

**Evidence of the 4Cs of 21st Century Learning in Jamaica's NCTVET Home
Economics Related Curricula**

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A GRADUATE PAPER SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF

Master of Education

In

THE FACULTY OF GRADUATE STUDIES

(Home Economics)

The University of British Columbia (Vancouver)

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December 20 , 2022

Abstract

This paper argues that 21st Century Learning is one way to enhance home economics related vocational courses in Jamaica. It makes the case for including the 4Cs of 21st Century Learning (critical thinking, communication, cooperation, and creativity) in Jamaica's National Council on Technical and Vocational Education and Training (NCTVET) Home Economics related vocational curricula then it examines the current mandated curricula for evidence of the 4Cs. The purpose of this inquiry was to determine to what extent are the 4Cs evident in the instructional content of the NCTVET Home Economics related syllabi, to make recommendations to improve the implementation of the 4Cs within NCTVET Home Economics courses.

Dedication

I would like to dedicate this paper to my husband Michael and daughters, Micaela and Mireya Simpson, who supported me through every step of this paper and beyond. Their patience, compassion and understanding and never-ending encouragement was beyond measures. I could not have finished this paper without you all.

Secondly, I dedicate this paper to my mother Victoria Briscoe who passed at the onset on the course, my aunt Muriel Briscoe-Mundle, my sister Pamella Briscoe and my niece, Nickeisha Thomas, who all made their transition during my studies. The denial, anger, bargaining, depression and acceptance, all culminated to process the changes and protect me while I adapted to the new realities. All these losses made me pushed through to complete this study.

Finally, I dedicate this paper to my middle child, Micaela Simpson who was studying in the Ukraine and had to flee the country while I was studying. We lost contact for two days while she was crossing Poland. Faith held us together and so with these negative factors I weathered the storm and now I have triumphantly completed and have won the victory.

Acknowledgements

I would like to express my profound gratitude and appreciation to my advisors, Dr. Mary Gale Smith, Dr. Mary Leah de Zwart and Dr. Kerry Renwick, who have guided and supported me throughout this program and paper. Their interactive support, wisdom, feedback and encouragement have impacted my zeal and confidence to complete this paper. The journey has been long with mixed emotions but

To my husband Michael and daughters Micaela and Mireya who provided moral, informational and affirmational support, without their love and support, this journey would not be possible. Last but not least to my colleagues Walida Haase, Joesette Atkinson and Angella Dunkley who were my cheerleaders and technology life line when my computer failed and when the going got tough, I am eternally grateful.

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Abbreviations and Acronyms

Accredited Training Organizations (ATOs)

Caribbean Advanced Proficiency Exam (CAPE)

Caribbean Examination Council (CXC)

Caribbean Secondary Education Certificate (CSEC)

Caribbean Vocational Qualification (CVQ).

Competence Based Education and Training (CBET)

Critical Discourse Analysis (CDA)

International Standards Organization (ISO)

Jamaica Tertiary Education Commission [JTEC]

Jamaican Ministry of Education (MoE).

National Council on Technical and Vocational Education and Training (NCTVET)

National Qualifications Frameworks (NQF)

Planning Institute of Jamaica [PIOJ]

Technology and Vocational Education and Training (TVET)

United States Agency for International Development [USAID]

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Chapter 1

Introduction

This chapter positions the study within Home Economics-related curricula in Jamaica's Technology and Vocational Education and Training (TVET) context and the literature on 21st Century Learning. TVET courses are offered mainly in secondary schools but also in some private institutions, and higher education (Fletcher & Ndahi, 2020; Heart Trust, 2005; Palma et al., 2015; West, 2019). They are governed by the National Council on Technical and Vocational Education and Training (NCTVET) which is charged with managing the quality of the national TVET system. The TVET courses are competency based and are designed to equip students with knowledge and skills for specific vocations. Increasingly the work of world is changing and 21st Century skills, especially the 4Cs - communications, collaboration, creativity and innovativeness, critical thinking – are mentioned as key components of vocational education in general (Lynch, 2000; Mutohhari, 2021) and home economics in particular (Bamalli, 2014).

I am a teacher with a Bachelor of Education in Home Economics. I have more than two decades of high school teaching experience from grades seven to thirteen in Jamaica. I am presently an Education Officer in the Jamaican Ministry of Education (MoE). I monitor the Home Economics Sixth Form Pathway Programme designed for students in grades 12 and 13. Home Economics education is located within TVET. The TVET system is a vocational education program designed to support nation building with the goal for citizens to gain expertise that would contribute to the national economy (Ayonmike et al., 2015) and to tackle youth unemployment (Suahmanyam, 2014). There is tension in home economics vocational education between the goal of supporting the world of work and preparing students for everyday life. Or as Apple (1997) asked: Is home economics liberal arts or vocational training? The governing

authorities in Jamaica place home economics in TVET.

After attending a *Capacity Building* course in Google Classroom, I became committed to 21st Century Learning particularly the skills of written and oral communications, collaboration, creativity and innovativeness, and critical thinking, commonly referred to as the four Cs (Jones, 2013). I have come to realize that these competencies could be integrated across the curriculum, including home economics (Jones, 2013; Kay & Greenhill, 2011) and could be a way to bring in the liberal arts (Apple, 1997) and general skills and abilities that can students can use in their everyday life (IFHE, 2008) into TVET courses. Twenty-first Century learners are expected to obtain skills and develop the necessary innovation and creativity to succeed in the competitive environment, both personally and career-wise. There is an opportunity for Home Economics to promote these aspects of learning within in the TVET system (Taar & Palojoki, 2022).

According to Smith (2017) the Jamaican Home Economics curriculum has failed to adapt to 21st Century needs. She claims the traditional instructional design, subject areas, and delivery methods for Home Economics in Jamaica remain highly antiquated. Similarly, the Human Employment and Resource Training (HEART) division of the Trust/National Training Agency (NTA) (2005), with the mandate to develop the Jamaican workforce by increasing labour-market relevant education and training, observed that Jamaica's approach is "overly academic, too individualistic and too test-centred [thus reducing its relevance] in terms of employability skills (soft skills)" (p. 24). The mention of soft skills is significant as the four Cs (communication, critical thinking, creativity, cooperation) are usually included in lists of soft skills (Abdullah-Al-Mamun, 2012). In 2018, the Ministry of Education Youth and Information released a document proposing a new curriculum implementation framework. It stated:

There is a growing realisation that Jamaica is continuing to operate under a 19th

century school system designed to teach obedience and mastery of test writing, rather than developing the skills and attitudes needed to manage productively in the 21st century, develop personally and contribute meaningfully to knowledge economy. (p. 10).

These critiques suggest there is an opportunity to integrate the four C's of 21st Century Learning into TVET Home Economics. This could bring the home economics related courses in the vocational/technical sector more in-line with the current beliefs about the goals and purposes of home economics (IFHE, 2008).

This opportunity led me to critically examine existing NCTVET Home Economics-related curricula for the presence of the four Cs and any attendant ideological messaging that might provide openings for approaches that would allow home economics teachers to reposition their teaching strategies for effective teaching and learning in the 21st century (Bamalli, 2014).

My inquiry questions thus became:

1. To what extent are 21st Century Learning skills (the four Cs) present in existing NCTVET Home Economics-related curricula?
2. What ideological messaging (language) embedded in these curricula provide openings for approaches that would allow home economics teachers to reposition their teaching strategies for effective teaching and learning in the 21st century?
3. What changes (content and pedagogy) are required to update the Jamaican NCTVET Home Economics-related curricula to accommodate the demands of the 21st Century?

Chapter 2 provides additional background information on the Jamaican education system set the context for assessing whether the existing content meet the needs of 21st Century learners. Chapter 3 reviews the literature on 21st Century Learning in TVET. The methodology described

in Chapter 4 grounds this study in the critical research methodology employing both content analysis and Critical Discourse Analysis (CDA). Chapters 5 and 6 bring the paper to a conclusion by discussing the findings and making recommendations.

Chapter 2: Jamaican Education System

Jamaica is an independent country within the British Commonwealth. It became independent in 1962, inheriting a largely grammar school education system from the British. To provide further a rationale for the research problem and research questions, this chapter profiles the Jamaican education system and positions home economics within it, paying specific attention to home economics within the TVET Certification/Diploma/Associate degree category.

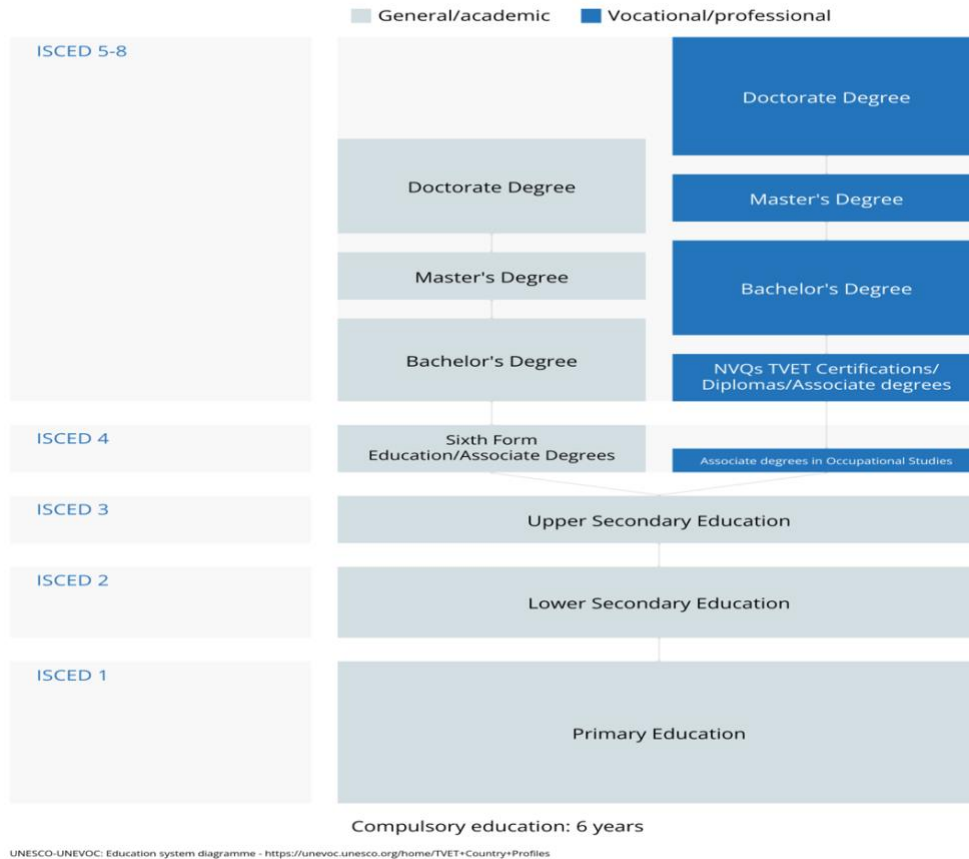
Jamaica's national development plan (*Vision 2030*) for the education sector (Planning Institute of Jamaica [PIOJ], 2010) includes ensuring the country is well-resourced and internationally recognized with a value-based education system that fosters critical thinking. An underlying objective is to develop lifelong learners who can successfully contribute to economic productivity and national development (PIOJ, 2010). This vision for the Jamaican economy especially pertains to youth who are the future labor force. It is this generational cohort that attends and benefits from NCTVET schools and programs in Jamaica.

As with most nations, Jamaica has a multitiered education system: early childhood, elementary (age 7–11), secondary (age 12–15), sixth form (age 16–19), and tertiary (university and vocational) as shown in Figure 1.

Figure 1

TVET Country Profiles Jamaica (UNESCO, n.d.)

Formal Education System - Jamaica



2.1 Home Economics in the Secondary School

Secondary school has two levels – lower secondary (up to grade 9) and upper secondary (Grades 10 and 11). Grades 12 and 13 students attend lower and upper sixth-form programs, respectively. The term “sixth form” is a holdover from the British system where it referred to students aged 16–18 who were preparing for their A levels to qualify for entrance to higher education. In Jamaica, sixth-form programs (expensive and highly competitive) are only run by select high schools and colleges (Trines, 2019; World Education News and Reviews [WENR], 2019).

In more detail, lower secondary students (completed Grade 9) can choose to attend upper secondary education, which prepares them for the external examination called the *Caribbean Secondary Education Certificate* (CSEC) conducted by the CXC (2005). Students who meet the school requirements for the completion of Grade 11, but then fail the CSEC, may receive a high school graduation certificate. Those grade 11 students who pass the CSEC can choose to study two additional years in grades 12 and 13, called the lower and upper sixth form, respectively. If they subsequently pass the *Caribbean Advanced Proficiency Exam* (CAPE), students can then choose to enrol in either college or university, or technical and vocational school. Grade 11 students who pass the CSEC but eschew the CAPE route may also opt to attend Technical and Vocational Education Training (TVET) institutions but not university (Trines, 2019; WENR, 2019).

Jamaican accredited community colleges and vocational training centers grant certificates, diplomas, and/or Associate degrees (one- to three-year programs) while universities grant degrees (e.g., bachelor, master, doctoral). Many upper secondary schools are linked with TVET institutions, and many TVETs have joint programs with universities. Some North American universities have extension programs in parts of Jamaica wherein students receive an off-shore credential (Trines, 2019; WENR, 2019).

2.2 Home Economics in the Jamaican TVET Context

In Jamaica, Home Economics is available at both the upper and lower secondary and tertiary levels as well at the higher levels.

At the secondary level National syllabi are available for Management, Clothing and Textiles, and Foods and Nutrition. Home Economics is defined as:

a systematic study of the natural and social phenomena of the home and the

family and is aimed at improving the quality of life. It is primarily concerned with helping individuals to develop the attitudes, values, skills and knowledge that will enable them to make a meaningful contribution to their family life, community and workplace. (Caribbean Examinations Council 2005, p. 1)

At the tertiary level, Home Economics is offered via the TVET system and in teacher education programs. TVET plays a critical role in empowering youth and supporting economic growth by offering generic and trade-specific information, skills, and attitudes that help graduates transition from school to work (Fletcher & Ndahi, 2020; Palma et al., 2015; Jamaica Tertiary Education Commission [JETC], 2015). With its focus on the development of skilled labour, entrepreneurs, and technical capabilities, TVET is widely perceived as a crucial tool for Jamaica's economic progress and national development because it plays an integral role in economic competitiveness (Payne, 2015; Palma et al., 2015). TVET provides access to timely, relevant, and adequate technical vocational education and training (Ayonmike et al., 2015; Patterson, 2018).

TVET courses classified as home economics are offered in many upper secondary schools that are linked with TVET institutions. It is the TVET programs that are the focus of this inquiry. Those that fall under the category of Technical and Vocational in Figure 2. The categories indicate levels of certification:

Level 1 – Directly Supervised Worker

Level 2 – Supervised Skilled Worker

Level 3 – Supervisor

Level 4 – Middle Manager

Level 5 – Manager

Level 6 – Specialist

Level 7 – Specialist/Multi-disciplined Professional

Level 8 – Specialist (Jamaica Tertiary Education Commission, n.d.)

Figure 2

Tertiary Education Sector in Jamaica (Jamaica Tertiary Education Commission, n.d.)



NQF-J
NATIONAL
QUALIFICATIONS
FRAMEWORK
OF JAMAICA

Levels	Jamaican Tertiary Education Sectors				
	General Education	Technical & Vocational	Occupational Degrees	Tertiary Education	Lifelong Learning
8		C/NVQ 8	Applied Doctorate	Doctoral Degree	Prior Learning Assessment and Recognition (PLAR)
7		C/NVQ 7		Masters Degree	
6		C/NVQ 6	Occupational Masters	Post Graduate Certificate/ Diploma	
5		C/NVQ 5	Occupational Bachelors	Bachelors Degree	
4		C/NVQ 4	Occupational Associates	Associates Degree / Advanced Diploma	
3	Certificate (Upper Secondary)	C/NVQ 3		Diploma	
2	Certificate (Upper Secondary Leaving)	C/NVQ 2			
1	Certificate (Lower secondary)	C/NVQ 1			
----	Access Point 2				
	Access Point 1				

TVET is administered by the Heart Trust/NTA (Fletcher & Ndahi, 2020; Trines, 2019).

The Heart Trust is a statutory agency of the Office of the Prime Minister (Fletcher & Ndahi, 2020) and is “in charge of the labour competencies or standards management at a national level” (Palma et al., 2015, p.16). By comparison, NCTVET manages quality in the National TVET system. Its function is assessment and therefore is responsible for the content and quality of technical and vocational education curricula. Its mandate is to “develop and promote a certification system that is relevant, responsive and effective [to the needs of the Jamaican economy]” (NCTVET, 2020, para. 1).

NCTVET develops curricula for sixth-form students who are interested in vocational and technical education and training. These TVET programs are usually attached to secondary schools in Jamaica, sometimes sixth form is offered in tertiary colleges (i.e., higher education institutions) that provide technical and vocational education. Currently, sixth form college is optional (and very competitive) in Jamaica, but policy reform to make it mandatory is moving in that direction. “In the Caribbean ... TVET is rapidly moving from being an incidental aspect of the education process to becoming an integral part of higher education” (Hutton & Dixon, 2016, p. 100).

McClelland (1987) clarified that Jamaican vocational and technical schools offer Home Economics programs that teach employment and occupational skills (e.g., garment construction, catering, and food preservation). Jamaican secondary schools teach home economics for home making. This model reflects the historical tendency of Jamaican postsecondary institutions to offer vocational curricula that are intended to bolster economic development and national prosperity (McClelland, 1987). Jamaica’s economy is driven by the service sector, which normally absorbs 85.9% and 52% of women and men’s labour force respectively – the highest share of the country’s labour force (United States Agency for International Development [USAID], 2017). Food provision and cooking skills, clothing and textiles, fashion marketing, design, and caring for others are important for the nation’s service sector; thus, Jamaica needs a constant supply of labour in these areas (Planning Institute of Jamaica [PIOJ], 2009).

TVET “is widely recognized as a vital driving force for the socio-economic growth and technological development of nations” (Ayonmike et al., 2015, p. 25). TVET prepares students for direct entry into recognized occupations that usually require certification (Bamalli, 2014). For clarification, occupation certification in Jamaica pertains to jobs that are highly skills oriented.

Courses are normally shorter in duration (compared to four-year university degrees) and are designed to provide training and occupation-related skills that have been identified and are recognized by industry and employers (Jamaica Tertiary Education Commission [JTEC], 2015). Jamaican vocational and technical education learners are expected to enter the job market adequately prepared to succeed in the current and future competitive environment.

A roster of TVET courses fall under the category of vocational home economics within the NCTVET curricula (see Table 1). NCTVET refers to these courses as the *Hospitality* curriculum. This study employed the term *Home Economics-related* courses because they are overseen by home economics professionals, located in home economics departments and enrollment is often drawn from students who have previously taken home economics courses at the secondary level. The connection between hospitality and home economics has existed since hospitality related courses were included in schools and colleges often based on commonalities related to food and textiles and human services (Sproles & Sproles, 1992). It is not unusual for home economics professionals to be teaching TVET courses (Pendergast & Wilks, 2005) or for hospitality programs in higher education to be located in Departments of Home Economics (Williams, 2005).

Table 1*Jamaican NCTVET Home Economics-Related Courses*

Food-related	Fashion-related	Personal Aesthetics	Housekeeping
• Bakery Chef • Cake Baking and Decorating – • Commis [Novice] Chef • Commercial Food Preparation (Cookery) – • Community Cookery • Food and Beverage Restaurant Service (Hosting) • Food and Beverage Restaurant Service (Server)	• Garment and Textile Technology • Fashion Designing • Interior Decorating • Soft Furnishing	• Cosmetology - General • Cosmetology – Hair Styling 1 • Nail Technology – CSB20507V01	• Housekeeping (Houseman) – • Housekeeping (Room Attendant) – • Housekeeping (Linen Room Attendant) –

2.2 Quality Assurance Aspect of the Jamaican TVET System

It is important to note that Home Economics-related curricula vocational programs are accredited through a quality assurance aspect the National Council on Technical and Vocational Education and Training (NCTVET) as it has implications for what and how curriculum is developed and implemented. Quality assurance refers to the processes and mechanisms through which subject, programme teams, departments, faculties and institutions evaluate the achievement of their aims, maintain the currency of their programmes and agree on methods for continuously improving their overall provision. Quality in a TVET system “is a multidimensional concept, embracing ... teaching and academic programmes, research and scholarship, staffing, students, buildings, facilities, equipment, services to the community, academic environment”

(Ayonmike et al., 2015, p. 26). Continuous enhancement of the quality of TVET systems is deemed a priority if the nation wants to cash in on the benefits of this very important aspect of its education system (Ayonmike et al., 2015). It is claimed that TVET programs must meet high quality standards in order to be effective (Morris, 2013).

The NCTVET quality assurance system underwent a significant reform in the early 2000s with efforts then in play related to International Standards Organization (ISO) certification, moderation of assessment, auditing of training providers, and quality assurance within the Accredited Training Organizations (ATOs) (Heart Trust, 2005). Since then, Jamaican quality assurance affiliates and the Jamaican Ministry of Education, Youth, and Information called the (MOEYI) have continued to work toward a robust, effective, and sustainable TVET system for all Jamaicans (Fletcher & Ndahi, 2020; Patterson, 2018; Payne, 2015;) especially youth.

With attention to quality assurance, Jamaica's TVET system and its institutions have become more effective over time. On average, over two thirds (66%) of Jamaican TVET graduates gain employment, peaking at 77% in 2018 (Fletcher & Ndahi, 2020). In 2018, the Jamaican Education Minister commented that "a well-developed and functioning TVET system is best placed to train the skilled workforce which Jamaica needs to address its socio-economic development challenges" (Patterson, 2018, para. 5). Jamaican TVET institutions are getting better at providing a strong foundation of essential skills, which is a primary contributor to employability. TVET institutions have also enabled students' access to high-quality education and expanded training options thereby providing motivation, capacity, and support for learners to take full advantage of opportunities for continuous learning (Fletcher & Ndahi, 2020; Payne, 2015; Patterson, 2018).

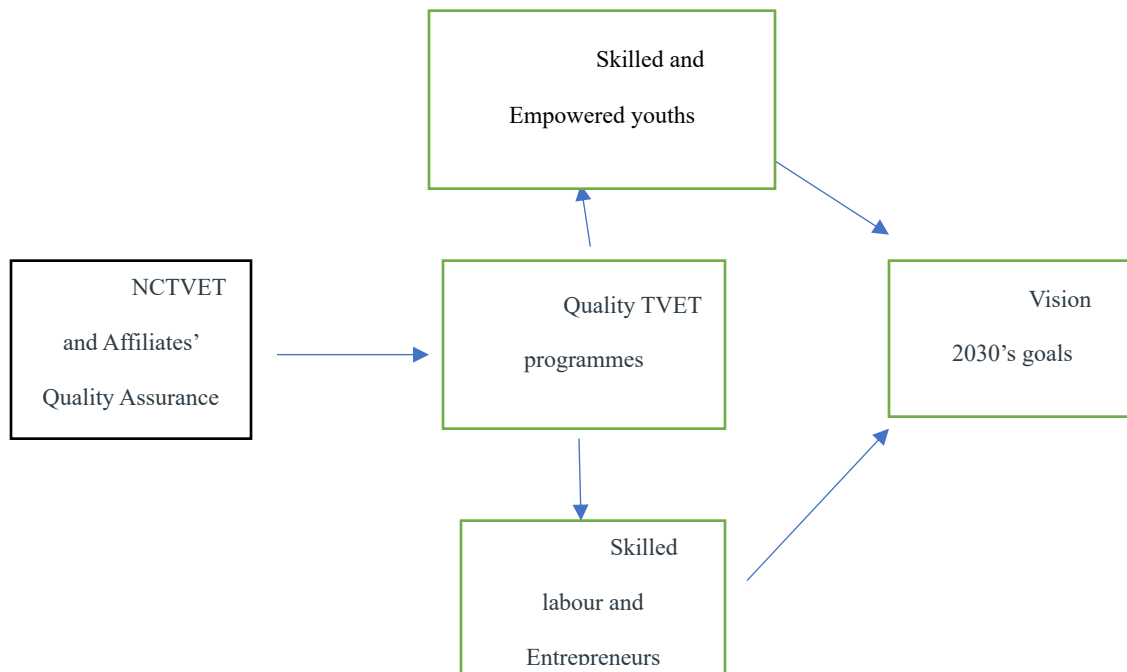
Quality assurance affiliates to NCTVET and the NTA include the National University

Council of Jamaica (UCJ), the National Education Inspectorate (NEI), and the Jamaica Tertiary Education Commission (JTEC)

Figure 3 profiles the working relationship among the agencies involved in vocational education. NCTVET and its affiliates' attention to quality assurance ensure higher quality TVET programmes. These programmes contribute to empowered, skilled youth as well as skilled labourers and entrepreneurs. Both aid in attaining Jamaica's national development plan goals (Vision 2030).

Figure 3

Dynamics of Jamaica's Vocational and Technical Education Training System



Quality assurance pertains to systematic and sustained efforts to maintain desired levels of quality in a service or product (Ayonmike et al., 2015) through on-going assessment.

NCTVET outlines its responsibilities as:

1. developing, reviewing and publishing the assessment policy *and* guidelines
2. generating standardized assessment instruments
3. conducting assessment moderation exercises
4. managing the assessment and certification records
5. reviewing and maintaining the assessment system
6. maintaining the centralised item bank
7. training test item writers
8. auditing the assessment portfolio of ATOs (NCTVET, 2020).

The goal is to “ensure the provision of quality technical and vocational education for all”

(Ministry of Education, Jamaica, 2014, p. 39).).

NCTVET has contributed to improving and transforming TVET’s image in Jamaica so much so that the government is “positioning TVET as a vehicle to facilitate workforce transformation and productivity” (Fletcher & Ndahi, 2020, p. 63; see also Patterson, 2018).

Indeed, graduates gaining employment is an indirect testament to their employers’ approval of their competency and skills’ acquisition. TVET institutions have also been effective in boosting productivity and improving graduates’ contributions to economic development (Payne, 2015).

2.3 Challenges and Ideas for Improvement

Fletcher and Ndahi (2020) tendered several recommendations to help sustain the positive impact of Jamaica’s TVET system. First, NCTVET could ensure more complete integration of some missing stakeholders that have insights into improving youth employment with examples including the Jamaica Employers Federation (JEF), and public-private providers (PPs) and their instructors. Stakeholder involvement in the design of NCTVET programs could better ensure graduates leave with tailored skills essential in increasing their employability.

A second recommendation pertained to labor mobility and portability within the nation

and the Caribbean region. Fletcher and Ndahi (2020) reported Jamaica's failure to graduate sufficient students who meet the competency-based *Caribbean Vocational Qualification* (CVQ). The CVQ was established to facilitate free movement of skilled labour within the Caribbean region. Labor mobility within Jamaica is addressed by the *National Vocational Qualification* (NVQ). These vocational qualification systems (i.e., nationally and regionally driven competency standards and certification) are intended to improve both the quality of vocational education and training, and the productivity of the region's workforce. Fletcher and Ndahi (2020) recommended that NCTVET should "institute a monitoring and evaluation mechanism to track [TVET] performance [related to NVQ and] CVQ" (p. 65).

While quality assurance program serves to maintain a level of standardization in programs a common criticism of quality assurance is that it pays little attention to educational processes, educational theory or student learning (Becket & Brookes, 2008; Idialu, 2013). It can lead to "teaching to the test" and traditional transmissive teaching approaches with little focus on student learning experiences (Allais, 2009). Some suggest that if the TVET sixth form becomes mandatory, the curricula should be adjusted because current content is both too weak and too teacher-centered (exam-based and rote learning) rather than student-centered (autonomous, self-directed learning) (Madden, 2021). The program's bureaucracy can be slow and cumbersome and slow to react to current educational initiatives such as 21st Century teaching and learning and 21st Century employment requirements. Irrelevant and outmoded TVET curricula almost always lead to "high unemployment of youth" (Makgato & Afeti, 2020, p. xix), which in turn compromises national development and economic growth and recovery.

That the Jamaican MoE aspires to "encourage the alignment of skills development and training delivery with industry priorities" (Patterson, 2018, para. 9) can also be problematic as it

raises the question of the power of interest groups and ignores the student and their preferred learning environment (Plackle, et al., 2014).

Hegarty (2015) argued that vocational education needs revision so that students are more than mere labourers. Brown (2005) for example in examining culinary arts programs stressed the need for more emphasis on becoming lifelong learners, critical thinkers and more deeply educated in the topics covered. King (2012) describes this tension between education and qualification as the dilemma of design.

2.4 Conclusion

This chapter sets the context for the study. It is located in the country of Jamaica and examines the mandated curriculum in home economics related TVET courses, so the education system in Jamaica was explained. The home economics-related vocational programs are governed by the quality assurance of NCTVET and this has implication for curriculum and pedagogy. In the following chapter I review the literature that links the 4Cs of 21st Century Learning to technical and vocational education to make the case that this is the direction for the field.

Chapter 3

TVET and 21st Century Education

The literature selected for this review was selected based on whether it on current trends in TVET curricular content and pedagogy in developing nations and on what constitutes 21st Century Learning skills. This approach seemed prudent given that any recommendations for NCTVET Home Economics-related curricular improvement should be couched in an awareness of international trends in TVET content and pedagogy, especially as they pertain to 21st Century Learning skill attainment in developing nations. In particular, I have highlighted in **boldface** the key curricular content and pedagogical methods that relate to the 4 Cs mentioned in Chapter 1 (critical thinking and problem-solving skills, creativity and innovation, communication, and collaboration).

3.1 TVET Pedagogical Trends in Developing Nations

In developing countries, TVETs are expected to “anticipate and codify future needs [especially as they pertain to its] potential to develop the productive capacity of people [and] economies” (Wheelahan & Moodie, 2016, p. 66). Productive capabilities include the *broad* knowledge, skills, and attributes that people need to be productive at work. Although “the specifics of vocational education will differ in different contexts, ... in all contexts, productive capabilities share the goal of preparing graduates [who can contribute to economic productivity and development]” (Wheelahan & Moodie, 2016, p. 69). TVETs ability to augment economic development through training youth and young adults depends on its curriculum and pedagogy.

Makgato and Afeti (2020) affirmed that developing countries worldwide are using TVET as a vital and important means for contributing to economic development and increasing competition in the international labor market. There is a prevalence of diverse models of TVET

in developing countries (Wheelahan & Moodie, 2016). Recommended pedagogical innovations include using blended learning, ensuring instructors have industry experience, integrating **information and communication technology (ICT)** into the curriculum, teaching technical skills with **thinking skills (critical and creative)**, and **combining theory with practice (praxis)** (Makgato & Afeti, 2020).

Like Jamaica, other developing countries also mention the merit of TVET teaching 21st Century skills. Makgato and Afeti (2020) asserted that “**critical and creative thinking** together with vocational skills should [be an] important component of [TVET]” (p. xvii). They believed that “human resources are central to the performance of every economy. Skills mismatches [relative to what the economy needs] may hinder the return to full employment and slow economic recovery” (p. xvi). They proposed that TVET curricula must be revised and updated to meet the standards required in industry and the overall economy.

UNESCO (2021) described TVET as being “at the intersection of education and the world of work. [It] is expected to facilitate the insertion of young people and adults into the labour market, and [facilitate] their career progression” (p. 4). Moving forward, “TVET must offer lifelong learning opportunities, with **individualized and adaptative pedagogies, flexible learning modalities**, pathways across types of education and training and across activity sectors, recognition of prior learning and validation of skills, career guidance and counselling” (p. 6). Although it did not use the terms 21st Century Learning or the four Cs, UNESCO echoed the sentiment with its recommendation that TVETs must renew their pedagogies, so they include “**problem-based education, collaboration** and civic competencies, scientific and **digital and information literacy**, skills in the **arts and creativity**, skills and knowledge of labour law, social and emotional wellbeing and sense of global solidarity” (p. 9).

The Nigerian scholars Okolie et al. (2021) shared several important pedagogical innovations for developing nations' TVETs in the 21st Century. They suggested that (a) TVET curriculum designers should enable students to demonstrate learning through **active participation** during class. (b) Students should experience **problem-based learning** that involves “problem-finding, problem-solving and critical discussion in circumstances which encourage learners to co-operate and **collaborate** in problem-finding, **problem-solving and critical discussion**” (p. 11). (c) Students should also experience **active learning**, which involves learning through discovery and trial and error. This approach also encourages **collaborative learning and teamwork**. And it better prepares students to learn higher order concepts if included in the curriculum. Finally, (d) TVET instructors should use questioning and dialogue to teach **critical thinking** and help students engage with complex ideas through group work and idea sharing (prompting **creativity and innovation**). These recommendations resonate with the four Cs of 21st Century Learning (Jones, 2013).

In a submission to UNESCO's TVET initiative, Lucas (2014) described a comprehensive vocational pedagogy for TVET. He claimed that employers are now calling for “wider skills [for employability and lifelong learning] such as **problem-solving, team-working** ... in addition to high-level basic skills” (p. 4). In response to this call from industry, TVETs are expressing “a greater interest in what are increasingly referred to as twenty-first century skills” (p. 4).

Regarding the appropriate pedagogy to instill both high-level basic (technical) and 21st Century Learning skills, Lucas et al. (2012) recommended that TVET students must learn through (a) **real-world problem solving** (in concert with practica), (b) **team and group work**, (c) **discovery and inquiry**, (d) coaching and (e) engagement with different contexts beyond the classroom. In effect, TVET curricula should reflect a combination of technical, rote learning and

experiential, student-centered learning with a focus on 21st Century Learning.

3.2 Core Employment Skills for the Jamaican Economy

Miller and Munroe (2014) proposed that transformation of the Jamaican education system is “by no means complete [especially] with regard to the new imperatives of globalization, the knowledge economy and the digital revolution” (p. 246). This transformation requires Jamaican learners be exposed to the four Cs of 21st Century Learning: **critical thinking and problem solving, communication, collaboration, and creativity and innovation** (Jones, 2013). Fletcher and Ndahi (2020) claim that it is imperative that Jamaica’s youth gain 21st-century skills upon completion of secondary school and/or vocational training.

Nearly 20 years ago, the Heart Trust (2005) recognized seven core skills that are critical for employment in the Jamaican economy: collecting, **analyzing**, and organizing information; **communication**; planning and organizing; **teamwork and interpersonal skills**; mathematical skills; **problem solving**; and using technology and information technology [IT] skills. NCTVET proposing an eighth skill, ethics and values, in 2015 (Payne, 2015). Other skills useful identified by Fletcher and Nada (2002) for employment in the Jamaican economy include; positive workplace attitudes; English and other foreign language fluency; science skills; athleticism; artistic skills (e.g., for masons, carpenters, cosmetologists, and welders) and awareness and pride of local culture.

The attributes advocated for TVET and Jamaican-specific skills somewhat mirror the four Cs for 21st Century Learning (Jones, 2013) as summarized in Table 2.

Table 2*Matrix of terms used to describe the four C's of 21st Century Learning*

Communication	Collaboration	Creativity/Creative Thinking	Critical Thinking	Specific Pedagogies
• Information and Communication Technology (ICT) (Makgato & Afeti, 2020). • digital and information literacy, UNESCO (2021) • communication; (Payne, 2015):	• Team and group work Lucas et al. (2012) • collaborate in problem-finding Okolie et al. (2021) • team-working (Lucas, 2014) • teamwork and interpersonal skill (Payne, 2015):	• thinking skills (creative) (Makgato & Afeti, 2020). • arts and creativity UNESCO (2021) • creativity and innovation Okolie et al. (2021)	• thinking skills (critical) (Makgato & Afeti, 2020). • problem-based education UNESCO (2021) • critical thinking. problem-solving and critical discussion Okolie et al. (2021) • problem-solving (Lucas, 2014); Payne, 2015)	• combining theory with practice (praxis) (Makgato & Afeti, 2020) • individualized and adaptative pedagogies, flexible learning modalities UNESCO (2021) • active participation, problem-based learning, active learning, collaborative learning and teamwork Okolie et al. (2021) • problem solving (Lucas, 2014; Payne, 2015)

Communication is clearly evident. Jones (2013) explains communication to mean (a) effective and active listening; (b) respect for and ability to adapt to the diversity of personalities, opinions, and contexts; and (c) respect for the group's overall intelligence relative to select people's intellectual contributions.

Collaboration (working with others) includes teamwork and interpersonal skills (Jones, 2013), and it easily incorporates positive workplace attitudes, and ethics and values. A successful

economy depends on both collaboration of knowledge and collaboration to create knowledge. Technological savviness is likewise key to 21st Century communication, and collaboration (Jones, 2013), and this skill is present in the Jamaican roster.

Both communication and collaboration drive creativity and innovation (Jones, 2013), but the creativity C is absent from the Jamaican roster except for its inferred presence under artistic skills (creative expression). That said, one can be artistic but not innovative (i.e., new ideas, methods, processes). The creativity C pertains to students engaging with originality and inventiveness as well as using their imagination and curiosity while learning (Jones, 2013). Applying this skill set lets people view mistakes and failures as key learning opportunities. These discovery-related skills “are fundamental drivers in the global workforce” (Jones, 2013, para. 1).

Problem solving is often linked with critical thinking. Being good at problem solving helps people be effective team members (Jones, 2013). But uncritical engagement is not wise. Thinking critically involves “making judgements and decisions based on effectively analysing and evaluating evidence, arguments, claims and beliefs” (Jones, 2013, para. 11). Critical thinkers can make connections, collect and interpret information, be reflective, and adapt (which requires planning and organizing). The critical C also pertains to being technologically literate (Jones, 2013), which is clearly evident in Jamaica’s skill’s roster.

The specific pedagogies listed in relation to 21st Century learning indicate a shift from transmissive, teacher centered teaching to student centered active learning. They are in-line with what Plackle, et al. (2014) found are students’ preferred learning environments - authentic, challenging learning tasks and collaborative problem solving.

3.3 Conclusion

This review of the literature indicates evidence of 4Cs of 21st Century Learning skills as a

direction in vocational education. For the sake of expediency, the matrix of terms used to describe the 4C's was used for the content and discourse analysis in Chapter 4. Chapter 4 sets out the methodology (critical research methodology) and methods (content analysis and Critical Discourse Analysis) employed to collect and interpret data to answer the research questions guiding this study.

Chapter 4

Methodology

The research design used in this paper involved curriculum analysis. It employed a critical research methodology (philosophy) in combination with critical theory (Romeo, 2020) and two appropriate methods for data collection and analysis: content analysis and critical discourse analysis (CDA) (Fairclough, 2003; Ninnes & Burnett, 2003). McGregor (2018) explained that when employing the critical research methodology, researchers assume that knowledge and truth are grounded in context, which is often in flux. They assume people use inductive logic to reveal power and influence in anticipation that these revelations can lead to personal autonomy and self-agency. The research enterprise is value driven with the researcher's values about agency and empowerment a key part of the research design. People's reality is mediated by power relations and shaped by cultural, social, political, and economic values and ideologies. Researchers strive to critically question the way things are and have always been to discern if things must change (McGregor, 2018).

After explaining the approach used as curriculum analysis, the chapter provides a discussion of the intent of the content analysis method followed with an overview of critical theory that underpins the CDA method, which is also explained. Fairclough (2003) recommended combining content analysis with CDA, as they help expose "what is said, what is not said, and what cannot be said" (Ninnes & Burnett, 2003, p. 282).

This chapter concludes with details of the final research design protocol (e.g., sampling, data collection, and data analysis) used to collect and interpret data to answer the research questions.

4.1 Curriculum Analysis

The crux of this study was a curriculum analysis, which is:

an attempt to tease a curriculum apart into its component parts, to examine those parts and the way they fit together to make a whole, to identify the beliefs and ideas to which the developers were committed and which either explicitly or implicitly shaped the curriculum, and to examine the implications of these commitments and beliefs for the quality of the educational experience.

(Posner, 2004, p. 14)

Posner (2004) believed that curriculum analysis “takes the form of a set of answers to questions” (p. 14). These questions can pertain to (a) the origins of the curriculum and how it is documented; (b) the curriculum proper (i.e., perspectives, purposes, content, and organizational format); (c) the curriculum in use; and (d) curricular critique. He clarified that these four sets of questions are rarely addressed at the same time. Of the four sets of questions, (b) curriculum proper and (d) curricular critique describe this study.

To elaborate, special interest regarding the curriculum proper (Posner, 2004) included the ideas embedded in the curricula by NCTVET Home Economics-related course developers vis-à-vis 21st century learning skills. Evidence was sought about intentions for students to be able to leave the course with skills related to thinking critically, being creative and innovative, collaborating with others, and communicating. Was this evidence explicit, or do people using the curricula (e.g., instructors, QA assessors, and employers) have to infer or deduce it? Content analysis was employed to glean these data.

Taking direction from Posner (2004), CDA was used in this curricular critique to discern what language (words, syntax, and text positioning) was used to communicate the curricula to

potential readers. To what extent did the language intimate ideologies and worldviews about what students should (not) learn and why? Was there any indication of potential graduate marginalization and disempowerment due to how the curriculum was communicated?

4.2 Content Analysis

A curriculum comprises several elements ranging from a rationale and philosophy through content to instructional strategies, and resources. Curriculum content per se concerns all important principles, concepts, processes, and facts to be taught and learned. Content is one of the most important aspects of any curriculum (Posner, 2004), thus any curriculum analysis ought to address its content. What is included therein will reflect the curriculum developers' value judgments based on what they perceived as suitable learning objectives and goals (Kurt & Erdogan, 2015).

Content analysis is beneficial when data are needed to answer a research question that is limited to specific documentary evidence, in this case, limited to the official NCTVET Home economics-related curricula. Content analysis is not an ordinary reading of documents. It is especially useful when certain attributes could escape casual scrutiny (Krippendorff, 2004). A limitation of content analysis is the risk of losing the overall picture, nuances, and such. This can be mitigated by combining content analysis with another method (Krippendorff, 2004), in this case with CDA to tease out ideologies and power nuances.

To clarify, this research employed content analysis to study current NCTVET Jamaican Home economics-related curricula to establish whether students can gain 21st-Century Learning competencies: critical thinking and problem-solving skills, creativity and innovation, communication, and collaboration. The analysis sought to identify the capacity of TVET curricula to produce qualified labor that aligns with the changing Jamaican economy, which is

dependent on 21st century learning skills.

4.3 Critical Theory

Critical theory informs CDA, which itself is a method for analyzing data (Romeo, 2020). Critical theory assumes that power structures can be challenged if people assess and critique society and culture to discern the real roots of social problems. Instead of blaming individuals, critical theory allows scholars to argue that ideology, social structures, and cultural assumptions underpin societal inequality (Bohman, 2005; Geuss, 1981). Critical theory thus assumes that through the process of revealing societal contradictions and inequalities, scholars can elucidate and concretize the situation and force or stimulate societal change. It strives to explain the causes behind limitations to freedom and transformation especially ideologies (i.e., cultural blueprints of what a society should be like) and paradigms (i.e., personal thought patterns informed by the ideologies) (Bohman, 2005; Geuss, 1981; McGregor, 2018).

Scholars using critical theory hope to create awareness in individuals of their interests and needs, so they can gain self-empowerment (Bohman, 2005; Romeo, 2020). In CDA, *critical* thus pertains to power. Discourse refers to using language to communicate. CDA entails iterative readings of written text to reveal whose interest is being served (i.e., who gains or loses power) as revealed by the words, syntax, and juxtaposition of language and images used to communicate a message (van Dijk, 2001). Imagine people standing together in a square to voice their concerns about women's rights. The newspaper headline "*Protestors jammed into the square to fight for women's rights*" sends a very different message than "*Advocates promoting women's rights gathered in the square.*" One message creates an inherently violent and aggressive image while the other is nonviolent and inclusive. Who benefits from framing the communication using the violent, protestor (push back) and fight message? CDA would help answer that question because

it concerns how textual devices can lead to overriding or suppressive ideologies (Sylvestre et al., 2013).

The explicit or implicit discourse inferred through a text is key a part of social life and attendant social practices, including curriculum development and education attainment. Fairclough (2003) says discourse represents “how things are and have been, ... how things might or could or should be [or it represents] projections of potential states of affairs, ‘possible worlds’” (p. 207). Discourse analysis stems from the linguistics field and is employed broadly throughout a range of disciplines including education, political sciences, and social sciences. It allows for studying the language people use to communicate (Gee, 2017; Geuss, 1981). CDA focuses on the relationship between discourse and social power. Its main goal is to “describe and explain how power abuse is enacted, reproduced or legitimised by the text and talk of dominant groups or institutions” (van Dijk, 1996, p. 84).

Critical analysts apply their findings politically to address social issues and try to improve the world (van Dijk, 1996). It is impossible to truly separate language and language analysis from the political or critical as language is one of the ways humans develop and sustain their cultures, institutions, and the world (Gee, 2017). Fairclough (2003) confirmed that texts comprise the cognitive, social, political, and material. To address power structures and dynamics, people must comprehend the impacts of discourse, if they are to raise political or moral questions regarding modern societies.

4.4 Critical Discourse Analysis (CDA) Assumptions, Biases, and Limits

As a research method, CDA entails an analysis of written discourse to discern power (McGregor, 2003). CDA assumes that language is a way of dominating and asserting social force. Consequently, CDA is often used to reveal the links between language and power because

language can legitimize power differentials (Farrelly, 2012; Johnson, 2014). CDA further assumes that emancipation from oppressive dominant ideologies can mitigate differential power relations and benefit citizens and society (van Dijk, 1996).

Researchers who embrace the empirical, positivistic research philosophy tend to claim that CDA is biased because of its excessively malleable, subjective analytical framework (Newman, 2020). They are convinced that this is a severe limitation of its use for data analysis. That said, advocates of CDA argue that it cannot have a precise singular theoretical framework or be objective because the analysis will always be subjectively critical (Rossi et al., 2009). As CDA relies on critical theory (Romeo, 2020), personal interpretation of discourse is allowed because trying to be objective denies human nature. van Dijk (2001) explained that personality underpins subjectivity as each analyst holds a different point of view and approaches research, analysis, and interpretation from a distinct worldview. Hence, analysts are advised to be explicit in spelling out their opinions, beliefs, perspectives, ideologies, and goals vis-a-vis the research problem (van Dijk, 2001). This is called researcher *positionality* (i.e., where they stand on controversial aspects of the research problem). Readers of the analyst's work will be able to note any biases in their analysis if the latter's positionality is made explicit (Berger, 2015) (see Chapter 1 for my positionality).

4.5 CDA Application in Education Research

Discourse analysis serves as a tool for education researchers to gain insights into how people achieve meaning regarding education (King et al., 2008). In education research, CDA can help address social issues affecting education by exposing how ideological representation allows for their legitimation (Hicks, 2014). CDA can also help people recognize ideological representation in formal curricula that can impact communications among students, teachers or

educators, institutional administrators, and a myriad of stakeholders. Revelations of this sort can contribute to inducing and spreading desired values in society. For instance, CDA has been employed to identify family ideologies in the home economics curriculum (Farrelly, 2012) and ideologies in home economics education (Johnson, 2014). It has been used to reveal the deep impact of certain educational ideologies (Bennett & Chinn, 2018). Rossie et al (2009) employed CDA to determine the consistency or reliability of physical education curricular goals. Scriven (2012) used CDA to critically analyze worldwide citizenship education resources.

CDA was applied in this study as a method for critically examining several NCTVET Home Economics-related curricula. The application of CDA in home economics research is recommended because findings can reveal beliefs, values, and ideologies relating to power relations, equity, justice, and social conditions (Farrelly, 2012; Hjalmeskog, 2012; Johnson, 2014; McGregor, 2003). Findings from a CDA can shed light on how well the formal curricula documents under review can contribute to meeting and sustaining Jamaica's needs in the 21st Century.

CDA assumes that individuals create a version of their social world by way of language functionality (Adjei, 2013). Curriculum developers and writers are no exception – they use language to convey educational intent and learnings. CDA, with its focus on language, was used in this study because education and learning are social practices that change with time and place (Herb, 2017).

4.6 Research Design Sampling

The curriculum documents analyzed in this study were produced by the Learning Resources Development Department and published by the HEART Trust/NTA. These documents are meant to facilitate and guide the subject matter, and educational activity as well as

educational resources within the Jamaican TVET system. Of the 19 possible NCTVET Home Economics-related curricula (see Table 1), four were chosen to comprise this study's sample frame.

This analysis focused on Cake Baking and Decorating, Commercial Food Preparation, Fashion Design, and Hair Styling. These represent two foods-related curricula, one fashion curriculum, and one aesthetics curriculum. It is acknowledged that the sampling protocol excluded all housekeeping curricula as well as most aesthetics topics and most food-related topics. These topics should be examined in future research. This was convenience sampling (McGregor, 2018). My job requires me to be familiar with these documents and related certification plans. Convenience sampling relies on subjects or documents that are easily accessible and readily at hand and in close proximity to the researcher (Berg, 2001; McGregor, 2018). Indeed, convenience sampling is commonly used for content analysis (Berg, 2001) because it is “excellent means of obtaining preliminary information about some research question quickly and inexpensively” (p. 2).

4.7 Content Analysis Procedure- Data Collection and Analysis

Four NCTVET Home Economics-related curricular documents were analyzed using content analysis. Because information pursuant to the research questions is usually present in the preface, rationale, purpose, intended learning outcomes, benchmarks, and modular content, data collection was limited to these aspects of the curriculum. A descriptive content analysis yielded a summary and overview of the documents, in this case the organizational structure of the curricula and what was housed within each section. That is, the content analysis generated data pursuant to describing the characteristics of the documents' content (Krippendorff, 2004). To attain these

data, I coded words, phrases, sentences, and paragraphs as relevant (Vaismoradi et al., 2013). As well, to answer research question one, I coded the content for evidence of the 4Cs (e.g., the words critical, creative, communicate, collaborate, and so on – see literature review under *Core Employment Skills for the Jamaican Economy* subheading). I paid particular attention to the competency standard, module objective, the requirements for knowledge, performance and attitudinal/employability skills.

For a reporting format, a table was created with the 4Cs in the far-left column and a separate column for each curriculum (N=4). The number of instances evidence, frequency count, was coded for each C in a curriculum was entered into respective cells and then converted to percentage of the total. Row totals capture the instances of each C overall, and column totals capture instances of the 4Cs in each curriculum.

Semantic validity (also called conceptual validity) was addressed by double checking to make sure the coded data fit into the categories (i.e., the 4Cs). Semantics concerns the different possible meanings of words and what gets coded into categories. The coding procedure must be sensitive to the linguistic context of phenomenon, in this case the 4Cs of 21st century learning. The content coded for each C must correspond with the description of it (Holsti, 1969; Walker, 1985).

Consistently following the coding protocol from one document to the next improved the content (face) validity (i.e., measured what was intended) (Krippendorff, 2004). Data were coded by one person, but an intra-reliability coefficient was not established (85% is recommended) (Krippendorff, 2004). However, iterative readings (four times) by the same person, who had previous professional knowledge and usage of the documents in her career, created deep familiarity with their content. This familiarity augmented her knowledge and understanding of

each curriculum, somewhat mitigating the absence of a formally calculated intra-coder coefficient.

4.9 Critical Discourse Analysis Procedure

The use of CDA in research involves digging below the text's surface. The CDA herein followed van Dijk's (1996, 2001) protocol. In this study, this entailed a combination of steps including (a) determining the genre, (b) reading in an uncritical manner first and then (c) returning with a critical eye to look for how the issue being studied was framed, from what perspective, and by whom. For (d) the analyst then read specific sections of the text to discern (1) embellishments (making something sound better than it really is); (2) insinuations (unpleasant hints or suggestions); (3) manipulations (skillful control to achieve a personal or political agenda); (4) rhetorical ploys (e.g., passive and active voice, and modal verbs – can, might, could, should); (5) points of omission; (6) specific framings (how an issue is presented); (7) register (who is highlighted and ignored); and (8) agency (depictions of who has power and influence) (Huckin, 1997; Price, 2002; McGregor, 2003; van Dijk, 2001). The resultant CDA data were then interpreted to provide answers to the research questions.

Part of the CDA involved determining the various terms and verb processes used so inferences about ideology could be drawn. Verbs indicate action, and verb processes indicate the type of action (doing, thinking or being). The placement of the verb and the order of the verb process establish the grammatical mood. Mood (modality) refers to the writer's attitude toward what he or she is saying. For example, *should* conveys obligation. *Could* conveys potential. *Must* conveys certainty (McGregor, 2018). A declarative discourse involves subject verbs (who is acting) proceeding the verb, while imperative discourse involves an implied or absent subject (Fairclough, 2003).

4.10 Conclusion

To reiterate, the research design combined content analysis and CDA as recommended for curriculum analysis (Posner, 2004). Content analysis pulls meaningful information out of documents (i.e., words, concepts, and constructs) per the research questions. Discourse analysis zeros in on the actual words (language, syntax) used in the documents to discern how this language reflects power differential and ideologies. Inference is central to both methods. Content analysts can infer the (a) antecedents of what is communicated in the text, (b) characteristics of that communication or (c) effects of the communication. Critical discourse analysts infer power structures, dynamics, and manifestations from the language used to communicate the content (Holsti, 1969; Krippendorff, 2004; McGregor, 2003; van Dijk, 1996).

The content analysis aimed to establish the relevance of the TVET courses in terms of students learning 21st century learning skills – the four Cs – so they can meet Jamaica’s changing labor market needs. The CDA sought to demonstrate what ideologies (if any) were reproduced and promoted in the curricula and how they impact learners gaining 21st century learning skills. Chapter 5 presents the study findings and discussion points relative to the research problem and questions as set out in Chapter 1.

Chapter 5

Findings, Discussion, and Recommendations

This chapter follows the reporting convention of including findings, discussion, and attendant recommendations in the same section (McGregor, 2018). The findings pertain to three research questions:

1. To what extent are 21st century learning skills (the four Cs) present in existing NCTVET Home Economics-related curricula?
2. What ideological messaging (language) embedded in these curricula provide openings for approaches that would allow home economics teachers to reposition their teaching strategies for effective teaching and learning in the 21st century?
3. What changes (content and pedagogy) are required to update the Jamaican NCTVET Home Economics-related curricula to accommodate the demands of the 21st Century?

5.1 Curricular Organization

A content analysis revealed that three of the NCTVET curricula were written in 2010 and a fourth in 2015. Each competency-based curriculum was prefaced with a three-page *Introduction*. The curriculum developers did not differentiate the Introduction by subject matter. All curricula follow the same basic formula as indicated in Table 2 where three of the four curricula are listed as examples (in the interest of space, I didn't include Fashion Design). The organizational format matched that normally used when writing up a curriculum, except there was no stand-alone section called *Rationale* (i.e., what is to be learned and why). The Introduction did say that learners were intended to “gain requisite competencies ... to perform job

functions at level [two] and [exercise] some amount of responsibility and autonomy at the workplace” (title page). There was no explicit mention of 21st century learning skills.

Table 2

Organizational Format of NCTVET Home Economics-related Curricula Analyzed in Study

Cake Baking and Decorating Curriculum	Commis Chef Commercial Food Preparation Curriculum	Hair Styling Curriculum
Acknowledgements and Preface	Acknowledgements and Preface	Acknowledgements and Preface
Benchmark Against -Competency Standards for Cake Baking and Decorating, Level Two of the Tourism and Hospitality Industry Top of Form	Benchmark Against Competency Standards for Commercial Food Preparation (Commis Chef), Level Two of the Tourism and Hospitality Industry	Benchmark Against Competency Standards for Beauty Services of the Customer Service Industry
Introduction	Introduction	Introduction
- Format	- Module Objective	- Module Objective
- Module Objective	- Knowledge Requirement	- Knowledge Requirement
- Knowledge Requirement	- Performance Requirement	- Performance Requirement
- Performance Requirement	- Attitudinal/Employability	- Attitudinal/Employability
- Attitudinal/Employability	- Skills Requirement	- Skills Requirement
- Skills Requirement	- Related Content	- Related Content
- Related Content	- Instructional Strategies (Methods and Media)	- Instructional Strategies (Methods and Media)
- Instructional Strategies (Methods and Media)	- Module Time	- Module Time
- Module Time	- References	- References
- References		
Module Hours	Module Hours	Module Hours
Module (with references/sources)	Module (with references/sources)	Module (with references/sources)
Module 1: Developing hospitality knowledge	Module 1: Managing risks related to HIV/aids	Module 1: Observing effective workplace practices
Module 2: Developing workplace communication skills	Module 2: Demonstrating interpersonal relation skills	Module 2: Providing receptionist services
Module 3: Following workplace, health, safety, and security procedures	Module 3: Maintaining workplace hygiene, health and safety procedures	Module 3: Carrying out measurement and calculations
Module 4: Controlling and		Module 4: Diagnosing and treating hair and scalp conditions

ordering stocks

Module 5: Preparing and producing yeast goods

Module 6: Producing and decorating cakes

Module 7: Preparing and modelling marzipan

Module 8: Planning, preparing/displaying sweet buffet

Module 9: Carrying out data entry and retrieval procedures

Module 10: Crafting personal entrepreneurial strategy

References

Appendices

Module 4: Managing food preparation stocks

Module 5: Applying scientific knowledge to food preparation

Module 6: Preparing poultry, meats, and seafood

Module 7: Planning and costing menus

Module 8: Preparing and presenting baked products

Module 9: Preparing chocolate and chocolate confectionery

Module 10: Producing ice, tallow fruit and vegetable carvings

Module 11: Planning, preparing, and displaying a buffet

Module 12: Operating fast food outlet

Module 13: Providing services to guest

Module 14: Promoting products and services to guests

References

Appendices

Module 5: Performing basic hairstyling services

Module 6: Performing basic hair colouring services

Module 7: Providing chemical services

Module 8: Providing thermal styling

Module 9: Creating classic, current, and braided styles

Module 10: Performing hair shaping

Module 11: Maintaining wigs and hairpieces

Module 12: Providing specialist hairstyling services

Module 13: Carrying out data entry and retrieval procedures

Module 14: Crafting personal entrepreneurial strategy

References

Appendices

The Introduction referred to the *Module Format* with each self-contained module in a course organized using the same five components. (a) Each started with *Module Objectives* highlighting what competencies learners “must master [and] be able to demonstrate.” This section employed the conventional KAS format: knowledge, attitudes, and skills. (b) *Related Content* was to reflect KAS specific to that module (averaging $N=12$ per curriculum). The Introduction then presented verbatim sections describing (c) *Instructional Strategies* (with an identical roster of generic methods [$n=13$] and media [$n=8$]), (d) *Module Time* (contact hours per module) and (e) suggested resources (called *References*).

The Introduction also contained verbatim text for a general *Assessment Statement*, and a section called *Note to the Facilitator*. The latter dealt with differentiated instruction (although that term was not used) and a respect for learning styles. Generic modes of recommended assessment strategies ($N=8$) were identified with room for instructors' discretion and flexibility in each curriculum (see Table 3).

5.2 Research Question One: To What Extent Are 21st Century Learning Skills (the Four Cs) Present in the four selected NCTVET Home Economics-Related Curricula?

Table 3 represents the 4Cs identified in the NCTVET home economics-related curricula analyzed for this study using the terms from the matrix in Table two I conducted a frequency count which was then converted into a percentage of learning outcomes. Overall, all 4Cs were somewhat present but not to the same extent. Critical thinking (which includes problem solving) (Jones, 2013) appeared most often (38%) followed by communication (24%), creative thinking (21%) and collaboration (17%). Fashion design had the highest (37%) number of 4Cs, and cake baking and decorating had the least (19%).

Table 3

Evidence of the 4Cs of 21st Century Learning in Four NCTVET Home Economics-Related Curricula

Four Cs	Cake Baking and Decorating	Commis Chef	Fashion Design	Hairstyling	TOTALS
Critical thinking (problem solving)	84 (38%)	93 (35%)	166 (39%)	101 (41%)	444 (38%)
Collaboration	46 (21%)	53 (20%)	58 (14%)	36 (15%)	193 (17%)
Communication	53 (24%)	76 (28%)	96 (22%)	51 (21%)	276 (24%)

Creative thinking	38 (17%)	47 (17%)	106 (25%)	57 (23%)	248 (21%)
TOTALS	<i>n</i> =221 (19%)	<i>n</i> =269 (23%)	<i>n</i> =426 (37%)	<i>n</i> =245 (21%)	<i>N</i> =1161 (100%)

Each curriculum had a different 4C profile as discussed in the following text. That said, critical thinking topped each curriculum with the second most common C being either creative thinking (fashion design and hairstyling) or communication (cake baking and decorating, and Commis chef). Collaboration was low in all but highest in cake baking (21%) and Commis chef (20%).

5.2.1 *Cake Baking and Decorating*

Critical thinking and problem solving dominated (38%) the cake baking and decorating curriculum followed with communication (24%), collaboration (21%), and creative thinking (17%). This is an interesting mix because one would think creative thinking would be more prevalent in a curriculum concerned with decorating and making things (e.g., originality, imagination, and inventiveness). Instead, students are exposed to planning, organizing, ordering, controlling, and so on in conjunction with communicating with others while implementing these tasks to produce cakes.

5.2.2 *Commis Chef*

A Commis chef is a novice working under chef de parties in commercial kitchens to expand their culinary knowledge and skills. Like the cake baking and decorating curriculum (62%), the Commis chef NCTVET curriculum was dominated by critical thinking and problem solving (35%) followed by communication (28%) (a full two thirds of the representation). Prevalent verbs included planning, managing, maintaining, applying, and costing in concert with demonstrating interpersonal skills (communication). Little mention was made of collaborating with others or thinking creatively. This mix may make sense as the Commis Chef is learning

advanced skills from an expert suggesting that thinking creatively may not be appropriate. Learning how to properly prepare, present, and promote different dishes would not require thinking outside the box. Collaboration should likely be higher because cooks work together in commercial kitchens.

5.2.3 *Fashion Design*

As with the other three curricula, Fashion Design was dominated by critical thinking and problem solving (39%) with similar representation for creative thinking (24%) and communication (22%). Collaboration scored the lowest (14%). The latter makes sense given that designers often work alone when creating their designs. But the lower presence of creative thinking is interesting relative to thinking critically. Examples of the latter included analyzing, identifying, examining, accuracy, precision, allocation, generate, assign, organize, evaluate, solve, and reason. Creative thinking (combined with technicality inherent in the design process) was evident in such verbs as interpretation, logical, meticulousness, and procedures. Examples of communication included clarify, discuss, explain, present, and description. Collaboration (the lowest percentage) manifested in compromise, peer review, and group work.

5.2.4 *Hairstyling*

Hairstylists are in intimate, personal relationships and contact with their clients, yet communication was very low (21%) in the NCTVET curriculum. Its presence was evident in the form of listening and questioning techniques, verbal and non-verbal communication, and negotiation techniques. Creative thinking accounted for one quarter (23%) of the presence of the 4Cs. Students learn to create classic and current styles. Collaborating with others was low (15%) while thinking critically and solving problems dominated the curriculum (41%). The latter makes sense as students would be expected to analyze, diagnose, and treat a variety of aesthetic

concerns in the context of the salon environment. They must demonstrate competency in an array of procedures meeting both effectiveness and efficiency criteria. Technical expertise was also evident (see Table 2): hair coloring, chemical treatments, and thermal styling.

5.2.5 Summary

To answer question one, the overall takeaway is that the 4Cs were minimally present (less than one quarter of the learning outcomes) in the four curricula examined for this study. Critical thinking superseded the other three Cs but it is hard to tell whether it was given a priority given the test-driven nature of NCTVET, the requirements of quality assurance and the emphasis on mastery of skills. This leads me to believe that traditional knowledge and skill transmission was likely to dominate in each of these courses.

5.3 What ideological messaging (language) embedded in these curricula provide openings for approaches that would allow home economics teachers to reposition their teaching strategies for effective teaching and learning in the 21st century?

Part of the CDA thus involved determining the various terms and verb processes used so I could draw inferences about ideology. The placement and the order of the verb process establish the grammatical mood. The typical vocabulary, emphasizing “competencies” such as “following”, “controlling” “maintaining” and “managing” indicate that the curriculum foundation is in competency-based education and training. The underlying ideology appears to be social efficiency. This ideology holds that the aim of education is to adequately meet society’s needs by training young people to function as mature individuals in the future and become productive members of society including in the labour market and the economy (Farahani & Maleki, 2014). It is assumed that society can function better, and people can live more

productive lives, if students learn the skills and procedures they will need for work and home. The basic tenet of Social Efficiency is efficiency (i.e., producing a desired result while not wasting materials, energy, money, or time). Learning thus takes place when it is couched in a cause/effect and action/reaction context (Shiro, 2008). The learner is not the main focus; instead, the main concern is that people develop the skills necessary for society's needs. NCTVET curriculum designers and instructors should be aware of this ideology's shortcomings in order to make revision.

I assumed that the NCTVET home economics-related curricula were also based on neoliberalismⁱ and associated ideologies (e.g., capitalism, and top-down globalization) (see Ayers, 2005). The CDA revealed that the curricula reflected the present government's ideological interests. These ideologies are focused on knowledge, skills, and attitudes that serve capitalism – market needs. Although not obvious at first glance, the NCTVET curricular content was judged to support individualism (versus collectivism), managerialism, and technocracy (control by elite technical experts). Evidence for this assertion was the requirement for students to be competent and skilled in and to hold attitudes related to ideologies that privilege meeting labour market needs (employment conditions), the needs of individual students, and technical development as well as occupational changes (Savage, 2017). This was further evident in the Introduction section of each curriculum in the form of such terms as job functions, autonomy in the workplace, responsibility in the workplace, competencies, master content, and students as *trainees*.

The foundation of the curriculum, competency-based education (CBE) is also problematic. It has been characterized as controversial and contested. Kerka (1998) was most explicit describing it as:

excessively reductionist, narrow, rigid, atomized, and theoretically, empirically, and

pedagogically unsound...the behaviourist breaks down competence into the performance of discrete tasks, identified by functional analysis of work roles. (Kerka, 1998, p. 2)

Others expressed concern related to CBS's connection to addressing the requirement of employers rather and been attuned to their needs rather than the needs of the students, a long-standing association that has been normalized in vocational education (Hodge, 2016).

Findings suggest that educators delivering the NCTVET home economics-related curricula must be cognizant of the dominant presence of social efficiency, neoliberal and capitalistic ideologies. With this awareness, educators can better challenge their dominance if judged relevant to ensure students best learn the 4Cs of 21st century learning (Mehta et al. 2019). Within competency-based education there are those who are calling for reimagining the program by attending to complex processes rather than simple behaviours and adopting transformative rather than social efficiency perspectives (Hodge, 2016).

5.4 Research Question Three: What Changes (Content and Pedagogy) Are Required to Update the Jamaican NCTVET Home Economics-Related Curricula to Accommodate the Demands of the 21st Century?

Recent thinking is that TVET should integrate the 4Cs of 21st Century Learning especially in developing countries including Jamaica (Makgato & Afeti, 2020). The analysis in this paper has revealed that in the Jamaican TVET system the 4Cs are represented to a varying degree in the Home Economics Related curricula that I examined: collaboration (17%) followed closely by creative thinking (21%), communication (24%) with critical thinking (and problem solving) as the most strongly represented (38%). All figures are relatively low and ways to increased the

numbers should be considered. This could include modifying the teaching and pedagogy to include the recommendations from the 21st century learning literature: combining theory with practice (praxis) (Makgato & Afeti, 2020); adopting individualized and adaptative pedagogies, and flexible learning modalities UNESCO (2021); promoting active participation, problem-based learning, active learning, collaborative learning and teamwork Okolie et al. (2021); and problem solving (Lucas, 2014; Payne, 2015).

5.5 Discussion and Recommendations

This section tenders five recommendations for changes to the NCTVET home economics-related curricula, so they can better orient students to the 4Cs of 21st Century Learning.

5.5.1 Even Representation of 4Cs

Foremost, concerted efforts must be taken to bolster the presence of the 4 Cs across the board is recommended. This assertion assumes that TVET graduates need to think critically and creatively, to communicate, and to collaborate for in order to be successful in work environments and everyday life. Every economy depends on human resources for a strong performance in regional and global markets (Makgato & Afeti, 2020). A cadre of workers lacking 21st century learning skills threatens full, productive, innovative, and responsive employment, which hinders full economic recovery and growth (Makgato & Afeti, 2020).

5.5.2 Occupation-Specific or Generic 4Cs

Results confirmed that each curriculum had some combination of the 4Cs intimating that each occupation merited a different combination. This assumption should be questioned. If

NCTVET wants to graduate students who have learned the 4Cs of 21st century learning so they can contribute to the Jamaican economy *regardless* of a specific occupation (Lucas, 2014; Makgato & Afeti, 2020), curricular writers should ponder whether it is prudent to weave different collections of Cs for each career path or instead produce a generic document that clearly describes, differentiates, and relates the 4Cs that instructors can draw on as they implement their specific curriculum. Another way forward is to adopt both approaches – generic document and the 4Cs tailored to a particular occupation. This strategy better respects the possibility that different levels of the 4Cs may be needed during different levels of training with the generic document serving as the touchstone for instructors.

5.5.3 *Transparent 4Cs*

It is imperative that the 4Cs are transparent in all curricula, else some career path graduates will benefit more than others. NCTVET curriculum writers are thus encouraged to draw on the full roster of verbs indicative of the 4Cs when developing and articulating revised curricula for the 16 occupations (see Table 1). To explain, the actual words *critical thinking* and *problem solving* includes other related verbs such as making judgements, decision making, analyzing, evaluating, and making arguments and claims. Critical thinking also includes reflection, adaptation, planning, and organizing (Jones, 2013).

Communication can be conveyed with the exact word as well as through listening, verbal, and written communication, and through demonstrated respect or lack thereof for people's personalities, opinions, and contexts (respecting diversity) (Jones, 2013). The same caveat holds for *collaborate*. Associated verbs include work together, teamwork, partnerships, interpersonal skills, relationships, positive workplace attitudes, ethics, and values. *Creative thinking* can be messaged with those words as well as with imagination, curiosity, originality, and inventiveness

while learning. *Technological savviness* and literacy should weave their way through all 4Cs (Jones, 2013).

5.5.4 *Targeted Curriculum Rationale*

Another recommendation pertains to the *Introduction* prepared for each separate curriculum. If the NCTVET curriculum developers decide to persist with a generic *Introduction* for all 16 curricula, and if NCTVET is committed to orienting students to the 4 Cs of 21st Century Learning, it is recommended that the *Introduction* be changed, so it reflects the latter. On the other hand, curriculum rationales usually target the uniqueness of and reasons for a particular curriculum (Brown, 1994). Given that each NCTVET curriculum focused on a different mix of the 4Cs (see Table 3), any future revisions to rationales should reflect the particular mix intended within a curriculum and why.

5.5.5 *Design Curricula with Stakeholders*

A clearly articulated rationale better enables NCTVET curricula to be adaptive to the 21st century, in that curriculum developers could move toward an increasingly dynamic skills strategy that allowed changes in skills as Jamaican economic needs change. This can be better assured if NCTVET curricular designers incorporate and partner with relevant stakeholders from industry, other academic institutions, and community leaders. Such collaborations have been shown to allow for the provision of pertinent, high-quality training through TVET systems (Fawcett et al., 2014). As a caveat, such collaborations should be used with caution, as they have been shown to lead to the exclusion of educators from TVET curricular development with attendant negative impact on curriculum delivery (Hodge, 2016; Smith, 2010).

It is also important to recognize that students and teachers are stakeholders too. The curriculum should be designed with students input and needs considered and if 21st Century

teaching and learning is adopted teacher professional development will be required (Hodge, 2016).

5.6 Study Limitations

Future studies should expand the sample frame to include the remaining 16 Home Economics-related NCTVET curricula (see Table 1). This would contribute to the validity and generalizability of any findings from an analysis of the entire cadre of curricula. Also, the research design decision to collect data from the introduction section and modules was justified (validity was not compromised) because those sections conventionally contain information pertaining to rationale, purpose, benchmarks, learning outcomes and so on (Brown, 1994). That said, future studies should expand data collection to include the remaining sections of the NCTVET curricula.

While some may view a researcher's positionality (personal bias) as a limitation, it was employed in this study as expected in the critical methodology (Berger, 2015). I argue, home economists ought to both (a) ensure that TVET exposes learners to the 4Cs of 21st century learning as well as (b) push back against ideologies that may harm Jamaica and cause it and its citizens to be disadvantaged and marginalized. By way of justification, "there has always been links between schools, curriculum and the economy. [But] rather than being *linked* to economic markets, schools are now seen as central cogs *in* economic markets" (Savage, 2017, p. 143). This shift has been attributed to neoliberalism with its "ways of governing society that emphasise the central role of markets and advocate for minimal state involvement and intervention in market processes (p. 144). Savage (2017) explained that curricula have been economized (neoliberalized) via two strategies: (a) the expansion of vocational curricula and TVET schools and (b) the rise of the 21st century skills agenda.

The former concerns the extent to which TVET is aligned with the needs of the economy and whether these schools effectively develop human capital for economic growth. The downside is the marginalization of young people through low-level procedural knowledge and skills and the resultant distancing from more powerful academic knowledge required to participate in modern society beyond the economy (Savage, 2017).

Although the 21st century learning agenda is flourishing, it too has a downside in that “education is geared principally towards the needs of global capitalism, rather than being something that is important for its own sake” (p. 149). Attendant learning is outcomes based and grounded in various standards, tests and demonstrated competencies. This strategy threatens the democratic role of education in generating informed and active citizens far beyond the economy. The notion of development is narrowed to an economic perception of capital enhancement and technological growth and progress. Healthy nations need more than a healthy economy (Savage, 2017).

This study used CDA to explore the formal, approved NCTVET Home Economics-related curriculum for evidence of a prevailing ideology. But oftentimes, instructors teach what is not in the curriculum as well; their beliefs fall outside the government-approved curriculum. Future research could analyze this unofficial curriculum for evidence of ideologies reflected in what instructors actually teach that is not included in the official curriculum (Wilson, 2021). Instructors’ teaching strategies, content and language used for messaging, learning resources, and their pedagogies could also be examined.

Chapter 6

Conclusion and Lessons Learned

Strom and Plihal (1987), in discussing critical approaches to research in home economics describe the process as “discrepancy analysis to determine and document gaps between “what is” and “what should be” (p. 196). In this case I have used the 4 Cs of 21st Century learning to outline what “should be” and the home economics-related vocational programs in Jamaica as “what is.” Examining the NCTVET home economics-related curricula for evidence the 4Cs of 21st Century Learning was a useful and revealing research endeavour. Results indicated that the 4Cs are somewhat present in these curricula and their representation is not even across the board with more critical thinking than communication at the expense of collaboration and creative thinking.

Through this study I learned that NCTVET home economics-related curricula mostly seek to instill skills and competency acquisition to prepare young people for occupational fields and improve their effectiveness in participating in the world of work within specific job contexts. I see the few learning outcomes and competencies that do indicate the 4 Cs as openings to move toward a new paradigm of learner centered vocational education (Pond, 2001) that are more in line with pedagogies outlined by Smith (2017) for home economics. Such a movement would include the emphasizing understanding and not memorization, more group work and dialogue, restoring the visual-spatial aspects of learning, re-thinking curriculum balance, and re-examining national examination systems.

The home economics profession has always recognized that one aspect of education is to prepare students for paid employment outside the home (Hill, 1979). In this paper, I have described vocational programs that are often taught by home economics specialists or located in

home economics departments as home-economics related. I recognize that there is a tension between the goals of a general liberal education and vocational/technical education in home economics (Apple, 1997). As a home economics educator currently working in the NCTVET system in Jamaica, I was interested in whether 21st Century Learning concepts known as the 4Cs could be integrated in NCTVET home economics-related courses to bring them more in line with current thinking in home economics (IFHE, 2008; Bamalli, 2014). I found some evidence of possible openings but there is still room for improvement.

I learned that content analysis is a useful research tool that can be used to examine curriculum resources and materials. I also learned that ideologies definitely inform curricula, and that CDA is a valuable tool to reveal them and their influence (Bartolome, 2007; McGregor et al., 2008). Learning that the ideologies matter (McGregor, et al., 2008) and would like to looking into more transformative ideologies and paradigms in the future.

Contemporary Home Economics literature demonstrates the need for the profession to relate its teachings to 21st century concepts and issues, education, and careers (Enns, 2019). It is my hope that this graduating project will result in continued thinking in this direction.

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ⁱ An intensive discussion of neoliberalism is beyond the scope of this paper. See (among others):

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