquisition of the CVQ certificate and not necessarily CT skills that would "help students develop a greater range of personal capacities that expand, rather than limit, their future occupational options" (Hyslop-Margison, 2001, p. 25).

Ali believes:

> *The kind of educational experience you had, impacts CT. Not the length of time you spent at the educational institution. What did that experience entail? Is it the ability to draw information out of a person rather than someone regurgitates things? CT is about the former, but most people believe that the more "papers" you have, the better of a critical thinker you are. The longer you stay… you spend at the school, says how smart you are.* (Ali)

Saro's comment below, brings to the fore, two important concepts previously mentioned. The first is constructivism. According to Saro, CT skills should have been developed in the primary school. Therefore, even at the primary level, teachers should be encouraging their students to construct meaningful experiences. Then, as students progress through each stage of development (the second concept), they should be further encouraged to use their CT skills to create new meanings from past experiences. These two concepts were detected from Saro's statement as follows:

> *If at the primary level of schooling students were only dealing with who, what and when, it means that you'll only remain at that level - that's the level of education and thinking that you will enter our programme with - Because as you know, some of our trainees only finished primary school. Your primary level education should have started to develop your CT.* (Saro)

While Pam, Ali, and Saro, though expressing different opinions, speak about educational attainment as impacting the development of CT, Morris and Moka believe that it is reading that impacts the development of CT. Morris reports that:

> *We are not a reading society. And because we are not a reading society now, that could have an impact on the development of CT, because reading exposes you to the world of knowledge. So reading is something that helps you to become a critical thinker.* (Morris)

Moka's opinion is different. He thinks that extensive reading is not necessary for the acquisition of various skills, and this has hindered the development of CT. He believes that by simply looking at someone perform a skill, and practising it, the skill can be learnt. This hinders the development of CT since reading is not needed to perfect the skill. Moka says:

> *Because you could perfect your vocation… your trade without even reading a book, just by looking at how others do it and practicing the skill. Reading is what develops the mind and the more you read is the more you start to question things. I am saying that the insufficient reading that is required for a particular skill… this could be a factor which would hinder the development of CT.* (Moka)

Moka's point brings to mind the topic of prior knowledge which has been known to impact the development of CT (Feinkohl et al., 2016). One of the ways in which prior knowledge of a particular topic can be gained is through reading, and this highlights the connection between prior knowledge and reading, as mentioned by Moka. According to Feinkohl et al. (2016) prior knowledge is "immediate background knowledge of the topic at hand" (p. 216). These authors further state that "a positive relationship exists between students' prior knowledge in a given subject" (p. 214) and their performance in the subject. This is because prior knowledge serves as a basis or platform upon which new knowledge can be built. Students with limited prior knowledge of a topic may therefore encounter challenges with new and higher-order concepts such as CT.

Culture/Religion

Six of my participants spoke about culture and religion as directly impacting the development of CT skills in the trainees at the IPRO.

Sally's powerful comment below alludes to our colonial and hegemonic past which was characterized by dominating and oppressive relationships that emerged from structures of power and privilege. These structures have prevented our students from acquiring their true potential by inhibiting them from expressing themselves freely and it has also prevented them from exploring their creative potential, by dictating the activities and experiences in which they should engage. Sally's comment also highlights the issue of gender inequality where our female students' rights and freedom have been infringed upon by the dictates of our colonial past and present discrimination. In spite of the

unequal treatment of women in some societies, recent research by Ghadi, Abu Bakar, Alwi, and Talib (2012) and Salahshoor and Rafiee (2016) indicate the null nature of gender effect on CT - males and females are not significantly different from one another in their application of CT skills. Therefore, it is plausible to speculate that, with respect to CT, the grounds on which gender discrimination is based, are faulty. Sally says:

> *Some people's forefathers came from a time of slavery and ways of thinking have been passed down. So it's kind of like following the master rather than why am I doing this? Could I do it better? Also in terms of culture - I think the place of some women … in some groups women are not expected to think for themselves and work independently. I think … I would even say, our educational culture didn't allow for CT.* (Sally)

> *Can you explain?* (Researcher)

> *Well… when we were going to school, we were not allowed to think for ourselves. We had to learn what the teacher taught us and any deviations from this, whether right or wrong, were disregarded. And I think this situation has remained. It may have changed slightly, but I think that for the most part, it remains.* (Sally)

Chris also puts a strong emphasis on culture and religion in determining the extent of CT displayed in our trainees. He says, *"Limits placed by culture and religion can prevent the development of CT."*

Saro says that in addition to dogmatic cultural and religious beliefs, strongly held political and superstitious beliefs can restrict our trainees' development of CT skills, since these beliefs are not oftentimes based on evidential facts and sound reasoning. She explains as follows:

> *If you are a cultural fanatic, or a religious fanatic, or a superstition fanatic- that will impact your CT. Culture, religion and superstition are not always based on grounded evidence. The same thing goes for politics. So when people are hard and fast about their religious, cultural, or… or… political beliefs it prevents you from being a critical thinker, and tapping that potential to be a critical thinker.* (Saro)

Attitudes

Statements made by four participants alluded to attitudinal factors impacting the acquisition of CT skills. The following comments made by Pam, Lyn and Laura clearly

illuminate their belief that a person's attitude directly impacts the development of CT skills.

Pam and Laura's comments also highlight the effect of colonialism where our people were brought up to believe that their views were of no consequence – subservient accommodation was more highly regarded, expected and appreciated than a critical approach. So strong were these colonial forces that even today, they have rendered some of our people seemingly incapable of making decisions for themselves since they are accustomed to being told what to do and how to act in various situations. In Pam's opinion, it is the attitude of the student that determines the level of CT development:

> *If a person's attitude or personality doesn't allow them to question what is seen or what is presented … it immediately stunts the CT process. Miss or sir says it is so, so I do it so… I'm not even going to bother to question it. If a trainee is contented to be told what to do in any/every scenario and does not seek to be independent of a supervisor or an instructor, then there is no impetus for CT to be developed.* (Pam)

While for Laura, it is the attitude of the instructors - "*It's do as I say… and don't ask me any questions",* Lyn says that the lackadaisical attitude of both teachers and students prevents our students from developing CT skills. Encouraging students to engage in activities that facilitate CT requires considerable time and effort on the part of teachers, and sometimes our teachers are unable to incorporate these strategies into their current practices. The Literature highlights several reasons for this which may include: teachers' lack of exposure to the concept of CT when they themselves were students; CT strategies are not an integral part of teachers' repertoire of pedagogical practices; and teachers adopt a teaching style even before they enter the teaching service and these teaching styles remain intact and unaltered even after teachers' attendance at professional development and teacher training programmes. Lyn's comment that follows alludes to the fact that if we can address and facilitate the effective transformation of our teachers – a transformation that encourages them to see themselves as change agents in their students' lives, CT will be greatly facilitated:

> *The root cause of our underperformance at CT is mainly the attitude of both teachers and students, but mainly so… teachers - you have to really show them why they need to change. It is then we would be a CT community.* (Lyn)

The above discussion was intended to highlight the major factors (socio-economic status, educational attainment and level of reading, culture and religion, and attitudes) that were perceived to impact the development of CT skills in the trainees at the IPRO. As has already been mentioned, several important factors that were minimally mentioned by participants could neither be developed nor discussed. As Figure 2 on page 148 displays, these factors include: teachers' instructional styles, classroom climate, design of the curriculum, students' expectations, students' physical and mental barriers, teachers' personality, and institutional factors such as time and resource constraints.

6.4   Responses to Research Questions

The preceding sections of this chapter provided a detailed, descriptive analysis of my participants' responses through the four general themes that were extrapolated from my data. These themes were then used to formulate specific responses to the research and sub-research questions which will now be presented.

6.4.1   Research Question 1

What is CT in VE?

Five from the fifteen participants provided definitive responses to this question. These participants equated CT to:

- ➢ being proactive;

- ➢ evaluation;

- ➢ extrapolation;

- ➢ rigorous questioning;

- ➢ problem solving.

This demonstrates a lack of clarity about the nature of CT in VE for the majority of my participants. These terms that my participants used to describe CT, do in fact, coincide with the Literature presented in Chapter 3; however, it is alarming to note that ten

participants were unable to articulate definitions or synonyms for CT in VE. When there is a lack of clarity amongst administrators and vocational teachers about what constitutes CT in VE, Pithers and Soden (2000, p. 239) suggest that there is unlikely to be any significant development of CT abilities and dispositions.

In retrospect, I do acknowledge that I could have elicited responses from my participants in other ways. In an attempt to answer their research question 1, "What are the critical thinking skills required by vocational and adult education students for entrepreneurship development in Nigeria?" Agboeze et al. (2013, p. 118) provided their respondents with a checklist of the possible CT skills. It is possible that if I had followed along similar lines, I would have gotten additional responses from my participants which would have prompted their further engagement in the topic.

6.4.2   Research Question 2

What factors impact the development of CT in adult VE students?

As reported by my participants, the following are the major factors that impact the development of CT in the adult VE students at the IPRO:

- ➢ Socio-economic status;

- ➢ Educational attainment and level of reading;

- ➢ Culture/religion;

- ➢ Attitudes.

Other factors that impact the development of CT to a lesser extent, according to my participants are:

- ➢ Teachers' instructional style;

- ➢ Teachers' personality;

- ➢ Students' expectations;

- ➢ Classroom climate;

- ➢ Design of the curriculum;

➢ Institutional factors such as time and resource constraints.

➢ Students' physical and mental barriers.

The initial Literature Review, extensive though it was, did not reveal that culture/religion and students' physical and mental barriers could affect the development of CT. This prompted me to conduct further searches. These revealed that, Tsui (2000) supports the claim that students' cultural and religious backgrounds do impact the development of CT in VE. Her research indicated that certain aspects of culture, do in fact, influence CT. With respect to students' physical and mental barriers, Elder (2004) claims that CT is needed in order to teach students who possess these barriers. Additionally, research done by Leshowitz, Jenkens, Heaton and Bough (1993) revealed that after an instructional unit on CT, the overall performance of the students who had physical and mental barriers "exceeded that of the control group composed of regular education students who had not received instruction in critical thinking" (p. 483).

6.4.3 Sub-research Question 1

Why are CT skills in VE important in the 21st century?

Various responses for this question were provided by my participants. Although heterogeneous in their nature, twelve responses were congruent with the theories and related literature presented in earlier chapters of this document.

According to these participants, CT skills in VE are important in the 21st century because:

➢ they enable persons to make intelligent and important choices in a world that is more complex and intellectually challenging than it was previously;

➢ these skills are a necessity for economic and social survival;

➢ they enable individuals to be better prepared to seize opportunities today and be equipped to deal with tomorrow's uncertain challenges;

➢ they put the pressure on you, to keep up with foreign competition and innovation;

➢ they aid in the development of Flexible and Blended learning;

➢ they encourage you to keep abreast with modern technology;

➢ they aid in solving problems that were never before encountered;

➢ they ensure the sustainability of businesses; and

➢ they aid in the sustainability of the environment.

One participant – Moka, does not see the importance of CT in CVQ Levels 1 and 2. He thinks that CT skills are necessary as a life skill, but he does not think that these skills enhance or impact the development of VE (Levels 1 & 2) in any significant manner.

Chris' view of the importance of CT skills in VE in the 21st Century may enable us to possibly extend our existing knowledge. He believes that:

➢ CT skills act as a bridging mechanism for persons who do not possess academic qualifications.

As has been said, this view has neither been previously reported in the literature, nor has it been supported by any of the theories mentioned. Subsequent research may prove to be useful in determining whether or not CT skills can indeed act as a bridging mechanism for persons who do not possess academic qualifications.

6.4.4 Sub-research Question 2

How effective are current instructional strategies (teaching styles/methods) in facilitating the development of CT in VE students?

Nine of my participants think that our current instructional strategies are not effective in fostering the development of CT in our adult VE students.

Many possible reasons for this situation have been supplied by my participants. The common reasons cited are:

➢ teachers are not fully aware of techniques that should be used to teach adults;

➢ teachers themselves do not know what constitutes CT;

➢ teachers do not know how to teach for the acquisition of CT;

➢ teachers' focus is on content coverage and not the development of students' CT;

➢ historically, we have not been a "questioning" society;

➢ Our perspectives on curricula are based on the transmission model.

6.4.5   Sub-Research Question 3

What are the roles and responsibilities of Vocational Instructors, Administrators and Internal Verifiers in enhancing the development of CT in adult VE students?

Most of my participants are not fully aware of their role in fostering students' acquisition and development of CT skills or on their creation of an entrepreneurial mind-set; but they are all committed to students' attainment of the CVQ. Here are the roles and responsibilities of some of my participants in facilitating the development of CT skills:

➢ Working with, observing and helping instructors incorporate CT skills in their instructional practices;

➢ Using Bloom's higher order objectives of analysis, synthesis and evaluation when writing curricula;

➢ Ensuring that vocational instructors employ the use of Bloom's higher order thinking objectives in their lesson plans;

➢ Helping instructors to create real-life scenarios with problems for trainees to solve;

➢ Engaging students in reflection, to enable them to see for themselves, where they went wrong or where their performance could have been improved;

➢ Assisting in teachers' professional development workshops that focus on strategies that facilitate the use of CT skills;

> ➢ Helping instructors develop their students' entrepreneurial skills – CT, problem-solving and interpersonal skills;

> ➢ Encouraging and facilitating the development of creativity in students.

6.4.6   Sub-research Question 4

What changes (if any) can be made to the design of the IPRO to ensure that subsequent trainees are afforded ample opportunities to further develop their CT skills?

Here are some of the recommendations made by my participants. In their opinion, these recommendations would enhance the development of future trainees' CT skills:

> ➢ Pairing a specialist with an instructor throughout the cycle;

> ➢ Organizing debates, in-house competitions such as chess tournaments, or projects for the students to execute such as a walkathon, a sale to raise funds for a class project or a presentation to the Director explaining their rationale for an increase in stipends;

> ➢ Organizing professional development sessions that specifically deal with strategies used to develop students' CT;

> ➢ Devising strategies to counteract the bias against students engaging in VET;

> ➢ Utilizing some of the 'train-the-trainer' sessions to: 1) sensitize instructors to the importance of developing CT skills in students; and 2) focus on strategies that promote CT amongst students;

> ➢ Administering a pre-test and post-test to students, to determine the effectiveness of particular CT strategies employed by instructors;

> ➢ Revising all curricula to ensure that higher-order thinking skills are infused throughout;

> ➢ Increasing the length of some courses to: 1)facilitate more opportunities for trainees to practice their skills; and 2)give instructors more time to focus on trainees' development of CT skills;

6.5 Summary

It was the intent of this chapter, to give "voice" to my participants. To achieve this, it commenced with a summary of the findings that emerged from the data. The major themes that pervaded my participants' responses were then discussed. Since policy attempts to structure and shape the specific areas of practice for persons in an organization, my discourse proceeded with the theme – "Dilemma between policy and practice". It highlighted the dissonance between our programme's policies and the practices that abound in our classrooms.

Following this, the chapter addressed another salient theme that was apparent from my analyses of the data – "VE's Low Esteem". Although VE's low esteem was not explicitly stated by my participants, it was undeniably conveyed through their responses. This discourse commenced by highlighting the sources of VE's low esteem and it analysed my participants' responses with respect to the relevant literature. It outlined how some of my participants' actions were in accordance with what was predicted by previous literature, and areas of dissonance were also highlighted.

"Variations in conceptualizations and perceptions", the third theme that emerged from my analyses of data, was then presented. Since there are variations in the conceptualizations of several pertinent issues of the research, the discourse proceeded along the headings of variations in: *a) Conceptualizations of CT in VE; b) Perceptions of the Importance of CT in VE in the 21st Century;* and *c) Understanding of Andragogical Theories and Practices.* Through the analyses of my participants' responses, again I was able to use previous research reported in Chapters 3 and 4 to describe, explain and predict their actions and behaviours.

The final theme that was presented –"Restrictive Responses to Factors that Impact the Development of CT in Adult VE Students", highlighted the restrictive nature of my participants' responses to this major research question. It also analysed the major factors

(socio-economic status, educational attainment and level of reading, culture and religion, and attitudes) that were perceived to impact the development of CT skills in the trainees at the IPRO.

The final section of this chapter reported the factual matter of the results obtained from the analyses of data. This was presented in the section "Responses to Research Questions". Whilst performing my analyses of the four themes, discussions on various theories and perspectives contained in former chapters of this document were engaged.

CHAPTER 7: CONCLUSION AND RECOMMENDATIONS

7.1 Overview

Citizens of the 21st century are subsumed by "a world where roles, traditions and understandings are shifting at an unprecedented rate. In these postmodern times, the only certainty left is that of uncertainty and risk" (Atweh & Bland, 2004, p. 6). Young Park (2005) gives cognizance to the fact that we feel a sense of despair and disempowerment: we tend to lose our optimism when we consider the multi-dimensionality of the "unprecedented anomalies" wrought by 21st Century advancements. We appear to have minimal control of our future, since past experiences provide negligible assistance in coping with the dynamic issues of the 21st Century. Traditional modes of academic education have failed to generate the kinds of thinking required in this era of unprecedented global changes – changes which Wacker and Taylor (1993) refer to as "audacious expressions of human ingenuity and endeavour". These traditional modes of education foster the development of reading, writing and computing skills; however, teaching students specific facts that will surely be obsolete by the time they are ready for the world of work is a waste of limited resources. Lundt (2004) contends that our existing educational system is also "producing generations of 'knowers' - people beautifully prepared for a world that no longer exists" (Lundt, 2004, p. 19). Although Young Park (2005) also believes that our current educational systems are "oriented toward unlimited production and optimism, that belie the potential impact of the macro anomalies", it is my firm belief that, in spite of the seemingly catastrophic consequences of these anomalies, education - one that goes beyond the mere acquisition of information, knowledge and skills – one that requires CT and creative imagination, can be seen as a vehicle through which our attempts at national development may be attained and sustained.

The Caribbean Community Secretariat (2008) says that what is needed, is an education system that is concerned with the prevention of obsolescence in all spheres of life: an education system that teaches our students *how to learn,* not *what to learn.* Teaching students how to learn will enable them to successfully adapt to the constantly changing environment where they will be required to make critical decisions on a daily basis –

decisions that require the skillful interplay of all aspects of CT. Although nurturing and inculcating CT skills have been presumed to be the responsibility of academic education, within recent times, the philosophy of education is being changed to one that recognizes CT as a viable inclusion in VE; however, VE itself has persistently struggled to assume its own identity as a viable, worthwhile and significant form of education.

This research has combined these two major concepts – CT and VE, into one holistic research topic "*Conceptualizations of CT in VE and Perceptions of Factors that Impact the Development of CT in Adult VE Students in Trinidad and Tobago*". It was the primary intent of this research to gain insights into the conceptualizations and perceptions of Vocational Instructors, Administrators and Internal Verifiers of the IPRO at OrgX in T&T, regarding the development of CT in their adult VE students. Relevant topics and discussions throughout chapters 1 to 6 revealed that my objective was achieved.

Chapter 1 provided an overview of the need for CT skills in various parts of the world, highlighting the importance of CT in VE with respect to adult students in the Caribbean. It outlined my motivation for engaging in this particular project and it discussed how I conceptualized the project's significance and purpose. Chapter 2 provided the context. It outlined the genesis of VE in the Caribbean and the rationale for the establishment of both OrgX and the IPRO which operate in T&T.

My understandings of the terms *CT* and *VE*, did not emanate from any single research endeavour: rather, they were based on the critical examination of findings from a range of research studies, and in Chapter 3 - the Literature Review, prominent researchers' perspectives on similar issues and previous research that were of direct relevance to my research questions were presented. Since data generated through any research may be applied to, described by, explained with or used to extend existing theory, the theories which undergirded my study were presented in Chapter 4 - Theoretical Perspectives. Basing my data on these existing principles and theories, renders credibility to my study and makes it intelligible to readers.

In Chapter 5, I explored the justification for employing the use of decolonizing methodologies, the philosophical parameters which undergirded my study, the rationale

for conducting a Case Study in the Qualitative paradigm, the methods used to collect and analyze data, and the issues of rigour and ethics that were observed throughout this research.

Chapter 6, the most significant chapter in my thesis, illuminated the findings from my research endeavour which are as follows:

a) Participants seem to have varied, narrow conceptualizations of what constitutes CT in VE;

b) Participants seem to have inadequate knowledge of the full spectrum of factors that impact the development of CT in VE;

c) Participants appear to encounter difficulties when attempting to articulate the benefits of engaging in CT in VET;

d) Participants appear to have a limited understanding of andragogical practices that facilitate the development of CT in VE;

e) VE is still erroneously viewed as a dumping ground for students who are perceived to be incapable of successfully engaging in academic studies;

f) There is ambiguity with respect to my participants' roles and responsibilities in performing their two main functions which are: 1) ensuring that trainees acquire the knowledge, skills, attitudes and competences relevant to particular occupations; and 2) fostering an entrepreneurial mindset in trainees.

g) The majority of recommendations made for the enhancement of future trainees' CT skills are geared towards the administrators of the programme.

A detailed analysis and discussion of my participants' responses followed.

In this, the final chapter – Chapter 7, I have provided, thus far, a synopsis of what was presented in the earlier chapters of this document. I shall now present the conclusions that were drawn from the findings of this research. After reiterating the importance of my research, and admitting to its limitations, I shall provide recommendations for future research endeavours as well as recommendations for practitioners. This research highlights the need for vocational instructors: a) to resist the urge to walk the beaten path of conducting their classes on the archaic principle of teaching as primarily transmitting knowledge; and b) to facilitate the learning process by nurturing the

development of CT skills in its various manifestations in VE. This will serve as a catalyst in the development of a meaningful, effective and sophisticated citizenry capable of purposefully contributing to a globalized world that is characterized by constantly accelerating changes.

7.2   Conclusions

In my opinion, one of the most significant conclusions that can be drawn from my research is the fact that, in spite of constraints placed on the IPRO to accept only trainees who are "socially deprived" and those for whom the formal educational system has failed, CT in VE is still conceptualized in a manner that is similar to CT in the academics. Although my participants were not able to articulate all the conceptualizations of CT in VE that have been proposed for CT in the academics, their explanations and synonyms, though limited, were consistent with those of the academics.

Based on the findings of my research, several other conclusions can be drawn as follows:

➢ Many of my participants focus on trainees' acquisition of the knowledge, skills, attitudes and competences that lead to the award of the CVQ or TTNVQ. Since many of my participants have expressed the belief that CT is not necessarily needed to acquire these competences, it is plausible to speculate that the advancement of trainees' CT skills and the development of an entrepreneurial mind-set are unlikely to be developed to an optimum capacity at the IPRO.

➢ My participants' responses revealed that there is ambiguity about what constitutes CT in VE. If they themselves are not certain about the components of CT and what CT in VE entails, they would not be aware of the areas to be targeted for its enhancement; consequently, CT within the IPRO may not be advanced in any meaningful way. Additionally, participants were only marginally able to articulate the numerous benefits to be derived from engaging in VE. If there is ambiguity amongst vocational educators about the benefits of

CT in VE, it stands to reason that these educators may encounter difficulties in articulating these benefits to their trainees in any elaborative manner. It is therefore highly improbable that there will be any meaningful change in trainees' development of CT skills.

➢ Implicit in my participants' responses is the fact that VE is still regarded as an inferior, less-demanding form of education - unworthy of serious attention. Participants may therefore have low expectations of their trainees who are engaged in VE courses. Since teachers' expectations of students are oftentimes reflected in their teaching practices, it is plausible to speculate that there will continue to be teaching approaches that "are unlikely to develop more widely transferable and generalizable CT abilities and dispositions" (Pithers & Soden, 2000, p. 239) within the IPRO.

➢ My participants' responses allude to the fact that many of them lack experiences in, and are not aware of specific instructional strategies that are appropriate for meaningful learning in adult trainees. Unless this situation is addressed, instructional practices may continue to be ineffective and our adult students' learning will continue in a superficial and tangential manner. Teaching and assessment approaches that encourage a surface, rather than a deep CT approach, may continue within the programme.

➢ Since my participants are only partially aware of the numerous factors that impact their trainees' development of CT skills, they may be unable to accentuate specific positive factors and minimize or eliminate the negative ones. Trainees' acquisition and development of CT skills may therefore remain in its present state, without being propelled any further.

Although the latter conclusions paint a rather gloomy picture of the direction in which CT at the IPRO is proceeding, it is my firm conviction that, as a result of this research and recent engagements in the topic of CT, the passion and dedication which are displayed by my participants will encourage them to further enhance our trainees' acquisition and development of CT skills. The recommendations presented later in this

chapter, if implemented, will also greatly assist in enhancing the development of CT skills in the adult students of the IPRO.

7.3   Significance of this Research

To the best of my knowledge, relatively little substantial research has been conducted in Trinidad and Tobago with respect to the development of CT skills in adult VE students who possess the unique characteristics of those from the IPRO; therefore this study attempts to fill a significant gap and bolster the available thin literature. It is also expected to contribute to both a theoretical and practical knowledge base.

Although the research was conducted within the adult population (aged 25 to 60 years) of OrgX, results may also be found to be applicable to the younger population of OrgX (aged 15 to 35 years). My research therefore possesses the ability to ensure that the CT skills of trainees of subsequent cycles of training conducted by the IPRO and OrgX are heightened – thus securing the viability of both the IPRO and OrgX.

There are many other social sector programmes in T&T that offer similar adult vocational training. Although the mandates of these programmes are different from those of the IPRO, the results obtained from this research and the recommendations provided, may also prove to be beneficial to these programmes.

7.4   Limitations of the Study

It is widely acknowledged that all research endeavours suffer from limitations, and this section of my thesis focuses on the limitations and shortcomings that have the greatest potential impact on my findings and research questions.

My participants had initially expressed concerns about their ability to fluently discuss issues related to CT. In retrospect, an alternative strategy might have been to provide them with a checklist containing various conceptualizations of CT from which they could have selected the ones most applicable. In addition to enabling them to articulate their responses, these conceptualizations would have provided them with a reference point from which subsequent discussions could be engaged. Although I provided them

with definitions of CT from three prominent authors, other definitions may have been more applicable to them and this would have impacted their conceptualizations of CT in VE. Subsequent research should take this factor into consideration.

Another limitation was the fact that data were collected during the months of March 2016 through June 2016 when many classes in the IPRO were finished or finishing, and as such, I was only able to observe three out of the six vocational instructors. Although the observations that were made merely corroborated facts that were stated in the interview sessions, observations from the other three vocational instructors may have proven to reveal varied results. This would have influenced the triangulation of data, which in turn, could have impacted the study's results. If subsequent research is undertaken within the IPRO, observations should commence within one month of the start of the cycle in order to facilitate observations from all vocational instructors, without the risk of the classes coming to their closure.

This research sought the conceptualizations and perceptions of fifteen members of the IPRO. Although the sample contained a wide cross-section of stakeholders, it still may not have been representative of other members of the programme who perform similar roles; hence the results obtained may not necessarily be generalizable within the programme. Responses from other members of staff, as well as students, if included in the research, may have produced a plethora of varied responses which may have impacted the study's results and findings.

In my opinion, the limitations outlined above do not diminish the usefulness of my results because: with respect to the 1st limitation, participants were able to freely and openly discuss the definitions given and this provided them with the confidence to engage in subsequent discussions with me; with respect to the 2nd limitation, the three observations that were done merely corroborated the findings from my interviews. For instance, during the interview session that was held with Shari, she openly confessed that she did not engage in any kind of higher-order thinking skills with her trainees, since these were not mandated by the standards and in any case, according to Shari, her trainees could not think for themselves. Her statements were corroborated during my observation of her teaching session as follows: She had asked her trainees to gather

around her desk to view a 15 minute You Tube video related to her subject matter. Although there were instances where, in my opinion, the video could have been paused and higher-order thinking skills could have been asked (e.g. How is this process similar to/different from…? What problems might you encounter if …? How would this affect…? What do you think causes this…?), these questions were not utilized. At the end of my observation, I enquired about these opportunities for the growth of her trainees' CT skills, but Shari said that she thought this would result in futility since her trainees would not be able to respond appropriately. She also said that initially, when the trainees had entered her class, she had tried various strategies to stimulate their thought processes, but these had failed. She also flipped the pages of her standards, smiled and reiterated what she had said in the interview – "The standards do not call for that!" This is a clear example of how my participants' responses and their actions were in alignment – thus increasing the trustworthiness of my findings. Similar instances of alignment between interviews and observations were also detected in the sessions conducted with Morris and Moka.

With respect to the 3rd limitation, it is my firm belief that the responses given by the wide cross-section of participants were truthful and not intended to be misleading in any manner; again increasing the trustworthiness of the data.

The limitations mentioned above should be carefully noted and their implications thoroughly considered if subsequent studies at the IPRO are to be undertaken.

7.5 Recommendations for Future Research

This research has provided the platform for subsequent research endeavours as follows:

- My research has focused its attention on the conceptualizations and perceptions of Vocational Instructors, Administrators and Internal Verifiers. Subsequent research may focus on other constituent groups such as directors, coordinators and even students, regarding the acquisition of CT skills in VE. One such research endeavor may attempt to investigate, "Adult students' perceptions of the factors that impact their development of CT skills in vocational classes".

Since students themselves are the ones whose CT skills are being investigated, their input would undeniably be valuable.

🞤 Subsequent research may also explore the degree to which factors unveiled in this research, actually impact the development of CT. One such endeavor may be entitled, "Investigating the impact of socio-economic status and educational attainment on the enhancement of CT skills in adult VE students".

🞤 This research also provides recommendations that are geared to foster the development of CT. Subsequent research may attempt to ascertain the efficacy of the recommendations on the development of CT in adult VE students in T&T. For instance, one such research may seek to investigate, "The impact of vocational instructors' engagement in professional development sessions on students' acquisition of CT skills". Another research may seek to unveil, "The impact of an enabling environment on adult students' acquisition of CT Skills".

🞤 Comments made by two of my participants - Moka and Chris may prompt research endeavours entitled, "Investigating the extent to which CT skills can enhance the performance of adult students pursuing Levels 1 & 2 CVQ courses" or "Investigating the extent to which CT skills can act as bridging mechanisms for adults who do not possess academic qualifications".

Other research endeavours along similar veins may be conducted to corroborate findings from this research or to supplement the sparse educational literature on CT in VE. These recommendations for future research endeavours indicate that there is much scope for further educational research into this evolving phenomenon - CT in adult VE within the T&T setting.

7.6   Recommendations for Practitioners

Any document that attempts to comprehensively address the salient matters pertaining to a topic such as CT in VE, must make recommendations for its effective and efficient delivery: the subsequent section satisfies this requirement. Endorsing the belief that educational institutions "can be no better than the teachers and administrators who work

within them" (Guskey, 2002, p. 381), the following recommendations which have been based on the findings and conclusions of my study, are made primarily with vocational educators in mind:

❖ Provide continued support and professional development programmes specifically designed to educate *returning* instructors on systematically threading CT activities into their instruction;

Since the literature has demonstrated that some teachers lack knowledge in designing CT lessons, and teaching for the transfer of learning is problematic due to the inability of instructors to thread activities and concepts throughout the curriculum, this recommendation may prove to be beneficial in assisting instructors in this regard.

❖ Organize additional pre-service and in-service training for *new* vocational instructors to: 1) Increase their repertoire of strategies for effectively teaching adults; and 2) Expand their knowledge of how to incorporate CT strategies into their andragogical practices;

This research has demonstrated that educators lack knowledge of andragogical theories and practices. In addition to reiterating/reintroducing these theories, this recommendation will provide actual strategies for incorporating CT skills into vocational educators' andragogical practices.

❖ Devise strategies to improve vocational educators' understanding of the concept of CT;

This research has demonstrated that most of my participants do not have a clear understanding of the conceptualizations of CT or what it entails. If educators are made aware of the various facets/elements of CT, they will then be able to address its component parts and there would be a more holistic approach to CT. For instance, most educators equate CT to cognition. Relying exclusively on the cognitive component of CT does not give a thorough and realistic view of the entire CT process (Cheung et al., 2000). CT also incorporates dispositions. If educators are made aware of these two dimensions of CT, they will be more inclined to strive for the advancement of both in their students.

❖ Provide opportunities for all vocational educators and students to practice and demonstrate their use of CT skills by organizing in-house activities and competitions that require the extensive use of CT skills. This could take the form of chess tournaments and open debates – both of which have been proven to enhance CT skills.

Once developed, CT skills must be practiced, since regression is quite possible. In order to claim the status of being "a critical thinker" this skill must be practiced in all domains of one's life; therefore vocational educators and students need to be given ample opportunities to practice this skill.

❖ Involve a wide spectrum of educators in key decision-making processes about strategies to be used throughout the IPRO for the development of CT skills;

Participants have reported that they are not involved in key decision-making processes with respect to what should and should-not be taught in the various skills, since these are largely pre-determined by the standards and curricula. Involving a wide spectrum of educators in the development of curricula, and in the selection of strategies to be used to advance CT within the IPRO, would encourage these educators to accept ownership.

❖ Provide strategies to adequately boost and improve the status and attractiveness of VE's image, and sensitize stakeholders to the benefits of engaging in VE and the importance of developing CT skills in VE.

It is anticipated that when stakeholders are fully aware of the benefits to be derived from engaging in VE and the importance of inculcating CT in VE, they will ensure that it is taught to their students.

❖ "Provide enabling VE environments and materials for teaching CT skills" (Agboeze et al., 2013, p. 122). For CT in VE to survive, training, retraining and "learning must take place in an environment where all the necessary tools, machines, equipment and facilities are in place and resemble the real work environment" (Uddin, p. 2013).

CT skills in VE cannot be developed in a vacuum; they must be developed within the context of the skills. Therefore, if CT skills are to be enhanced through the development of skills, all the necessary resources must be available for the teaching of these skills.

❖ Align and design assessments that specifically measure competence in the skill, as well as the development of CT thought processes. For example, if the objective of a session is that students "will prepare and produce cakes", then assessments should not only entail the preparation and production of cakes: it should also involve students explaining the thought processes in which they engaged at each stage of the task.

Tsui (2002) believes that by simply modifying and "altering commonplace teaching techniques rather than radically replacing them" (p. 758) there would be heightening students' CT. Some of these modifications and alterations include:

- applying "cooperative and collaborative learning techniques through peer tutoring and students' interactions" (Agboeze et al., 2013, p. 121) with activities such as debates or group discussion;
- engaging students in purposeful and contextualized situations;
- asking students alternative, thought provoking, open-ended questions and guiding them through the processes involved in answering them;
- "allowing efficient time for students to reflect on questions asked" (Agboeze et al., 2013, p. 117), and providing opportunities for the transfer of learning to occur;
- "evaluating students on problems or situations that test their analytical abilities and their creativity" (Agboeze et al., 2013, p. 117).
- asking challenging questions and allowing students to give evidence or reasons for their conclusions and opinions.

Like Patrick (1986), I prefer to believe that all students, regardless of age, gender, ethnicity, socio-economic status, religious or political affiliation, or presumed limitations in their ambition or ability have the potential to acquire critical-thinking skills. With respect to this research, these skills can be developed to the fullest by

vocational instructors who remain invigorated, and who make a concerted and mindful effort to strengthen the efficacy of their practices by embedding CT into all areas of instruction.

7.7 Final Words

Although it would be naive of me to think that the development of CT skills in adult VE students will solve the various ills that have plagued the Caribbean region for decades, they will, in fact, go a long way in ascertaining that the students/trainees of the IPRO at OrgX in T&T not only attain sound competencies essential for the successful completion of a particular skill, but also gain satisfying and rewarding jobs as employees or employers, and become well adjusted, economically productive, responsible adults who will contribute positively to the growth and evolution of the 21st Century.

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APPENDICES

Appendix 1: Ethics Review Approval

The
University
Of
Sheffield.

Research
Office.

0 8 DEC 2010

Application to Read for a Research Degree
To be completed by the student and Department:

Candidature Details:

Print Full Name & Address (to be used as return address label)

DEBRA INDAR
#55 DASS BRANCH TERRACE
ENTERPRISE
CHAGUANAS
TRINIDAD

Admissions Qualifications
Degree *MASTER OF EDUCATION*
Subject *(CURRICULUM)*
Pass/Honours & Class *PASS*
University *University of the West Indies (UWI)*
Year of Award *2006*
Also completed Pt 1 of EdD at Sheffield

I certify that I have seen the original/certified copy of the Degree Certificate and where applicable. I confirm that the Degree is equivalent to a British Degree.
Signature of Supervisor(s):

I am applying to read for the Degree of (✓tick as appropriate):

☐ MPhil
☐ MPhil leading to PhD
☐ MPhil leading to MD
☐ MPhil leading to DDSc

☐ MMus
☐ LLM
☐ PhD
☐ PhD with Integrated Studies

☐ MD
☐ DDSc
☐ DMedSci
☑ EdD

☐ DEd CPsy
☐ EdD(EdPsych)

Student Registration Number
070238473

Department

Faculty *Education*

Date of Entry *July 2008*

✓tick as appropriate

☐ Full-Time   ☐ Part-Time   ☐ University Staff Candidate   ☐ Joint Location   ☐ Remote Location

Title of proposed research:
Arousing the Awareness: Critical Thinking Skills in Adult Vocational Education

Ethics Approval and Research Governance
Does the research require human ☑ or animal ☐ ethics approval?

☑ Yes   ☐ No

If yes, when do you expect to apply for ethics approval? (Research that will involve human participants must be ethically approved prior to their recruitment). Insert year/month here: *November 2010*
(please provide evidence of ethics approval at this time)
Is this a healthcare research project as defined by the Department of Health Research Governance Framework? If yes, a URMS record should be created and approved.

☐ Yes, URMS no: _____   ☑ No

For completion by Faculty of Medicine students only: Vaccinations
Will the candidate be involved with any invasive procedures or handling of any unfixed human tissue?

☐ Yes   ☐ No

If yes, has the candidate had the necessary Hepatitis B 'e' Antigen tests, a heaf test for TB and a test for Rubella, Measles and Mumps antibodies?

☐ Yes* (please attach evidence)   ☐ No

Please note that these vaccinations do not authorise students to take blood as part of their research

Name of Supervisors (please print and indicate the supervisor with prime responsibility with an asterisk)
*Dr. Tim Herrick; Prof. Pat Sikes
Signatures of Supervisors*

Signature of Head of Department
Departmental Graduate Director/Postgraduate Tutor:

COMPLETED FORMS SHOULD BE RETURNED TO THE FACULTY ADMINISTRATOR, GRADUATE RESEARCH OFFICE, 231 GLOSSOP ROAD, SHEFFIELD, S10 2GW

Confirmation of Status – for Graduate Research Office Use Only:

Approved by the Faculty
Signature (Faculty Officer)

Official Stamp of the
Graduate Research Office

UNIVERSITY OF SHEFFIELD
RESEARCH & INNOVATION SERVICES

Approved subject to:

☐ Ethical approval granted by the appropriate Ethics Committee/ URMS record approval (evidence to be provided now or in due course depending on the research project's nature)

☐ Completion of the appropriate course of vaccinations

☐ Other (please specify)

Received by the GRO
(initials of Faculty Rep. and date)

Date
20.12.10

Period of Registration for Fee Paying Purposes: *30.6.14*

Time Limit for the Submission of the Thesis: *31.10.14*

This document is not valid without the signature of the appropriate Faculty Officer and Official Stamp of the Graduate Research Office. V6

The
University
Of
Sheffield.

The
School
Of Education.

Debra Indar

Head of School
Professor Jackie Marsh

Department of Educational Studies
388 Glossop Road
Sheffield S10 2JA

Telephone: +44 (0114) 222 8167
Fax: +44 (0114) 279 6236
Email: t.a.earnshaw@sheffield.ac.uk

Dear Debra

Ethical Review Application: EdD Caribbean Part II Dissertation

Thank you for your application for ethical review for the above project. The reviewers have now considered this and have agreed that you can go ahead with your research project. Any conditions will be shown on the Reviewers Comments attached.

This is subject to receipt of a signed hard copy of Part B (Declaration) of the School of Education Research Ethics application form which is available at http://www.sheffield.ac.uk/education/ethics. This hard copy is then held on file and ensures that we comply with university requirements for signatures.

Yours sincerely

Tracey Earnshaw

Tracey Earnshaw
Programme Secretary

Appendix 2: DDP ePortfolio Approval

DDP ePortfolio Summary

Research & Innovation Services.

Of Sheffield.

Name: DEBRA INDAR	**Registration No:** 070238473	**Department:** EDUCATIONAL STUDIES

Signature (Student)		Date:	January 24th, 2017
Approved by Supervisor or PGR Tutor		Date:	26·1·17

You are required to submit a short summary of your training and developmental activities to illustrate how you have engaged with the DDP via this form. The purpose of this is to provide you with the opportunity to reflect on the professional skills you have developed during your studies and for the University to be assured that you have satisfied the Regulations for award of your degree.

If you have completed an ePortfolio of your DDP within PebblePad please tick this box   you do not then need to complete the rest of this form.

Otherwise, please include the following in your report, as appropriate:-

- List of training courses attended (both within and without the University)
- List of completed and submitted items of work (e.g. Literature review)
- List of seminars and conferences attended and whether you presented at these
- List of any outreach activities undertaken
- List of any extracurricular activities you wish to note

PLEASE RETURN COMPLETED FORM TO: eportfolio@sheffield.ac.uk . Failure to submit this form prior to the submission of your thesis could result in your award being withheld. (You may scan this page after gaining all the necessary signatures and submit it electronically by email).

Alternatively you can post the completed summary to:

DDP Admin, Graduate Research Centre, Room D17k, Dainton Building, University of Sheffield, Sheffield, S3 7HF

For official use only: **Approved by the Faculty**

Signature (Faculty Lead)		Date:	4/2/1,

Appendix 3: Ethics Application Form

University of Sheffield School of Education **RESEARCH ETHICS APPLICATION FORM**

Documents to enclose with this form, where appropriate:
This form should be accompanied, where appropriate, by an Information Sheet/Covering Letter/Written Script which informs the prospective participants about the proposed research, and/or by a Consent Form.

Once you have completed this research ethics application form in full, and other documents where appropriate email it to the:

Secretary for your programme/course if you are a student.

NOTE
- Staff and Post Graduate Research (EdDII/PhD) requires 3 reviewers
- Undergraduate and Taught Post Graduate requires 1 reviewer – **low risk**
- Undergraduate and Taught Post Graduate requires 2 reviewers – **high risk**

I am a member of staff and consider this research to be (according to University

definitions)   :   **low risk**   ☐

                                                                               high risk   ☐

I am a student and consider this research to be (according to University definitions):
                                                                  low | **X** | **risk**

                                                                               high risk   ☐

*Note: For the purposes of Ethical Review the University Research Ethics Committee considers all research with 'vulnerable people' to be 'high risk' (eg children under 18 years of age).

University of Sheffield School of Education
RESEARCH ETHICS APPLICATION FORM

COVER SHEET

I confirm that in my judgment, due to the project's nature, the use of a method to inform prospective participants about the project (eg 'Information Sheet'/'Covering Letter'/'Pre-Written Script'?:	
Is relevant	**Is not relevant**
✓ **Yes** (if relevant then this should be enclosed)	**-**

I confirm that in my judgment, due to the project's nature, the use of a 'Consent Form':	
Is relevant	**Is not relevant**
✓ **Yes** (if relevant then this should be enclosed)	**-**

Is this a 'generic "en bloc" application (ie does it cover more than one project that is sufficiently similar)	
Yes	**No**
-	✓ **No**

I am a member ☐ - of staff

I am a PhD/EdD student ☐ EdD

I am a Master's ☐ - student

I am an Undergraduate ☐ - student

I am a PGCE ☐ - student

The submission of this ethics application has been agreed ☐ ✓
by my supervisor

I have enclosed a signed copy of Part B ☐ ✓

University of Sheffield School of Education

RESEARCH ETHICS APPLICATION FORM

PART A

A1.   **Title of Research Project:** *Arousing the Awareness: Critical Thinking Skills in Adult Vocational Education*

A2.   **Applicant (normally the Principal Investigator, in the case of staff-led research projects, or the student in the case of supervised research projects):**

Title: **Mrs.**   First Name/Initials: **Debra**   Last Name: **Indar**
Post: **Curriculum Development Specialist**

Department: **Ministry of Science, Technology & Tertiary Education (Trinidad & Tobago)**
Email: debbie_indar@hotmail.com
Telephone: 1-868-485-8010, 1-868-671-7524

A.2.1. Is this a student project? *Yes*
If yes, please provide the Supervisor's contact details: **Dr. Tim Herrick - t.herrick@sheffield.ac.uk**

A2.2. Other key investigators/co-applicants (within/outside University), where applicable:

Please list all (add more rows if necessary)

Title	Full Name	Post	Responsibility in project	Organisation	Department
-	-	-	-	-	-

A3.   **Proposed Project Duration:** *6 month for data collection; 2 years for submission of final report*
Data Collection - Start date: ***December 01, 2010***   End date: ***June 01, 2011***
Submission of Final Report – ***July 31st, 2012***

A4.   **Mark 'X' in one or more of the following boxes if your research:**

	Involves children or young people aged under 18 years
	Involves only identifiable personal data with no direct contact with participants
x	Involves only anonymised or aggregated data
	Involves prisoners or others in custodial care (eg young offenders)
	Involves adults with mental incapacity or mental illness
x	Has the primary aim of being educational (eg student research, a project necessary for a postgraduate degree or diploma, MA, PhD or EdD)

| University of Sheffield School of Education |
| RESEARCH ETHICS APPLICATION FORM |

A5. **Briefly summarise the project's aims, objectives and methodology?**

The aims of this project are as follows:

   a) to explore perceptions of the factors that may inhibit the development of critical
      thinking skills in adult vocational education students; and
   b) to explore perceptions of the roles and responsibilities of vocational educators in
      facilitating the development of critical thinking in Trinidad and Tobago.

Relatively little substantial knowledge has emanated from past research on critical

thinking with respect to adult vocational education students and teachers in Trinidad and

Tobago; therefore this study attempts to fill a significant void in the literature.

The major objectives of the project are:

   1) to stimulate participants' thought and dialogue, and arouse their awareness for
      the need to develop critical thinking skills in their adult students;
   2) to reiterate the need for administrators to formulate policies, develop
      institutional structures, provide relevant in-service programmes for vocational
      instructors, and implement strategies designed to complement vocational
      educators' current practices that facilitate critical thinking; and
   3) to encourage vocational educators to systematically and reflectively explore
      their roles and responsibilities as facilitators of students' critical thinking skills.

The achievement of these objectives will aid our students in developing into critical

thinkers who possess the required knowledge, skills, attitudes and competencies that

will enable them to participate effectively and fully as citizens of our democracy.

The project will employ the use of an intrinsic case study methodology in the qualitative

paradigm. Various data collection methods will be used – in-depth interviews, direct

observations, physical artifacts and document analyses. Fourteen persons will be

selected to participate in the project: eight vocational educators who have been

purposefully selected along principles explained in A8 (i) 1, below; and six

administrators whose extensive knowledge of adult vocational education in Trinidad and

Tobago will provide 'information-rich' data – further explained in A8 (i) 2, below.

A6. **What is the potential for physical and/or psychological harm / distress to
        participants?**

The potential for physical and/or psychological harm/distress to participants is minimal. As far as possible, interviews will be scheduled during normal working hours; however, some participants may experience a degree of inconvenience if they are required to remain after working hours for the purpose of being interviewed. Transportation will be provided for such participants who do not possess vehicles.

Interviews with participants will be conducted in a considerate and professional manner. Additionally, I shall avoid asking questions that seem to increase the level of distress or discomfort of participants. Questions, answers of which are imperative to the study, will be rephrased and only asked at the opportune moment.

A7.   Does your research raise any issues of personal safety for you or other researchers involved in the project and, if yes, explain how these issues will be managed?

All interviews will be conducted in the safety and security of the Ministry of Science, Technology & Tertiary Education's compounds. The issue of personal safety does not arise, since transportation will be provided for all participants who are required to remain after working hours for the purpose of being interviewed.

A8.   How will the potential participants in the project be:

(i)   identified -

Although there are many stakeholders who can undoubtedly be identified as potential participants in this project, two (2) major stakeholders will be selected:

1) Vocational Educators (Eight) - who play a pivotal role in their adult students' learning experiences and their holistic development. Two vocational educators, from each of the four geographical regions into which the Innovative Programme is divided, will be identified. These persons have been perceived (by their Programme Managers) to be 'effective' trainers in their respective skills. Additionally, they possess the linguistic competence in articulating their responses; and
2) Administrators (Six) - who have the ability to instil a sense of purpose and confidence, to clearly articulate goals, and inspire, enable and initiate change in others. The Innovative Programme is currently led by seven administrators (the researcher included). It is intended that six of these

administrators will act as participants, while I, the seventh administrator, will be the Principal Researcher.

(ii)   approached –

The details of the proposed project will be explained verbally to each prospective participant and an Information Sheet will also be given to supplement the verbal explanations. These persons will be given one week's time within which to consider whether or not they wish to participate in the research. They will be made to understand the process in which they will be engaged, why their participation is beneficial, how their information will be used and to whom it will be reported. Participation will then be sought, prior to the commencement of the research, without any duress. Persons will also be informed that they have the right to withdraw from the study for any or no reason, and at any time. They will not be coerced and no form of duress will be put on them to re-enter the study.

(iii)   recruited –

The nature of each participant's involvement will be clearly explained, and questions with respect to their involvement will be entertained. Participants will be advised that they will be interviewed once for a period of sixty to ninety minutes. These interviews will be taped and transcribed. Within two week's time of the interview, each participant would be presented with a copy of the transcript of his/her interview to ensure that information has been accurately noted. Those participants who are vocational educators will be advised that actual observations of one (1) of their teaching sessions will also be made and photographs of physical artifacts may be taken. Participants will be advised of their right to reject the use of devices such as tape-recorders and cameras.

A9.   Will informed consent be obtained from the participants?

Yes ✓

No

A.9.1   How do you plan to obtain informed consent? (i.e. the proposed process?):

The details of the project will be explained verbally to each participant. This will be followed by a written information sheet. Participants will be informed that their participation is entirely voluntary. Additionally, they will be advised that they can withdraw from the research (at any time – no reasons required), and there will be no penalty or loss of benefits for refusing to participate. Participants will then be given one week's time within which to consider whether or not they wish to participate. Persons who are interested in participating in the research will be required to sign a consent form. This form will be taken by the researcher to each individual for his/her signature.

A.10 How will you ensure appropriate protection and well-being of participants?

As far as possible, participants will be interviewed during working hours, in the safety and security of the Ministry of Science, Technology and Tertiary Education's offices. Transportation will be provided to those participants who are required to remain after working hours for the purpose of being interviewed; this will afford all participants a significant measure of personal protection.

Since the Innovative Programme is a relatively small organization, the level of anonymisation of the participants is critical. It is proposed that this will be achieved by identifying participants by means of a 5 letter code. This code will consist of the first letter of their: a) street name; b) mother's maiden name; c) month of birth; d) father's first name; and e) gender. Participants will then be asked to reorganize the combination of these letters according to their choice, and they would also be asked to identify the gender by which they wish to be referred. This will ensure that there is no possible link between the participants and their names. Descriptive data on each participant will be masked, thus preventing the possibility of being identifiable by knowledgeable insiders. With respect to the administrators who will be interviewed, no mention will be made of their specific duties that may link others to their identities. With respect to vocational educators, no mention will be made of their skill area or location.

A.11 What measures will be put in place to ensure confidentiality of personal data, where appropriate?

The data generated by the study will be analysed and kept by the researcher in the privacy of her home library, where the necessary security procedures and precautions can be adopted. The data will not be made public to anyone unless prior approval is sought from and granted by the participant. In writing up the research, all data will be anonymised, thus reducing the possibility of responses being linked to specific individuals.

A.12 **Will financial / in kind payments (other than reasonable expenses and compensation for time) be offered to participants?** (Indicate how much and on what basis this has been decided.)

Yes

No ✓

A.13 **Will the research involve the production of recorded or photographic media such as audio and/or video recordings or photographs?**

Yes ✓

No

A.13.1 This question is only applicable if you are planning to produce recorded or visual media:
How will you ensure that there is a clear agreement with participants as to how these recorded media or photographs may be stored, used and (if appropriate) destroyed?

The audio recordings of all interviews and the photographs of the artefacts will be used only for the purposes of analyses. Unless approved by the participants, no other use will be made of these and no one outside the project will be allowed access to the originals.

University of Sheffield School of Education
RESEARCH ETHICS APPLICATION FORM

PART B - <u>THE SIGNED DECLARATION</u>

Title of Research Project: *Arousing the Awareness: Critical Thinking Skills in Adult Vocational Education*

Name of Applicant: *Mrs. Debra Indar*

I confirm my responsibility to deliver the research project in accordance with the University of Sheffield's policies and procedures, which include the University's *'Financial Regulations', 'Good research Practice Standards'* and the *'Ethics Policy for Research Involving Human Participants, Data and Tissue'* (Ethics Policy) and, where externally funded, with the terms and conditions of the research funder.

In signing this research ethics application I am confirming that:

1.   The above-named project will abide by the University's Ethics Policy for Research Involving Human Participants, Data and Tissue':
        http://www.shef.ac.uk/content/1/c6/07/21/15/Tissue.doc

2.   The above-named project will abide by the University's 'Good Research Practice Standards': www.shef.ac.uk/content/1/c6/03/25/82/collatedGRP.pdf

3.   The research ethics application form for the above-named project is accurate to the best of my knowledge and belief.

4.   There is no potential material interest that may, or may appear to, impair the independence and objectivity of researchers conducting this project.

5.   Subject to the research being approved, I undertake to adhere to the project protocol without unagreed deviation and to comply with any conditions set out in the letter from the University ethics reviewers notifying me of this.

6.   I undertake to inform the ethics reviewers of significant changes to the protocol (by contacting my supervisor or the Ethics Administrator as appropriate

7.   I am aware of my responsibility to be up to date and comply with the requirements of the law and relevant guidelines relating to security and confidentiality of personal data, including the need to register when necessary with the appropriate Data Protection Officer (within the University the Data Protection Officer is based in CICS).

8.   I understand that the project, including research records and data, may be subject to inspection for audit purposes, if required in future.

9.   I understand that personal data about me as a researcher in this form will be held by those involved in the ethics review procedure (eg the Ethics Administrator and/or ethics reviewers/supervisors) and that this will be managed according to Data Protection Act principles.

10.   If this is an application for a 'generic'/'en block' project all the individual projects that fit under the generic project are compatible with this application.

11.   I will inform the Chair of Ethics Review Panel if prospective participants make a complaint about the above-named project.

Name of the Principal Investigator (or the name of the Supervisor if this is a student project: *Dr. Tim Herrick*

If this is a student project insert the student's name here: *Mrs. Debra Indar*

Signature of Principal Investigator (or the Supervisor): *Tim Herrick*

Signature of student: *Debra Indar*

Date: *November 10, 2010*

Email the completed application form and provide a signed, hard copy of 'Part B' to the course/programme secretary

For staff projects contact the Ethics Secretary, Colleen Woodward
Email: c.woodward@sheffield.ac.uk for details of how to submit

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Appendix 4: Original Participant Information Sheet

Participant Information Sheet

This information sheet, together with a signed consent form, will be given to you for your record.

1. **Research Project Title:**

Arousing the Awareness: Critical Thinking Skills in Adult Vocational Education

2. **Invitation paragraph**

You are being invited to participate in a research project. Before you decide whether or not you wish to participate, it is important for you to understand why the research is being done and what it will entail. This Information Sheet provides such details. Please take your time to read and discuss it with others if you wish. If you require further information or clarification, please do not hesitate to ask. My contact details are given on page 7 of this information sheet.

Thank you!

3. **What is the project's purpose?**

The purpose of this project is to explore perceptions of:

   a) the factors that may inhibit the development of critical thinking skills in adult vocational education students; and

   b) the roles and responsibilities of vocational educators in facilitating the development of critical thinking in adult vocational education students in Trinidad and Tobago.

To achieve education for sustainable development we need a thinking, enlightened citizenry who posses expert critical thinking skills that will enable them to cope effectively with accelerating technological changes, rapidly accumulating knowledge and increasing global competitiveness. It is intended that the project will stimulate

participants' thought and dialogue, and arouse their awareness for the need to further the development of critical thinking skills in adult vocational education students.

It is anticipated that data collection for this research project will be conducted during the period December 2010 to June 2011. Presentation of the findings from the research will be made available to you by October 2012.

4.   Why have I been chosen?

You have been chosen because of: 1) the wealth of information that you possess with respect to adult vocational education; and 2) your association with adult vocational education students of the Innovative Programme.

5.   Do I have to take part?

 Your participation is entirely voluntary. It is up to you to decide whether or not you wish to participate. If you do decide to participate, you will be given this information sheet to keep (and be asked to sign a consent form). Even if you sign a consent form, you can still withdraw at any time (no reasons required) without it affecting any benefits to which you are entitled. There will be no penalty or loss of benefits if you refuse to participate.

6.   What will happen to me if I take part?

If you agree to participate, you will be interviewed once for a period of sixty to ninety minutes. If you are required to remain for an interview after working hours, transportation to your home will be made available.

The interview questions will all relate to your perceptions of various aspects of the proposed research and you are required to answer as truthfully as possible. These interviews will be audio-taped and transcribed. Within 2 weeks of your interview, you will be given the written transcript to ensure that the information contained therein has been accurately noted. Additionally, for vocational educators who have agreed to participate, observations of one of your actual teaching sessions will be made. At these observational sessions, I shall be able to gauge how critical thinking skills are being developed within a range of vocational educators' classrooms. Photographs of physical artefacts may also be taken at these visits. You have the right to reject the use of devices such as tape recorders (used during interviews) and cameras (used at vocational educators' classroom sessions). Data gathered during interviews and observational sessions will be strictly used for research purposes and not for evaluating your professional competence.

Various steps will be taken to ensure your anonymity and the anonymity of your data. You will be identified by means of a 5 letter code. This code will consist of the first letter of your: a) street name; b) mother's maiden name; c) month of birth; d) father's first name; and e) gender. You will then be asked to reorganize the combination of these letters according to your choice, and you would also be asked to identify the gender by which you prefer to be referred. This will ensure that there is no possible link between you and your name. Your descriptive data will be masked, thus preventing the possibility of being identifiable by knowledgeable insiders. With respect to the administrators who will be interviewed, no mention will be made of your specific duties that may link others to your identity. With respect to vocational educators, no mention will be made of your skill area or location.

The data generated by the study will be analysed and kept by me in the privacy of my home library, where the necessary security procedures and precautions can be adopted. Your data will not be made public to anyone unless prior approval is sought from and granted by you. In writing up the research, your data will be anonymised, thus

reducing the possibility of your responses being linked to you. As has been previously stated, your data will be strictly used for research purposes and not for evaluating your professional competence.

7. Will I be recorded, and how will the recorded media be used?

The audio recordings of the interviews made during this research will be used only for analysis and for illustration in conference presentations and lectures. No other use will be made of these recordings without your written permission, and no one outside the project will be allowed access to the original recordings.

8. What do I have to do?

No lifestyle restrictions will be placed on you as a result of your participation in the project.

You will be interviewed once for a period of sixty to ninety minutes. These interviews will be taped and transcribed. Within two week's time of the interview, you would be presented with a copy of the transcript of your interview to ensure that information has been accurately noted. Actual observations of one (1) of the teaching sessions of vocational educators will also be made and photographs of physical artefacts may be taken. You have the right to reject the use of devices such as tape-recorders and cameras.

9. What are the possible disadvantages and risks of taking part?

Although various steps will be taken to ensure your anonymity (see number 6), this may be unintentionally compromised because of the relatively small number of persons directly involved in the Innovative Programme. However, given the lengthy steps taken

to ensure your anonymity, the possibility of anyone linking your responses to your name is minimal.

10. What are the possible benefits of taking part?

The research project will provide you with the perfect opportunity to discuss and reflect upon this significant dimension of our students' development – critical thinking.

It is anticipated that the recommendations arising out of the research findings will, if heeded, contribute to the enhancement of our adult students' critical thinking. By enabling the roles and responsibilities of vocational educators to be facilitated, and by ensuring that trainees develop the critical thinking skills which will translate into economic productivity, the viability of the continuity of programmes such as the Innovative Programme is thus assured.

11. What happens if the research study stops earlier than expected?

If the study is prematurely terminated, the reasons for this untimely termination will be communicated to you. All data arising out of your participation in the project thus far will be securely kept by me, if it is anticipated that the project will resume at a later date. However, if it is not anticipated that the project will ever recommence, your permission will be sought for the disposal of the data; alternatively, all data gathered from your participation thus far, will be returned to you at your request.

12. What if something goes wrong?

Should you wish to raise a complaint regarding my interaction with you as a participant in this research, please contact my supervisor, Dr. Tim Herrick, at

t.herrick@sheffield.ac.uk

If you still perceive that your complaint has not been adequately handled, please contact Dr. Philip Harvey, the University of Sheffield's Registrar and Secretary, at Registrar@sheffield.ac.uk.

13.   Will my taking part in this project be kept confidential?

Because of the relatively small number of employees at the Innovative Programme, your association with this research project may be recognised; however, all data collected from you during the course of the research will be kept strictly confidential. You will be given the opportunity to review the accuracy of your data after it is collected. Neither you nor your data will be identified in any report or publication unless authorised by you.

14.   What will happen to the results of the research project?

The published results of this research will be made available to you by October 2012. Results of this research may be used in other research projects to explore the degree to which the perceived barriers actually retard the growth of critical thinking. Subsequent research projects may also use the findings of this research to ascertain the efficacy of the recommendations contained therein, in advancing the development of critical thinking skills in adult vocational education students in Trinidad and Tobago, and elsewhere. If direct use is to be made of your data in these further research projects, you will again have the right to grant or refuse permission.

15.   Who is organising and funding the research?

This research is entirely funded by me, the researcher, and is being undertaken as partial fulfilment of the Doctor of Education Degree at the University of Sheffield.

16. **Who has ethically reviewed the project?**

This project has been ethically approved by University of Sheffield's (School of Education) Research Ethics Committee. The University's Research Ethics Committee monitors the application and delivery of the University's Ethics Review Procedure across the University.

17. **Contact for further information**

For further information you can contact me at 671-7524, 485-8010 or debbie_indar@hotmail.com

or

my supervisor, Dr. Tim Herrick, at **t.herrick@sheffield.ac.uk**

Thank you for participating in this project!

Appendix 5: Original Participant Consent Form

Participant Consent Form

Title of Project:
Arousing the Awareness: Critical Thinking Skills in Adult Vocational Education

Name of Researcher: *Debra Indar*

Participant Identification Number for this project:

Please initial box

1. I confirm that I have read and understand the information sheet/letter (delete as applicable) dated *[insert date]* for the above project and have had the opportunity to ask questions.

2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason. *Insert contact number here of lead researcher/member of research team (as appropriate).*

3. I understand that my responses will be anonymised before analysis. I give permission for members of the research team to have access to my anonymised responses.

4. I agree to take part in the above research project.

_____   _____   _____
Name of Participant   Date   Signature

_____   _____   _____
 Lead Researcher   Date   Signature
To be signed and dated in presence of the participant

Copies:

Once this has been signed by all parties the participant should receive a copy of the signed and dated participant consent form, the letter/pre-written script/information sheet and any other written information provided to the participants. A copy for the signed and dated consent form should be placed in the project's main record (e.g. a site file), which must be kept in a secure location.

Appendix 6: Participant Information Sheet Given to Participants

Arising out of an email discussion on February 15th and 16th 2016 with my supervisor, Dr Tim Herrick, the original title of this project - *"Arousing the Awareness: Critical Thinking Skills in Adult Vocational Education"* and its purposes were amended. The revised title of this project is *"Awakening the Awareness: Critical Thinking in Vocational Education"* and the following Participant Information Sheet reflects other minor amendments.

Participant Information Sheet

This information sheet, together with a signed consent form, will be given to you for your record.

1. **Research Project Title:**

Awakening the Awareness: Critical Thinking in Vocational Education

2. **Invitation paragraph**

You are being invited to participate in a research project. Before you decide whether or not you wish to participate, it is important for you to understand why the research is being done and what it will entail. This Information Sheet provides such details. Please take your time to read and discuss it with others if you wish. If you require further information or clarification, please do not hesitate to ask. My contact details are given at the end of this information sheet.
Thank you!

3. **What is the project's purpose?**
The purposes of this project are to explore:

a) conceptualizations of critical thinking in vocational education; and

b) perceptions of factors that impact the development of critical thinking skills in adult vocational education students.

To achieve education for sustainable development we need a thinking, enlightened citizenry who posses expert critical thinking skills that will enable them to cope effectively with accelerating technological changes, rapidly accumulating knowledge and increasing global competitiveness. It is intended that the project will stimulate participants' thought and dialogue, and awaken their awareness for the need to further the development of critical thinking skills in

adult vocational education students. The ultimate aim of this research is to enhance the critical thinking skills of subsequent trainees of this vocational education institution, thus increasing their opportunities for employment and self-employment.

4.   **Why have I been chosen?**

You have been chosen because of: 1) the wealth of information that you possess with respect to adult vocational education; and 2) your current position at the vocational institution in which this research is to be conducted.

You are therefore suitably qualified to provide conceptualizations and perceptions that are relevant to critical thinking in vocational education.

5.   **Do I have to take part?**

Your participation is entirely voluntary. It is up to you to decide whether or not you wish to participate. If you do decide to participate, you will be given this information sheet to keep (and be asked to sign a consent form). Even if you sign a consent form, you can still withdraw at any time (no reasons required) without it affecting any benefits to which you are entitled. There will be no penalty or loss of benefits if you refuse to participate.

6.   **What will happen to me if I take part?**

If you agree to participate, you will be interviewed once for a period of sixty to ninety minutes. If you are required to remain for an interview after working hours, transportation to your home will be made available.

The interview questions will all relate to your conceptualizations and perceptions of various aspects of the proposed research. These interviews will be audio-taped and transcribed. Within 2 weeks of your interview, you will be given the written transcript to ensure that the information contained therein has been accurately noted. Additionally, for vocational educators who have agreed to participate, observations of one of your actual teaching sessions will be made. At these

observational sessions, I shall be able to gauge how critical thinking skills are being developed within a range of vocational educators' classrooms. Photographs of physical artefacts may also be taken at these visits. You have the right to reject the use of devices such as tape recorders (used during interviews) and cameras (used at vocational educators' classroom sessions). Data gathered during interviews and observational sessions will be strictly used for research purposes and not for evaluating your professional competence.

Various steps will be taken to ensure your anonymity and the anonymity of your data. You will be identified by means of a 5 letter code. This code will consist of the first letter of your: street name; mother's maiden surname; month of birth; father's first name; and favourite food. You will then be asked to reorganize the combination of these letters according to your choice, and you would also be asked to identify the gender by which you prefer to be referred. This will diminish the possible link between you and your name. Your descriptive data will be masked, again diminishing the possibility of your identity being revealed to knowledgeable insiders.

The data generated by the study will be analysed and kept by me in the privacy of my home library, where the necessary security procedures and precautions can be adopted. Your data will not be made public to anyone unless prior approval is sought from and granted by you. In writing up the research, your data will be anonymised, thus reducing the possibility of your responses being linked to you. As has been previously stated, your data will be strictly used for research purposes and not for evaluating your professional competence.

7.   **Will I be recorded, and how will the recorded media be used?**
The audio recordings of the interviews made during this research will be used only for analysis and for illustration in possible future conference presentations and lectures. No other use will be made of these recordings without your written permission, and no one outside the project will be allowed access to the original recordings.

What do I have to do?

No lifestyle restrictions will be placed on you as a result of your participation in the project.

You will be interviewed once for a period of sixty to ninety minutes. These interviews will be taped and transcribed. Within two week's time of the interview, you would be presented with a copy of the transcript of your interview to ensure that information has been accurately noted. Actual observations of one (1) of the teaching sessions of vocational educators will also be made and photographs of physical artefacts may be taken. You have the right to reject the use of devices such as tape-recorders and cameras.

9.   **What are the possible disadvantages and risks of taking part?**

There are no foreseen disadvantages to you participating in this activity; however, although various steps will be taken to mask your identity (see number 6), this may be unintentionally compromised because of the relatively small number of persons directly involved in the Innovative Programme. However, given the lengthy steps taken to ensure your anonymity, the possibility of anyone linking your responses to your identity is minimal.

10.   **What are the possible benefits of taking part?**

The research project will provide you with the perfect opportunity to discuss and reflect upon this significant dimension of our students' development – critical thinking.

It is anticipated that the recommendations arising out of the research findings will, if heeded, contribute to the enhancement of our adult students' critical thinking. By ensuring that subsequent trainees develop the critical thinking skills which have the potential to translate into individual and national economic productivity, the viability of the continuity of the Innovative Programme is thus assured.

11.   **What happens if the research study stops earlier than expected?**

If the study is prematurely terminated, the reasons for this untimely termination will be communicated to you. All data arising out of your participation in the project thus far will be securely kept by me, if it is anticipated that the project will resume at a later date. However, if it

is not anticipated that the project will ever recommence, your permission will be sought for the disposal of the data; alternatively, all data gathered from your participation thus far, will be returned to you at your request.

12.   What if something goes wrong?

If something should go wrong, or should you become concerned during the research process, please contact the researcher (name and contact information provided below). If there is failure to resolve the issue in a manner with which you are comfortable, please contact the researcher's supervisor whose name and contact information are also provided below. If after taking these steps you still feel that your complaint has not been satisfactorily dealt with, please contact Dr. Philip Harvey, the University of Sheffield's Registrar and Secretary, at Registrar@sheffield.ac.uk.

13.   Will my taking part in this project be kept confidential?

All data collected from you during the course of the research will be kept strictly confidential. You will be given the opportunity to review the accuracy of your data after it is collected. Neither you nor your data will be identified in any report or publication unless authorised by you.

Although your name will not be mentioned anywhere in the thesis, your anonymity cannot be guaranteed. Due to the relatively small number of employees at the Innovative Programme, the possibility exists that knowledgeable persons will be able to discern your identity from the doctoral thesis.

14.   What will happen to the results of the research project?

The results of the study will be analysed and used for submission of a doctoral thesis. Copies of this doctoral research will available at the University of Sheffield's library and our CEO will also be given a copy. It is possible that aspects of this research may eventually be published as articles in educational journals.

Results of this research may also be used in other research projects. These projects may use the findings of this research to ascertain the efficacy of the recommendations contained therein, in advancing the development of critical thinking skills in adult vocational education students in Trinidad and Tobago, and elsewhere. If direct use is to be made of your data in these further research projects, you will again have the right to grant or refuse permission.

15. **Who is organising and funding the research?**

This research is entirely funded by me, the researcher, and is being undertaken in partial fulfilment of the requirement of a Doctor in Education (Ed.D.) at the University of Sheffield.

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16. **Who has ethically reviewed the project?**

This project has been ethically approved by University of Sheffield's (School of Education) Research Ethics Committee. The University's Research Ethics Committee monitors the application and delivery of the University's Ethics Review Procedure across the University.

17. **Contact for further information**

Should you require additional information, please feel free to contact the researcher:

Debra Indar

#55 Dass Branch Terrace

Enterprise, Chaguanas

Trinidad

Tel: (home) - 1(868)-671-7524; (mobile)1(868)-485-8010

Email: debrai@ytepp.edu.tt

or

Dr Tim Herrick

University of Sheffield

School of Education

388 Glossop Road,

Sheffield

S10 2JA

Tel: (office) (+44) 114 222 8109; (mobile) (+44) 787 262 5582

Email: t.herrick@sheffield.ac.uk

Thank you for participating in this project!

Appendix 7: Participant Consent Form Given to Participants

Participant Consent Form

Title of Project: *Awakening the Awareness: Critical Thinking in Vocational Education*

Name of Researcher: *Debra Indar*

Participant Identification Number for this project:

Please initial box

1. I confirm that I have read and understand the information sheet/letter (delete as applicable) dated *[insert date]* for the above project and have had the opportunity to ask questions.

2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason. *Insert contact number here of lead researcher/member of research team (as appropriate).*

3. I understand that my responses will be anonymised before analysis. I give permission for members of the research team to have access to my anonymised responses.

4. I agree to take part in the above research project.

_____   _____   _____
Name of Participant   Date   Signature

_____   _____   _____
 Lead Researcher   Date   Signature
To be signed and dated in presence of the participant

Copies:

Once this has been signed by all parties the participant should receive a copy of the signed and dated participant consent form, the letter/pre-written script/information sheet and any other written information provided to the participants. A copy for the signed and dated consent form should be placed in the project's main record (e.g. a site file), which must be kept in a secure location.

Appendix 8: Interview Schedule

Schedule of Interview Questions

Introduction

Before we begin the formal part of this interview, I wish to express my sincere thanks to you for agreeing to participate in this research. The objectives of my research were clearly outlined in this Participant Information Sheet which was given to you; nevertheless, I shall remind you of my primary reasons for conducting this research, why your participation is beneficial, how your responses will be used and to whom it would be made accessible. If you are unsure about anything, please do not hesitate to stop me and seek clarification.

➤ Refer to Participant Information Sheet.

1) Are you clear about everything that was explained?
2) This interview should last for approximately 90 minutes. I had indicated to you that your responses will be taped and then transcribed. Do you still agree to this?
3) I'm reminding you also, that your responses will be kept confidential, and every attempt will be made to protect your identity.

Opening Questions

1) Can you give me the 1st letter of your: street name; mother's maiden surname; month of birth; father's first name; and favourite food.
2) These are the letters that represent your code (e.g. BDOJC). Please re-arrange these letters if you so desire (e.g. DCBJO).
3) What was the highpoint of your day? OR Can you tell me about anything that made you particularly happy, depressed or angry today?
4) Just to refresh my memory, how long have you been working with the IPRO?
5) Where did you work previously? In what capacity?
6) Have you done anything in your present or past occupations with respect to "Critical Thinking"? If so, can you please explain?

(The interviews that were conducted with each participant were informal and semi-structured, and while they followed a relatively "fixed" linear form of questioning as indicated below, each conversation was unique since questions emanating from participants' responses were unplanned and spontaneously generated. The following questions are therefore those that were asked at varying stages of the interviews depending on the context of participants' responses.)

Major Questions

1) *What is critical thinking in vocational education?*

2) *What factors impact the development of critical thinking in adult vocational education students?*

3) *Why are critical thinking skills in vocational education important in the 21ˢᵗ century?*

4) *How effective are current instructional strategies (teaching styles/methods) in facilitating the development of critical thinking? Can you please elaborate?*

5) *What are your roles and responsibilities in furthering or enhancing the development of critical thinking in adult vocational education students?*

6) *What changes (if any) can be made to the design of the IPRO to ensure that subsequent trainees are afforded ample opportunities to further develop their critical thinking skills?*

7) *Is there anything which I have not asked, but which you think is worth mentioning?*

Closing Remarks

1) Thank you once again, for taking time out of your busy schedule to facilitate this interview.

2) Just to recap, let me remind you of some of the major questions and your responses.

3) If necessary, may I call you to seek clarification whilst transcribing our interview?

4) I would be finished with the transcription by (day of the week). Is it possible for us to meet sometime after this date to discuss your transcript… probably around (specify a day), depending on your availability?

5) *Only for the six Vocational Instructors* – Please remember that I'll be coming sometime on (specify a day) to observe you teaching a lesson.

6) As a token of my appreciation for your participation in this research, please accept this small gift (wind chimes for females and manicure cases for men).

7) *Hug participant or shake hand and say, "Thanks a million"!*