Achievement Goals and High-Stakes Test Anxiety in Standard 5 Students in Trinidad

by

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Supervisory committee

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Abstract

The Secondary Entrance Assessment (SEA), a high-stakes exam mandatory for all Standard 5 students in Trinidad and Tobago, is posited to be anxiety inducing. The purpose of this correlational research was to examine the relationships among the psychological constructs of the achievement goal theory, and students' test anxiety. The study specifically looked at whether relationships exist among students' (n= 215) perceptions of their parents', teachers', and classroom goals; their own achievement goals; and their cognitive anxiety about the SEA.

The results revealed that students' personal achievement goals were not associated with SEA cognitive anxiety, but their perceptions of parents', teachers', and classroom goals were significantly associated. Students' perceptions of high performance goals from parents may accentuate test anxiety in students who also perceive their teachers are performance-approach oriented; and can promote resiliency for students in classrooms with performance-avoid goal structures. Perceived avoidance goal messages from peers were also significantly associated with students' cognitive anxiety, and with tendencies to avoid displaying normative incompetence or failure.

Results from this study can be useful for future research in the area of social and emotional learning in Trinidad and Tobago by investigating the effect increased social awareness, through empathy development, has on reducing students' test anxiety and improving task-engagement, peer relationships, and general academic performance.

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Acknowledgments

An individual's success is not solely the result of her own effort, but a reflection of the support she received from others (Hunte, 2015).

To my God: my anchor, my hope, and my help in every situation. All that I am is a reflection of your love towards me, for which I am eternally grateful.

To my amazing father: my number one fan and greatest supporter, the first one to encourage my sense of mastery. Whenever I protested that something was too hard, he would respond by saying: "Nothing's hard. Things only seem hard when you don't know it; but once you know it, it becomes easy." I have found this to be true to this day. I love you always daddy, thank you.

To my mother and wonderful brothers: thanks providing a safe haven of love, belonging, and independence.

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To the Government of Trinidad and Tobago: thank you for awarding me a scholarship. I hope to make my country proud.

Dedication

I dedicate this study to all the citizens of Trinidad and Tobago, especially those who have had anxious or challenging experiences surrounding the SEA or Common Entrance exam. To those who failed, or had a rough start, but refused to let one exam determine their fate and persevered with resolute determination. And to their parents, teachers, and families who unconditionally encouraged and supported them. I salute you. Go on and become future leaders of Trinidad and Tobago, honourable law-abiding citizens, committed parents, and good neighbours. Be the change and pass the baton; we have a generation to inspire.

Chapter One

Achievement Goals and High-stakes Test Anxiety in Standard 5 Students in Trinidad

Trinidad and Tobago is a nation that prides itself on the quality of education it provides for its citizens. Today, all levels of education, from elementary school to undergraduate are fully funded and available to the citizens of Trinidad and Tobago; however, students' secondary school placement largely depends on their performance on the Secondary Entrance Assessment (SEA). A high-stakes exam such as the SEA can induce anxiety in students; therefore, for a future of excellent education for all, it is important to understand the emotional and motivational effects the SEA may have on students. The purpose of this study is to investigate whether relationships exist among students' perceptions of their parents, teachers, and classroom goals; their personal goals; and their anxious thoughts about the SEA. This study proposes that the goals that motivate students' achievements are a reflection of their perceptions of their parents' teachers' and classroom goals, and these perceptions are associated with their anxious cognitions about the SEA. Furthermore, because of the strong historical context of the SEA, parents, teachers, and peers may share beliefs about the SEA that may interact in their association with students' anxiety. Specifically, when students perceive that their parents', teachers' and classroom goals about the SEA are performance driven, they may experience greater increases in their anxious thoughts about the SEA.

This study will use the Trinidad and Tobago Ministry of Education grade level terminology. In Trinidad and Tobago, elementary school is called *primary school* and middle and high school are combined under the single name of *secondary school*. Additionally, in Trinidad and Tobago grade levels are referred to as *standards*. Children typically enter primary school at age five and engage in two years of infant classes (infants 1 and 2) in preparation for

more advanced primary school level learning. Thereafter, they move up to standard 1 at around age seven. This progression continues until standard 5 where students are on average eleven years of age.

Historical Context

Trinidad and Tobago was under British rule until independence in 1962, and inherited many aspects of the British education system—a high-stakes test for transition from primary to secondary school is one such by-product. After the abolition of slavery, in 1851, Lord George Harris, the British Governor, introduced an official standardized Primary Education System open to all citizens of the country. Previously, primary education was only available to the free class by means of private tutors (Council Paper 69, 1937). By the late 1950's, there were 28 secondary schools; the Government owned two, and religious organizations and private institutions, which received Government subsidies, owned the others. Secondary education was predominately academic and tailored for the Cambridge School Certificate and Higher School Certificate (Task Force, 1998). Secondary education was not free; although the Department of Education offered limited scholarships through government exhibitions, the majority of the population were financially unable to attend. In addition, each individual secondary school issued an entrance exam to students as part of their application and intake process. Primary school students often applied to as many secondary schools they could, and took the entrance exam for each school with the hope that at least one school would accept them (Task Force, 1998).

In the early 1960's the Government standardized the secondary entrance exam by replacing each school's individual exam with one national Common Entrance Exam—patterned after the British Eleven-plus exam (CEE; Task Force, 1998). The purpose of the CEE was to

identify students who would benefit from a secondary school education (Committee on the Placement of Common Entrance Students, 1996); "it was a pass/fail exam and the number of awards depended solely on the number of secondary schools that were available at that time" (Task Force, 1998, p. 30).

By 1996, several concerns arose regarding the CEE. The Committee on Placement of Common Entrance Students responded to a number of reports from the Division of Educational Research and Measurement about the validity of the exam, scoring and variance, the moderate correlation between total scores and school placement, the weighting system, and the need for a continuous assessment component or course mark (Committee on the Placement of Common Entrance Students, 1996). The committee also addressed disquieted stakeholders' dissatisfaction with the lack of transparency of students' scores and placement procedures; allegations of preferential placement of students based on their parents' social and financial standing, unease about the Concordat agreement, and political influence that affected some schools. The Concordat of 1960 allowed the school boards of government assisted denominational schools unrestricted privilege to decide who would constitute 20% of their annual student in-take.

Stakeholders were also apprehensive about allegations of victimization of students who did not take private tutoring, or "extra lessons" for CEE preparation. Their concerns extended towards the disparity in the quality of secondary schools; curriculum differences between non-prestigious, prestigious, and private secondary schools, as well as the effect of negative social environments and stigmas of some schools— particularly Junior Secondary Schools (Committee on the Placement of Common Entrance Students, 1996). The government introduced the Junior Secondary School system in 1972 to provide transient schooling after primary school. In this system, students spend three years at the Junior Secondary School level, and then continued the

remaining two years of their secondary education at a Senior Comprehensive School, ideally in a program best suited to their abilities (Task Force, 1998). Stakeholders argued that placement did not always reflect the student's ability; and many viewed placements at Junior Secondary Schools as a failure rather than an accomplishment. Although, in the year 2000, the government converted all Junior Secondary/Senior Comprehensive Schools to full five-year and seven-year schools; those schools remained stigmatized. Many parents shunned the Junior Secondary Schools and sought prestigious schools for their children (Task Force, 1998).

In 1998, the then Minister of Education appointed a special committee, called the Task Force, to review the CEE (Ministry of Education, 2003). The Task Force recommended the termination and replacement of the CEE by the Secondary Entrance Examination (later referred to as the Secondary Entrance Assessment—SEA) to "remove or reduce the anxiety and stress associated with the CEE" (Task Force, 1998, p. 52). They also endorsed the introduction of a Continuous Assessment Programme (later referred to as Continuous Assessment Component—CAC) for "supporting and evaluating learning and teaching experiences in schools" (Task Force, 1998, p. 82), to gauge students' readiness to transition, and to create an academic record that would accompany students into secondary school.

The Trinidad and Tobago Ministry of Education transitioned to the Secondary Entrance Assessment in 2001 (Ministry of Education, 2003), and introduced the Continuous Assessment Component (CAC) in 2011 (Ministry of Education, 2013). The SEA evaluates students' competencies in literacy, numeracy, reasoning, comprehension skills, and essay writing; and the CAC (issued from standard 4) assesses creative writing, science, character and citizenship education, visual and performing arts, agricultural science and physical education. The CAC contributes 30% of students' final SEA score (Ministry of Education, 2013).

Historical chronicles have shown that the Ministry of Education and supporting bodies have tried to reduce the anxiety and stress associated with the CEE. However, as evident in the last reported SEA related suicide in May 2014 (Espinet, 2014), the SEA may still induce unhealthy anxiety in some students. Additionally, some of the concerns and beliefs previously expressed by stakeholders about the SEA may still influence parents' and teachers' achievement goals for students, and may influence students' beliefs about the relevance of the SEA for future academic and career success. Students' beliefs about the impact the SEA has on their future may contribute to self-fulfilling prophesies during secondary school and shape the career path some students take.

On May 7, 2015, 18357 students (9333 males) registered to write the SEA, in 553 primary schools (Gopeesingh, 2015). While Trinidad policy makers have been lobbying to transition away from strong reliance on exams to determine students' secondary school placement, the SEA is still a major indicator of achievement and placement. It is therefore necessary for policymakers, educators, parents, students, and citizens of Trinidad and Tobago to understand the emotional and motivational effects of the SEA, and the role students' perceptions of parents' teachers' and classroom achievement goals play in enhancing or reducing SEA related anxieties.

In the proceeding chapters, I will examine the theoretical framework of achievement goals and test anxiety in children, and will use the Statistical package for Social Sciences (IBM SPSS, version 23.0) to run regression models to determine whether achievement goals are significantly associated with SEA related anxiety. This study will conclude with discussions about the result findings and implications for further research.

Chapter Two

Literature Review

In this chapter, I will provide a theoretical overview of the achievement goal theory, then expand on mastery, performance-approach and performance avoid goals in relation to students, teachers, classrooms, and parents. I will also discuss test anxiety and the influence personal and socio-contextual achievement goals may have on students' anxious experiences surrounding high-stakes tests; as well as the potential effect of self-fulfilling prophecies—based on students' beliefs about the relevance of the SEA for future life success. The chapter will conclude with research questions that will guide the study's investigations.

Achievement Goals

Achievement goal (AG) theory represents the integration of beliefs about the reasons why individuals are motivated, and the standards they use to measure their success (Pintrich, 2000). Elliott and Dweck (1988) suggested that in achievement settings, two main goals motivate learners: the goal to increase ability and master the task-at-hand; and the goal to demonstrate competence relative to others. They referred to these as learning or mastery goals, and performance goals respectively. These goals are general orientations that learners tend towards; that is, individuals are either more mastery oriented or more performance oriented. Elliot (1999) further proposed a trichotomous model that bifurcated the performance goals resulting in three goals: mastery goals, performance-approach goals, and performance-avoid goals. Each goal stimulates different cognitive, affective, and behavioural response patterns that can be adaptive or maladaptive (Midgley, et al., 2000). The present study is based on Elliot's triadic achievement goals framework, and explores the influence implicit beliefs and socio-contextual factors have on students' personal achievement goals.

While several factors contribute to students' achievement goal orientations, Dweck and Yeager (2012) proposed that individuals' implicit beliefs about their intellectual ability, is a major pre-dispositional factor for mastery and performance goal development. Implicit beliefs create a framework for internal judgements, predictions, and explanations about one's everyday life events. For students, this can influence the beliefs they have about their ability and intelligence. Students can tend towards a fixed or entity belief, or a malleable or incremental belief. Students who tend more towards an entity theory of intelligence believe their intellectual ability is fixed and unchangeable. Those who hold an incremental belief about intelligence trust their intellectual ability can grow and developed over time, with effort.

In addition, learning is a social activity, and occurs in a social context, therefore, environmental factors, including perceived messages from teachers, classrooms (peers), and parents, cannot be ignored. Researchers found that students' perceptions of the goal structure exuded by teachers (Butler, & Shibaz, 2008; Hughes, Wu, & West, 2011), within classrooms (Urdan, & Schoenfelder, 2006), and by parents (Friedel, Cortina, Turner, & Midgley, 2007) influence their achievement goals, academic motivation, learning behaviours, (Peklaj, Kalin, Pecjak, Zuljan, & Levpuscek, 2012); as well as their individual development and well-being (Urdan, & Schoenfelder, 2006).

To understand these phenomena, I will dissect the theoretical framework of the three achievement goals and focus on the associations of implicit beliefs and perceived goal messages, from socio-contextual and environmental factors, with students' achievement goals.

Mastery goals. Mastery goals are task-involved and represent a focus on learning, developing competence, and attaining task mastery (Elliot, 1999). Mastery oriented individuals engage in a task to learn how to acquire a skill or master the task, therefore, task engagement,

even amidst failure, will provide information about how they can adjust strategies or improve effort to attain their goal. Dweck and Yeager (2012) proposed that students who have this mind-set hold incremental beliefs about their intelligence because they approach goals with the belief that their ability is malleable and can increase with effort. Such students are more likely to exhibit adaptive patterns of learning such as help-seeking, perseverance amidst difficult tasks, deeper processing, and strategic engagement (Dweck, 2012; Ciani, Middleton, Summers, & Sheldon, 2010). Mastery oriented students are intrinsically motivated and experience greater task enjoyment; they often use self-competition for motivation and welcome challenging experiences as opportunities to learn and improve; therefore, they are more failure resilient (Dweck, 2012; Dweck, & Yeager, 2012). For example, a young violinist may engage in months of practicing Bach's Chaconne from a Partita for the sheer challenge, thrill, or personal satisfaction gained from mastering the difficult piece—whether or not she gets the opportunity to compete against others.

Turner, Gray, Anderman, Dawson, and Anderman, (2013) indicated that within academic settings, students' perceptions of teachers' mastery goal structure is associated with perceptions of teacher support. Teachers with a mastery goal orientation refrain from social comparison and competition, and are focus on task mastery and improving competence (Peklaj, et al., 2012). These teachers are more likely to influence mastery development in their students (Peklaj, et al., 2012; Urdan, & Schoenfelder, 2006). Students who perceive their teachers are mastery-goal oriented are more interested in learning (Fraser & Fisher, 1982), more attentive, (Wentzel, 1998), less disruptive, more inclined to seek help (Butler, & Shibaz, 2008), and more likely to engage self-regulated learning strategies (Ryan & Patrick, 2001).

Although much of the goal-messages in a classroom come from teacher practices, students also form perceptions of *the purpose for engaging in academic work* as emphasized by the shared culture of the classroom. That is, perceptions of classroom goal structures are influenced by peers' attitudes and behaviours (Peklaj, et al., 2012; Roncevic Zubkovic, & Kolic-Vehovec, 2014). A mastery-goal classroom structure communicates to students that exerting effort, developing competence, and making personal progress are important (Shim, Cho, & Wang, 2013). Students in classrooms with a mastery goal structure displayed effortful engagement in individual work and group activities, heightened persistence, more optimism and enthusiasm. They welcomed novel experiences and challenges, were less likely to cheat or be disruptive, and showed trends of academic improvement (Shim, et al., 2013).

In addition to teachers and classrooms, parents are important models to students, and the perceptions students have of their parents' achievement goals can influence their own achievement goal orientation (Roncevic, et al., 2014); for example, mastery oriented parents facilitate their child's mastery development (Gonida & Cortina, 2014). However, research concerning the effect of students' perceptions of parents' achievement goals is sparse; therefore, this study hopes to add to the research scholarship in this area.

In summary, mastery goals held by students, and mastery goal messages received by teachers, classrooms, and parents, are generally associated with positive, adaptive outcomes in relation to implicit beliefs and socio-contextual factors. The effect of performance goals however, is more ambiguous.

Performance goals. Compared to mastery goals, performance goals are ego involved and represent a focus on performance indicators, such as normative measures, and personal beliefs about relative ability or intelligence (Elliot, 1999). According to Elliot (1999)

performance-goals consist of approach and avoidance goals. Initially, performance goals were associated with a number of negative processes and outcomes, but as researchers examined approach and avoidance forms of regulation separately, results showed that each involves different processes and produces different results (Elliot, & Moller, 2003).

Performance-approach goals focus on proving competence in relation to others. Similar to mastery goals, performance-approach goals are associated with positive behaviours such as persistence and effortful engagement (Elliot, Shell, Henry, & Maier, 2005). However, unlike mastery goals, students engaging in performance-approach goals focus on external indicators of success such as norm referents, environmental factors, and performance optimization (Graham & Weiner, 2012). They employ surface-level study strategies at the expense of deep processing, are extrinsically motivated, and are more concerned about making a grade than learning—which often leads to cheating behaviours (Ciani, et al., 2010). However, Elliot, et al. (2005) argued that the external focus of the approach form of regulation might not be completely maladaptive, but can facilitate engaging performances in a wider range of situations and tasks than mastery goals. That is, while mastery goals evoke positive intrapersonal and task focused processes and outcomes, performance-approach goals evokes external evaluative considerations that are necessary for performance excellence (Elliot, et al. (2005). For example, a performance-approach oriented runner can engage in a race with the aim of beating his *competitor's* best time to win an award (challenge), to look good (ego-concerns), or to meet externally demanding expectations of his coach, peers, and supporters. Whereas a mastery-oriented runner's aim would be to beat *his own* best time; however, that goal might be insufficient for him to qualify to enter another race far more win an award.

External focus becomes destructive when students' goals are to avoid normative incompetence, failure, or failure associated outcomes. Elliott (1999) referred to this as performance-avoid goals. This avoidance form of regulation is theorised to be the most harmful, evoking negative processes such as anxiety, self-protective divestment (Elliot, et al., 2005), self-handicapping, cheating, and disruptive behaviours that can undermine achievement (Ciani, et al., 2010). Based on Dweck's implicit theory, persons with entity beliefs about their intelligence will be more oriented towards performance goals, and are more likely to exhibit behaviours aimed at validating their ability, avoiding negative social judgements, and circumventing exposure of low ability or incompetence (Dweck, 2012). Students with entity beliefs and performance avoid goals interpret challenging tasks as threatening, and believe failures demonstrate incompetence. This perception can be anxiety inducing, and can evoke avoidance, defensive (Dweck, & Yeager, 2012), and helpless (Graham & Weiner, 2012) behaviours.

In addition to students' personal performance orientation, performance messages received from the environment, such as teachers, classrooms, and home, can also influence students' performance goals. Teachers who are performance-approach oriented frequently emphasize to students the importance of demonstrating competence, not making mistakes, and often compare students with peers (Vedder-Weiss, & Fortus, 2013). Students' awareness of, and even focus on, their peers' abilities creates a performance oriented classroom that emphasise social comparison rather than personal improvement. Students constantly feel the need to prove themselves and avoid looking incompetent in front of their peers; they therefore may take on avoidance-goals, that result in avoidance behaviours such as avoiding class discussions, and resisting help (Elliot & Covington, 2001; Shim, et al., 2013). Hughes, et al. (2011) indicated that as early as first grade, students in performance-oriented classrooms can be aware of differences in peer abilities,

and the effect of social comparison in competitive environments can be especially difficult for low achieving students, as they experience greater social exclusion from high achievers and more peer rejection.

Within home environments, students who perceived their parents as performance goal oriented, also identified themselves as performance-goal oriented (Gonida & Cortina, 2014). Students with performance oriented parents showed greater need for external validation (Friedel, et al., 2007), and displayed less adaptive coping behaviours amidst difficult school experiences (Gonida & Cortina, 2014).

While research on achievement goals is still developing, the reviewed studies indicate that achievement goals—whether personal or perceived, implicitly influenced or environmentally shaped—can affect students' academic behaviours. According to Dweck and Yeager (2012), the influence of students' implicit beliefs and achievement goal orientations are most impactful when students encounter challenges. High-stakes tests are arguably some of the most challenging academic experiences students face. They are usually evaluative by design and are norm referenced against the test taking population; therefore, engaging in high-stakes tests might be especially difficult and anxiety inducing for students with performance-avoid goals or those who hold entity beliefs. In addition, contextual factors such as students' perceptions of their parents', teachers' or classroom performance-goal structures may increase performance pressure on students and increase test anxiety. Therefore, is it possible that the interaction of students' achievement goal orientations and perceptions of parents', teachers' and classrooms performance-goal structures correlates with increases in students' test related anxiety. To examine this, I will review the theoretical definitions of test anxiety and the influence of socio-contextual factors.

Test Anxiety

Researchers and educators often discuss concerns about students' anxiety in relation to academic testing especially as high-stakes testing in the United States (U.S.) has increased (Wren & Benson, 2004). Test anxiety is a burgeoning concern among K-12 students, and students from as young as age 7 can experience it (Connor, 2003). Test anxiety involves behavioural and physiological responses to the anticipation of undesirable performance outcomes in examination situations (Zeidner, 1998); as well as the psychological, cognitive, behavioural, and social factors that contribute to the experience and expression of anxiety (Lowe, et al., 2008). Wren and Benson (2004) described children's test anxiety as situation-specific thoughts, off-task behaviours, and autonomic reactions experienced during formal academic evaluations. Test anxiety is different from general anxiety disorder in that it is situation-specific, and relates to performance evaluations by others (Putwain, 2008). This study focused specifically on the cognitive component of test anxiety, conceptualized as students' worry of how others judge their academic performance (Putwain, 2008; Wren & Benson, 2004; Yeo, Goh, & Liem, 2016).

According to Segool, Carlson, Goforth, von der Embse, and Barterian (2013) students experience greater amounts of test anxiety for high-stakes tests than typical classroom tests. High test-anxiety correlates with poorer test performance (von der Embse, Barterian, & Segool, 2013), decreased motivation, increased stress (Segool, et al., 2014; Yeo, et al., 2016), and increased performance-avoidance behaviours (Atkinson, & Litwin, 1960; Elliot, & McGregor, 2001). Various factors contribute to students' anxious experiences during high stake evaluations including students' achievement goal orientations (Elliot, & McGregor, 1999), competitive environments (Segool, von der Embse, Mata, & Gallant, 2014), and perceptions of teachers' and parents' goals (Putwain & Daniels, 2009). For example, performance oriented students can

perceive high-stakes tests as threatening especially if they are focused on outperforming peers (approach goals), or avoiding failure, poor academic evaluations, or social rejection (avoidance goals). Students' perceptions of a competitive classroom environment may also influence their own test anxiety (Putwain & Daniels, 2009), because during early adolescence, peer opinions are very important to students, and some students interpret academic competition as highly threatening, especially when they perceive their peers' abilities are greater than their own (Segool, et al., 2014). Therefore, competitive classroom goal structures, that cultivate a winner-takes-all approach to success, can be devastating on some students' sense of competence, and can result in test-anxiety (Segool, et al., 2014), and feelings of inferiority (Polychroni, Hatzichristou, and Sideridis, 2012). Furthermore, Putwain and Daniels (2009) found that during early adolescence, students' perceptions of goals held by parents and teachers influence test anxiety more than their own beliefs about their academic competence. For students, prior test experiences that resulted in poor academic or social evaluations from parents or teachers can induce anxious dispositions or avoidance behaviours towards future exams (Segool, et al., 2014).

For this particular population, it is also important to understand the extent to which students believe their performance in the SEA is relevant for their future academic and career success. This is a point of interest because both students' beliefs and secondary school placements are significantly associated with their academic success at the end of secondary school (Jackson, 2010). Jackson (2010) attributes the effect secondary school placement has on students' academic success to ability grouping—that is, being in a learning environment with high achieving peers. In addition, I question whether students' efficacious beliefs, and the messages they receive from parents and teachers about themselves and about certain schools, form self-fulfilling prophecies that also influence their future academic and career pursuits. Self-

fulfilling prophecies occur when inaccurate beliefs influence behaviours, which in-turn reinforce the beliefs (Merton, 1948). For example, if a student, assigned to a less desired stigmatized, secondary school, believes that he was assigned there because he is not as smart as his higher achieving peers or cannot get a good education at that school, he may go through secondary school believing that his fate is set and success is not possible. Smith, Jussim, and Eccles, (1999) reported that although self-fulfilling prophecies are not accumulative, they do have long-lasting effects on students—particularly on negatively stigmatized groups. While the correlates of students' efficacy beliefs, self-fulfilling prophecies, and academic success are beyond the scope of this study, reporting students' responses can provide data for future research, as well as insight into their thoughts of how relevant the SEA is for their future success.

Although there is a significant body of research investigating the relationships between achievement goals and students' test anxiety in North America, such research is less available in Trinidad and Tobago. In addition, research that examines the relationship between test anxiety and achievement goals usually focus solely on students' achievement goals; not many studies are available that examined the association of students' perceptions of parents', teachers' and classroom goals with their test related anxiety. This study seeks to bridge those gaps by exploring the following research questions.

Research Questions and Hypotheses

1. Are standard 5 students' personal achievement goals associated with their SEA cognitive anxiety? That is, when regressed onto test anxiety, will students' mastery, performance-approach and performance-avoid goals show significant associations?

Hypothesis 1: Students' mastery goals will be negatively correlated or uncorrelated with cognitive anxiety; and performance-approach and performance-avoid goals will each show positive correlations with cognitive anxiety.

2. Are students' achievement goals associated with their perceptions of their parents', teachers' and classroom goals? Specifically, will there be significant associations when students' achievement goals are regressed onto their perceptions of parent, teacher, and classroom goals?

   Hypothesis 2: Students' perceptions of their parents', and teachers' mastery goals will each show positive correlations with their personal mastery goals. Students' perceptions of their parents', teachers' and classroom performance-approach goals will each show positive correlations with their personal performance-approach goals. Students' perceptions of their teachers' and classroom performance-avoid goals will each show positive correlations with their personal performance-avoid goals.

3. Are students' SEA anxiety associated with their perceptions of their parents', teachers' and classroom goals? Specifically, will there be significant associations when students' SEA anxiety is regressed onto their perceptions of parent, teacher, and classroom goals?

   Hypothesis 3: Students' perceptions of their parents' and teachers' mastery goals will be negatively correlated or uncorrelated with their SEA cognitive anxiety. Students' perceptions of their parents', teachers' and classroom performance-approach and performance-avoid goals will each show positive correlations with their SEA cognitive anxiety.

4. Will the interactions between perceived parents, teachers, and classroom performance goals correlate with increases in students' test anxiety? Specifically, will students'

anxiety about the SEA increase more when they move from a low performance-goal emphasis home environment to a high performance-goal emphasis classroom environment?

Hypothesis 4: Based on the strong historical context of the SEA, and beliefs about the SEA that may be shared by parents, teachers, and peers, I hypothesise that, students' perceptions of parents', teachers', and classroom performance goals will interact, and correlate significantly with increases in students' cognitive anxiety.

The statistical analyses conducted on the results of this study were based on the research questions. To examine the questions, I used regression equations to observe the associations among variables and to test the fit of a proposed set of models. Students' perceptions of their parents' goals, classroom goals, and teachers' goals were all independent variables. Students' personal achievement goals were both dependent and independent variables; and test anxiety was solely a dependent variable. I used regression equations to observe the significance of the interactions, to compare the independent variables with each other, and to observe whether they interacted in their associations with students' cognitive anxiety and achievement goals. Chapter three will explain the methodology in detail.

Chapter Three

Methods

This chapter, will layout the study's research methods by first presenting the participants' demographics, and then examining the measures for the six main subscales. Thereafter, I will explain the steps of the research procedures—including ethics, recruitment, and survey administration; and finally report how the data were prepared for analysis and analysed. This study employed a correlational research design, because I did not manipulate the subjects or variables.

Participants

Two hundred and fifteen standard 5 students (105 females and 104 males; six participants did not disclose gender) from three different primary schools participated in this study. Students' ages ranged from 10 to 13 years with a mean of 11.5 (SD = .65). Students' ethnic backgrounds were diverse. The majority of students (48.84%) identified themselves as mixed race which included Black (African decent), Caucasian, Chinese, East Indian, and Hispanic. Non-mixed ethnicities were 28% Black (African decent) 25% East Indian, and 2% Chinese. No identified special needs student participated.

Primary School A was a government-assisted, Islamic school (3 teachers and 51 students). Primary school B was a fully private Catholic school (3 teachers and 74 student), and primary school C was a fully public, government primary school (4 teachers and 90 students). The Trinidad and Tobago Ministry of Education set the standard for the SEA curriculum used in each school. Table 1 provides descriptive data on the sample's demographics.

Table 1

School Demographics

School		Teacher/ Classrooms	Student N	Mean Age (SD)	Gender		Ethnicity			
ID	**Description**				**Female**	**Male**	**Mixed Race**	**African decent**	**East Indian**	**Chinese**
A	Government-assisted, partially private, Islamic	3	51 (23.72%)	11.53 (.61)	23 (10.70%)	28 (13.02%)	16 (7.44%)	3 (1.40%)	30 (13.95%)	2 (.93%)
B	Fully Private, Catholic	3	74 (34.42%)	11.21 (.50)	37 (17.21%)	32 (14.88%)	52 (24.19%)	18 (8.37%)	4 (1.86%)	0
C	Fully public, government	4	90 (41.86%)	11.74 (.70)	45 (20.93%)	44 (20.47%)	37 (17.21%)	35 (16.28%)	17 (7.91%)	1 (.47%)
Totals		10	215 (100%)	11.5 (.65)	105 (48.84%)	104 (48.37%)	105 (48.84%)	56 (26.05%)	51 (23.72%)	3 (1.40%)

*Note six participants (2.79%) did not disclose gender

Measures

The student survey consisted of 74 items, drawn from three scales: The Patterns of Adaptive Learning Scales (PALS; Midgley, et al., 2000), the Children's Test Anxiety Scale (CTAS; Wren, 2004), and Dweck's Mindset Assessment survey (minsetworks, 2011). Only 62 items were used in the analyses—52 from 11 PALS subscales, and 10 from one modified CTAS subscale. In the following section, I will explain the scoring and reliability of each subscale, how they were modified, and their relation to the research questions.

Patterns of Adaptive Learning Scales (PALS). The PALS examines the relation among the learning environment, students' motivation, affect, and behaviour in elementary and middle school students. This study utilised 11 subscales from PALS' five-scale student questionnaire. I used 10 subscales to assess students' perceptions of their personal achievement goals, teachers', classrooms, and parents' achievement goals. Students' *Personal Achievement Goal Orientations* were assessed with the mastery (S-mastery), performance-approach (S-

Approach), and performance-avoid (S-Avoid) subscales. Teachers' mastery (T-mastery), performance-approach (T-Approach), and performance-avoid (T-Avoid) subscales assessed students' *Perceptions of Teachers' Goals*. Students' *Perceptions of Classroom Goal Structures* were assessed by classroom performance-approach (CR-Approach), and classroom performance-avoid (CR-Avoid) subscales. Finally, parents' mastery (P-mastery), and performance (P-performance) subscales assessed students' *Perceptions of Parents' Goals*. Table 2 presents abbreviated representation of 10 of the PALS subscales used in this study:

Table 2

PALS Achievement Goal Orientation Subscales

	Goal Orientations/ Subscales		
Students' Perceptions	**Mastery**	**Performance-approach**	**Performance-avoid**
Personal (self)	S-Mastery	S-Approach	S-Avoid
Teachers'	T-Mastery	T-Approach	T-Avoid
Classroom	—	CR-Approach	CR-Avoid
Parents'	P-Mastery	P-performance	—

The eleventh subscale used in this study, to assess students' *Scepticism about the relevance of the SEA for future success,* was adapted from the PALS *Skepticism about the Relevance of School for Future* subscale. I will provide details of this subscale later in this chapter.

A 5-point Likert scale assessed the 11 subscales anchored with *Not at all true* = 1, *hardly ever true* = 2, *Sometime true* = 3, *most times true* = 4, and *almost always true* = 5. Midgley, et al. (2000) did not anchor each number with a descriptor, but this study followed Muis, Winne, and Edwards (2009) advice that anchoring each option would increase individual accuracy, interpretive consistency, and reduce confusion. In the proceeding sections, I will discuss the items of each subscale and their respective reliability coefficients.

Personal achievement goal orientations. This scale measures students' reasons for engaging in academic behaviours (Midgley, et al., 2000), and is comprised of three subscales: mastery, performance-approach, and performance-avoid goal orientations. The mastery-goal orientation subscale measured the degree to which students engage in academic work to develop competence (e.g., *One of my goals is to learn and master new skills at school*). The performance-approach goal orientation subscale measured the degree to which students engage in academic work to demonstrate competence (e.g., *One of my goals is to show others that I'm good at my class work*). The degree to which students engage in academic work to avoid demonstrating incompetence (e.g., *One of my goals is to keep others from thinking I'm not smart in class*) is measured by the performance-avoid goal orientation subscale. Muis, et al., (2009) used traditional psychometric, including confirmatory factor analysis, and Rasch-model analysis to examine the psychometric properties of each construct in this subscale. Results from Muis, et al.'s (2009) confirmatory factor analysis provided empirical support for the theoretical framework of personal achievement goal orientations, and descriptive statistics revealed strong internal reliability for each construct (mastery goal orientation (α = .92), performance-approach goal orientation (α = .90), and performance-avoid goal orientation (α = .84)). Table 3 lists the items from the Students' Personal Achievement Goal Orientations subscale; differences are bolded.

Table 3

Students' Personal Achievement Goal Orientations Subscales

PALS Original Scales and Cronbach's alpha values	**Current Study's Questions (differences bolded), and Cronbach's alpha values**
1. Mastery Goal Orientation (α = .85)	**1. Mastery Goal Orientation (α = .73)**
It's important to me that I learn a lot of new concepts this year.	It's important to me that I learn a lot of new **things** this year
One of my goals in class is to learn as much as I can.	One of my goals in class is to learn as much as I can.
One of my goals is to master a lot of new skills this year.	One of my goals is to **learn and** master new skills **at school**.
It's important to me that I thoroughly understand my class work.	It's important to me that I **completely** understand my class work.
It's important to me that I improve my skills this year.	It's important to me that I improve my **academic** skills this year.
2. Performance-Approach Goal Orientation (α = .89)	**2. Performance-Approach Goal Orientation (α = .69)**
It's important to me that other students in my class think I am good at my class work.	It's important to me that other students in my class think I am good at my class work
One of my goals is to show others that I'm good at my class work.	One of my goals is to show others that I'm good at my class work.
One of my goals is to show others that class work is easy for me.	One of my goals is to show others that class work is easy for me.
One of my goals is to look smart in comparison to the other students in my class.	One of my goals is to look smart **compared** to other students in my class.
It's important to me that I look smart compared to others in my class.	It's **not** important to me that I look smart compared to others in my class.
3. Performance-Avoid Goal Orientation (α = .74)	**3. Performance-Avoid Goal Orientation (α = .51)**
It's important to me that I don't look stupid in class.	It's important to me that I don't look stupid in class.
One of my goals is to keep others from thinking I'm not smart in class.	One of my goals is to keep others from thinking I'm not smart in class.
It's important to me that my teacher doesn't think that I know less than others in class.	It's important to me that my teacher does not think I know less than others in class.
One of my goals in class is to avoid looking like I have trouble doing the work.	One of my goals in class is to avoid looking like I have trouble doing the work.

Perceptions of teacher's goals. Midgley, et al. (2000) designed this scale to measure students' perceptions of their teachers' mastery goals, performance-approach goals, and performance-avoid goals. Students perceive that their teachers have mastery goals when teachers emphasise that the purpose for engaging academic work is competence *development* (e.g. *My teacher really wants us to enjoy learning new things*). Peklaj, et al., (2012) reported strong internal reliability (α = .78) for this subscale. When teachers' goal emphasis is

competence *demonstration* (e.g. *My teacher tells us how we compare to other students*), students perceive them as having performance-approach goals. Ciani, et al., (2010) reported a Cronbach's alpha of .74 for the PALS teacher approach goals subscale. However, if teachers' focus is for students to *avoid* demonstrating incompetence (e.g. *My teacher tells us it is important to join in class discussions so it looks like we can do the work*.), students perceive their teachers as having performance-avoid goals. Midgley, et al., (2000) reported a Cronbach's alpha value of .71 for this subscale. Table 4 lists the items from the Students' Perceptions of Teachers' Goals subscale; differences are bolded.

Table 4

Students' Perceptions of Teachers' Goals Subscales

PALS Original Scales and Cronbach's alpha values	**Current Study's Questions (differences bolded), and Cronbach's alpha values**
4. Teacher Mastery Goal (α = .83)	**4. Teacher Mastery Goal (α = .76)**
My teacher thinks mistakes are okay as long as we are learning.	My teacher thinks mistakes are okay as long as we are learning.
My teacher wants us to understand our work, not just memorize it.	My teacher wants us to understand our work, not just memorize **the right answers**.
My teacher really wants us to enjoy learning new things.	My teacher really wants us to enjoy learning new things.
My teacher recognizes us for trying hard.	My teacher recognizes us **when we try or work hard**.
My teacher gives us time to really explore and understand new ideas.	My teacher gives us time to really explore and understand new ideas.
5. Teacher Performance-Approach Goal (α = .79)	**5. Teacher Performance-Approach Goal (α =.65)**
My teacher points out those students who get good grades as an example to all of us.	My teacher points out those students who get good grades as an example to all of us.
My teacher lets us know which students get the highest scores on a test.	My teacher lets us know which students get the highest scores on a test.
My teacher tells us how we compare to other students.	My teacher tells us how we compare to other students.
6. Teacher Performance-Avoid Goal (α = .71)	**6. Teacher Performance-Avoid Goal (α = .71)**
My teacher tells us that it is important that we don't look stupid in class.	My teacher tells us that it is important that we don't look stupid in class.
My teacher says that showing others that we are not bad at class work should be our goal.	My teacher **believes** showing others that we are **good** at class work should be our goal.
My teacher tells us it's important to join in discussions and answer questions so it doesn't look like we can't do the work.	My teacher tells us it is important to join in **class** discussions so it **looks** like we **can** do the work.
My teacher tells us it's important to answer questions in class, so it doesn't look like we can't do the work.	My teacher tells us it is important to answer questions in class so we **look smart**.

Perception of classroom goal structures. This scale measures students' perceptions of the goals for engaging in academic work that are typical of their classroom. This scale had three subscales: classroom performance-approach goal structure, classroom performance-avoid goal structure, and classroom mastery-goal structure. Classroom performance-approach goal structure measured students' perceptions that the purpose of engaging in academic work in the classroom is to demonstrate competence (e.g. *In our class, it's important to get high scores on tests*). Classroom performance-avoid goal measured students' perceptions that the purpose of engaging in academic work in the classroom is to avoid demonstrating incompetence (e.g. *In our class, one of the main goals is to avoid looking like you can't do the work*). Walker (2012) reported Cronbach's alphas for classroom performance-approach goals and classroom performance-avoidance goals as .72 and .85 respectively. Table 5 lists the items from the Students' Perceptions of Classroom Goal Structures subscale.

Table 5

Students' Perceptions of Classroom Goal Structures

PALS Original Scales and Cronbach's alpha values	**Current Study's Questions (unchanged), and Cronbach's alpha values**
7. Classroom Performance-Approach Goal Structure (α = .70)	**7. Classroom Performance-Approach Goal Structure (α = .84)**
In our class, getting good grades is the main goal.	In our class, getting good grades is the main goal.
In our class, getting right answers is very important.	In our class, getting right answers is very important.
In our class, it's important to get high scores on tests.	In our class, it's important to get high scores on tests.
8. Classroom Performance-Avoid Goal Structure (α = .83)	**8. Classroom Performance-Avoid Goal Structure (α = .82)**
In our class, showing others that you are not bad at class work is really important.	In our class, showing others that you are not bad at class work is really important.
In our class, it's important that you don't make mistakes in front of everyone.	In our class, it's important that you don't make mistakes in front of everyone.
In our class, it's important not to do worse than other students.	In our class, it's important not to do worse than other students.
In our class, it's very important not to look dumb.	In our class, it's very important not to look dumb.
In our class, one of the main goals is to avoid looking like you can't do the work.	In our class, one of the main goals is to avoid looking like you can't do the work.

Perceptions of parents. This scale assessed students' perceptions of the achievement goals emphasized by their parents (Midgley, et al., 2000; Table 6). To measure students' perception that their parents want them to *develop* competence (e.g. *My parents want me to understand what I learn, not just get good grades*), I used the parent-mastery goal construct (P-Mastery). To measure students' perception that their parents want them to *demonstrate* competence (e.g. *My parents would like me to show others that I am good at class work*), I used the parent-performance goal construct (P-Performance). Friedel, et al., (2007) reported a Cronbach's alpha internal consistency coefficient of .65 for perceived parent's mastery goal emphasis, and .70 for perceived parent's performance goal emphasis.

Table 6

Students' Perceptions of Parents' Goals

PALS Original Scales and Cronbach's alpha values	**Current Study's Questions (differences bolded) and Cronbach's alpha values**
9. Parent Mastery Goal (α = .71)	**9. Parent Mastery Goal (α = .60)**
My parents want me to spend time thinking about concepts.	My parents want me to spend time thinking about **what things mean, not just memorize them.**
My parents want my work to be challenging for me.	My parents want my work to be challenging for me.
My parents would like me to do challenging class work, even if I make mistakes.	My parents would like me to do challenging class work, even if I make mistakes.
My parents want me to understand my class work, not just memorize how to do it.	My parents want me to understand my class work, not just memorize how to do it.
My parents want me to see how my class work relates to things outside of school.	My parents want me to see how **what I learn at school relates to things outside of school**
My parents want me to understand concepts, not just do the work.	My parents want me to understand **what I learn, not just get good grades.**
10. Parent Performance Goal (α = .71)	**10. Parent Performance Goal (α = .69)**
My parents don't like it when I make mistakes in my class work.	My parents don't like it when I make mistakes in my class work.
My parents would like it if I could show that I'm better at class work than other students in my class.	My parents would like it if I could show that I am better at class work than other students are in my class.
My parents would like me to show others that I am good at class work.	My parents would like me to show others that I am good at class work.
My parents think getting the right answers in class is very important.	My parents think getting the right answers in class is very important.
My parents would be pleased if I could show that class work is easy for me.	My parents would be pleased if I could show that class work is easy for me.

Scepticism about the relevance of the SEA for future success. This scale was adapted from the PAL's Skepticism about the relevance of school for future success subscale (Midgley, et al., 2000). For this study, I made the PALS scepticism items specific to the SEA exam context. For example, instead of using the Midgley, et al.'s original question "My chances of succeeding later in life don't depend on doing well in school" I modified it to "My chances of succeeding later in life don't depend on doing well on the SEA" (Table 7). The adapted subscale had acceptable internal reliability (α = 0.77)

Table 7

Scepticism about the Relevance of SEA for Future Success

PALS Original Scales and Cronbach's alpha values	**Current Study's Questions (differences bolded) and Cronbach's alpha values**
11. Skepticism about the Relevance of School for Future Success (α = .83)	**11. Scepticism about the Relevance of SEA for Future Success (α = .77)**
Even if I do well in school, it will not help me have the kind of life I want when I grow up.	Even if I do well **on the SEA**, it will not help me have the kind of life I want when I grow up.
My chances of succeeding later in life don't depend on doing well in school.	My chances of succeeding later in life don't depend on doing well **on the SEA.**
Doing well in school doesn't improve my chances of having a good life when I grow up.	Doing well **on the SEA** doesn't improve my chances of having a good life when I grow up.
Getting good grades in school won't guarantee that I will get a good job when I grow up.	**Doing well on the SEA won't help me have a good job when I grow up**.
Even if I am successful in school, it won't help me fulfill my dreams.	Even if I am successful **on the SEA**, it won't help me fulfil my dreams.
Doing well in school won't help me have a satisfying career when I grow up.	**Getting into a good secondary** school **will guarantee that I will get a good job when I grow up**.
	***Getting my school of choice does not matter because I will get a good education no matter where I go to school.**

*Note: item added.

Students' Anxious Cognitions concerning the SEA. This sale was adapted from the Children's test anxiety scale (CTAS), which Wren, (2004) designed for students aged 8–12. The CTAS is comprised of three subscales that assess students' *thoughts*, *off-task behaviours*, and *autonomic* reactions during academic testing. This study examined anticipatory anxiety,

specifically, students' *anxious cognitions* concerning the upcoming SEA. Therefore, I adapted the items in the thought subscale of the CTAS to SEA specific questions. This formed the anxious cognitions subscale in the survey. The anxious cognitions subscale measured students' anxious thoughts about the SEA, including self-critical thoughts (e.g. *I worry that I am not studying enough for the SEA*), test- related concerns (e.g. *I worry that most of my answers on the SEA will be wrong*), and test-irrelevant thoughts (e.g. *I worry about what my parents will think of my secondary school placement*). Responses were anchored in a five point Likert scale at *Not at all true* = 1, *hardly ever true* = 2, *Sometime true* = 3, *most times true* = 4, and *almost always true* = 5. Table 8 compares the items from the CTAS thoughts subscale with the items on the adapted anxious cognitions subscale; differences are bolded.

Table 8

Comparison of CTAS Thought-items with the adapted Anxious Cognitions Subscale

CTAS Original Scales and Cronbach's alpha values	**Current Study's Questions (differences bolded) and Cronbach's alpha values**
Thoughts (α = .89)	**Students' SEA Cognitive Anxiety (α = .92)**
I think I am going to get a bad grade	I **worry** I am going to get a bad grade **on the SEA**
I think about what will happen if I fail.	I **worry** about **not getting my secondary school of choice**
I worry about what my parents will say.	I worry about what my parents will **think of my secondary school placement**
I worry about failing.	N/A
I worry about doing something wrong.	I worry about doing something wrong **on the SEA**
I think about what my grade will be.	I **worry** about what **my mark on the SEA** will be
I think most of my answers are wrong.	I **worry** that most of my answers **on the SEA will be** wrong
I think about how poorly I am doing.	I **worry** about **what will happen if I get a poor mark on the SEA**
I worry about how hard the test is.	I worry about how hard **the SEA will be**
I think that I should have studied more.	I worry that **I am not studying enough for the SEA**
It is hard for me to remember the answers.	**I worry that I will forget the answers when I take the SEA.**

Procedures

Subsequent to approval by my thesis committee and the University of Victoria's Human Research Ethics Board (*Appendix A*), I contacted primary school principals within the St. George East district of Trinidad via telephone, and asked permission for the standard 5 students in their respective schools to participate in the study. Three principals consented for their schools to participate.

I recruited participants via a letters of invitation sent home with students to their parents (*Appendix B*). Invitation letters contained a consent form for parents' passive consent, and students were free to decline participation or withdraw at any time during the study. Seven parents did not permit their children to participate, and one student declined participation on the day of the study. The final sample size was 215.

Two weeks before the SEA exam, I administered the surveys with the help of Joan Martin[1], a developmental psychologist from the University of Victoria, in the students' regular school environment and in the presence of their respective teachers. To introduce the study, I told students that the survey was to help us learn how they felt regarding their upcoming SEA exam. I began by explaining and answering sample items to acclimate students to the use of the Likert response scales. I also encouraged participants to ask questions about items they did not understand, and stressed that their responses would be confidential. Special care was taken to minimize peer collaboration and distractions. After the students completed the surveys, I gave a brief presentation on managing SEA test anxiety. Finally, I offered treats to everyone. Treats were not contingent on participation.

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[1] Joan M. Martin, PhD., is an assistant professor at the University of Victoria who has extensive cross-cultural experience and extensive experience administering surveys to youth

The survey took approximately one hour to administer. The survey responses were coded, imported it to SPSS (IBM SPSS, version 23.0), and saved on my password protected computer in preparation for analysis.

Data Analysis

Data cleaning. First, to improve reliability, and reduce both spurious within-group variability and Type II errors, I visually identified inattentive responses, such as a single response for all the questions (e.g. 1,1,1,1,1,) or ascending or descending patterned responses throughout the questionnaire (e.g. 1,2,3,4,5). Careless responses increase error variance, weaken correlations, reduce internal consistency, and can produce erroneous factors (Johnson, 2005). Data from four participants were removed because of careless responses. Additionally, Cook's distance and Leverage values, used to identify problematic data points (Keith, 2015), highlighted one significant outlier that was subsequently removed from the dataset. The combined examinations resulted in the removal of data from five participants; reducing the sample to 210.

Missing data. There were 15 missing values (.44%) in the data. Although the amount was small, missing data increases standard errors, decreases statistical power, and produces biased parameter estimates (Dong, & Peng, 2013). Since literature has not established a maximum missing data percentage cut-off (Dong, & Peng, 2013), I chose to addressed the missing values using multiple imputation (MI).

MI, a principled missing data method that provides valid statistical inferences under the missing at random (MAR) condition, generates a set of plausible values for each unobserved data point, and imputes missing data a specified number of times to produce an equivalent number of complete data sets (Little & Rubin, 2002). Dong and Peng (2013) indicated that the number of imputations needed in MI is a function of the rate of missing information in a data set. While

Schafer and Olsen (1998) suggested that 3-5 imputations are generally sufficient to obtain good results, methodologists have not agreed on the optimal number of imputations. After the missing values are imputed, MI analyses each data set, and pools the results into one (Dong, & Peng, 2013).

Prior to imputation, I analysed the data for patterns, and found no systematic patterns. Then, I selected the Mersenne Twister to generate random fixed value numbers, and automatic imputation method in SPSS to generate five imputations (IBM SPSS, version 23.0). The pooled data from the five imputations were used for subsequent analyses.

Data analysis. The data were analysed in three phases. First, I used SPSS to run a principal component analysis (PCA), with oblimin rotation for each subscale, to test if the component structure produced by the sample from the Trinidad population fit the scale structures found in North American populations. I used the Kaiser-Meyer-Olkin measure of sampling adequacy and Bartlett's test of sphericity to test the overall significance of all correlations; and I examined the pattern and structure matrices of extracted components with eigenvalues > 1. The items in each component identified by the PCA were used to create the composites that formed the dependent and independent variables used in the regression equations. According to Pallant (2013) this approach is preferred over generating factor scores based on the weighted factor score coefficients produced by the PCA, because "weightings used in a particular analysis are unique to the specific study, so scores cannot be reliably compared across studies" (p. 40).

Second, I ran descriptive analyses. I screened data for outliers, normality, linearity, homoscedasticity, multi-collinearity, and singularity; calculated correlations, means, and standard deviations (SD) for all variables, and used Cronbach's alpha to examine the internal consistency of each of the components.

Third, I used multiple linear regressions to examine each research question and test the fit of the models; and used Huber-White (Hox, 2010) sandwich estimators to reduce Type I errors associated with nested data. Chapter 4 will present the results of each phase.

Chapter Four

Results

This chapter is divided into three phases. The first phase presents the results of the PCA for each of the subscales, and tabulated values of the pattern and structure matrices. The second phase details the descriptive statistics, bivariate correlations, and reliability coefficients of the components identified by the PCA. The third phase addresses each research question using a series of linear regressions with extracted components, and presents the tabulated and graphed results.

Phase 1: Principal Component Analyses (PCA)

Students' SEA cognitive anxiety. I performed a PCA (IBM SPSS, version 23.0) on the 10 modified items from the Children's test anxiety subscale (Table 9). Prior to running the PCA, suitability of the data was assessed. The sample of 210 participants and 10 items met the minimum requirement of five participants per item for reliable component structure (James, 1986).

The Kaiser-Meyer-Olkin measure of sampling adequacy was .93, and Bartlett's test of sphericity was significant (χ^2 (45) = 1132.66, $\rho < .001$), the communalities were all above .4. PCA revealed the presence of one component, SEA cognitive anxiety (SEA-CA), accounted for 58.26% of the variance in the model (eigenvalue 5.83). All the 10 items correlated (.00) with each other, produced a Cronbach's alpha of $\alpha = .92$ (Table 9), and component loadings were consistent with literature. I used SPSS to calculate the mean composite scores of the loaded items and created the SEA-CA subscale that was used in subsequent regression analyses.

Table 9
Component Matrix Loadings for Principle Components Analysis with Oblimin Rotation of SEA SEA Cognitive Anxiety

	Component
Students' Cognitive Anxiety about the SEA (α = .92)	SEA cognitive anxiety
I worry about not getting my secondary school of choice	**.847**
I worry I am going to get a bad grade on the SEA	**.806**
I worry about what will happen if I get a poor mark on the SEA	**.806**
I worry about doing something wrong on the SEA	**.773**
I worry that most of my answers on the SEA will be wrong	**.769**
I worry about how hard the SEA will be	**.768**
I worry that I will forget the answers when I take the SEA.	**.763**
I worry about what my mark on the SEA will be	**.753**
I worry that I am not studying enough for the SEA	**.681**
I worry about what my parents will think of my secondary school placement	**.644**

Students' achievement goals. I assumed the components in the students' goals subscale were correlated and performed a PCA on the 14 items from the Patterns of Adaptive Learning Scales—PALS (Midgley, et al., 2000). The sample of 210 participants and 14 items met the minimum requirement for reliable component structure (James, 1986).

I used principal component analysis, with oblimin rotations, to test if the items loaded on three components as with previous studies (Midgley, et al., 2000; Muis, et al., 2009). Initial principal component analysis on the 14 items suggested the removal of two items. Item 17 (*It's not important to me that I look smart compared to others in my class.*) and item 1 (*It's important to me that I don't look stupid in class.*) loaded primarily on a theoretically unidentified component at .815 and .439 respectively. Item 1 also cross-loaded with Student Avoid goal at -.434. I eliminated the two items because they did not contribute to a simple component structure, and executed a principal component analysis on the remaining 12 items, using oblimin rotations. This analysis produced a theoretically expected three-component solution that explained 24.50%, 18.55%, and 9.18% of the variance respectively. The Kaiser-Meyer-Olkin measure of sampling adequacy was .74, and Bartlett's test of sphericity was significant (χ^2 (66) =

480.83, $\rho < .001$), and the communalities were all above .3. All items had primary loadings over .4 (Table 10).

Table 10

Pattern and Structure Matrix Loadings for Principle Components Analysis with Oblimin Rotation of Students' Achievement Goals

	Pattern Matrix Loadings			**Structure Matrix Loadings**		
	Student Approach	Student Mastery	Student Avoid	Student Approach	Student Mastery	Student Avoid
Students' Performance-Approach Goal Orientation (α = .69)						
One of my goals is to show others that I'm good at my class work.	**.827**	.019	-.215	**.771**	.114	.012
One of my goals is to show others that class work is easy for me.	**.736**	.055	.010	**.745**	.144	.213
One of my goals is to look smart compared to others students in my class.	**.655**	-.079	.222	**.706**	.004	.400
It's important to me that other students in my class think I am good at my class work	**.583**	-.060	.124	**.610**	.013	.283
Students' Mastery Goal Orientation (α = .73)						
One of my goals in class is to learn as much as I can.	.003	**.775**	-.098	.069	**.774**	-.082
It's important to me that I learn a lot of new things this year	-.113	**.695**	.06	.288	**.711**	-.087
It's important to me that I improve my academic skills this year.	.252	**.684**	-.169	-.013	**.683**	.042
One of my goals is to learn and master new skills at school.	-.008	**.673**	.254	.143	**.677**	.265
It's important to me that I completely understand my class work.	-.068	**.627**	-.029	.000	**.618**	-.036
Students' Performance-Avoid Goal Orientation (α = .51)						
It's important to me that my teacher does not think I know less than others in class.	-.122	-.069	**.869**	.108	-.067	**.834**
One of my goals is to keep others from thinking I'm not smart in class.	.253	.100	**.494**	.482	.108	**.580**
One of my goals in class is to avoid looking like I have trouble doing the work.	.343	.057	**.484**	.400	.140	**.565**

Rotation converged in 8 iterations.

The first component contained four Student-approach goals items, and had an eigenvalue of 2.94. Although the Cronbach's alpha value was lower than what Midgley, et al. (2000) listed in PALS (.89), deleting item 17 from this study, improved the internal reliability of the student-approach goals component from .49 to .69.

Component two contained five *Student-mastery goals* items (Table 10), had an eigenvalue of 2.23, and produced a Cronbach's alpha of $\alpha = .73$ which was lower than the Cronbach's value (.85) listed in PALS (Midgley, et al., 2000).

The third component contained three *Student-avoid goals* items (Table 10), had an eigenvalue of 1.10, and produced a Cronbach's alpha of $\alpha = .51$ which was also lower than the Cronbach's value (.74) listed in PALS (Midgley, et al., 2000), but comparable with other studies (Putwain & Daniels, 2009; $\alpha = .57$).

I used SPSS to calculate the mean composite scores of the loaded items for each individual component and created three subscales— Student Approach, Student Avoid, Student Mastery, that were used in subsequent regression analyses.

Students' perception of teachers' goals. I assumed the components in the teachers' goals subscale were correlated and performed a PCA on the 12 items from the Patterns of Adaptive Learning Scales—PALS (Midgley, et al., 2000; Table 11). I used PCA, with oblimin rotations, to test if the items loaded on three components as with previous studies (Ciani, et al., 2010; Midgley, et al., 2000; Peklaj, et al., 2012). The sample of 210 participants and 12 items met the minimum requirement for reliable component structure (James, 1986). The Kaiser-Meyer-Olkin measure of sampling adequacy was .74, and Bartlett's test of sphericity was significant (χ^2 (66) = 572.67, $\rho < .001$), and the communalities were all above .3. The components loaded as theoretically expected.

A three-component model best represented the teachers' goals subscale from the Trinidad sample. The first component contained four *teacher-avoid* items (Table 11), had an eigenvalue of 3.03, explained 25.29% of the model's variance, and produced a Cronbach's alpha of $\alpha = .71$ which was the same as the alpha reported in the original scale (Midgley, et al., 2000).

Table 11

Pattern and Structure Matrix Loadings for Principle Components Analysis with Oblimin Rotation of Students' Perception of Teachers' Goals

	Pattern Matrix Loadings			Structure Matrix Loadings		
	Teachers' Avoid	Teachers' Mastery	Teachers' Approach	Teachers' Avoid	Teachers' Mastery	Teachers' Approach
Teachers' Performance-Avoid Goal Orientation (α = .71)						
My teacher tells us it is important to answer questions in class so we look smart.	**.810**	.154	.024	**.806**	.102	.197
My teacher tells us it is important to join in class discussions so it looks like we can do the work.	**.810**	-.022	-.045	**.801**	-.067	.144
My teacher believes showing others that we are good at class work should be our goal.	**.620**	-.118	.133	**.658**	-.169	.288
My teacher tells us that it is important that we don't look stupid in class.	**.523**	-.175	.103	**.558**	-.217	.241
Teachers' Mastery Goal Orientation (α = .76)						
My teacher really wants us to enjoy learning new things.	.105	**-.809**	-.067	.139	**-.809**	.035
My teacher recognizes us when we try or work hard.	-.065	**-.803**	.036	-.008	**-.803**	.098
My teacher gives us time to really explore and understand new ideas.	.260	**-.714**	-.066	.288	**-.724**	.063
My teacher wants us to understand our work, not just memorize the right answers.	-.298	**-.587**	.304	-.192	**-.598**	.291
My teacher thinks mistakes are okay as long as we are learning.	.032	**-.565**	-.079	.048	**-.560**	-.017
Teachers' Performance-Approach Goal Orientation (α = .65)						
My teacher points out those students who get good grades as an example to all of us.	-.058	.060	**.793**	.122	-.012	**.774**
My teacher lets us know which students get the highest scores on a test.	.138	-.183	**.720**	.316	-.261	**.770**
My teacher tells us how we compare to other students.	.306	.258	**.616**	.433	.180	**.662**

Rotation converged in 7 iterations.

The second component (Table 11) comprised of three *teacher-mastery* items that represented 19.99% of the model's variance with an eigenvalue of 2.40. The teacher-mastery component showed strong internal reliability with α = .76, which was lower than the Cronbach's value (.83) listed in PALS (Midgley, et al., 2000).

The third component contained three *teacher-approach* items (Table 11), had an eigenvalue of 1.26, explained 10.51% of the model's variance, and produced a Cronbach's alpha

of α = .65 which was also lower than the Cronbach's value (.79) listed in PALS (Midgley, et al., 2000).

The three subscales, Teacher Approach, Teacher Avoid, Teacher Mastery, created from the mean composite scores of the loaded items for each individual component, were used in subsequent regression analyses.

Students' perception of classroom goal structures. I assumed the components in the classroom goal structures subscale were correlated and performed an PCA on the eight items from the Patterns of Adaptive Learning Scales—PALS (Midgley, et al., 2000; Table 12). I used principal component analysis, with oblimin rotations, to test if the items loaded on two components as with previous studies (Walker, 2012). The sample of 210 participants and 8 items met the minimum requirement for reliable component structure (James, 1986).

The Kaiser-Meyer-Olkin measure of sampling adequacy was .84, and Bartlett's test of sphericity was significant (χ^2 (28) = 614.05, $\rho < .001$), and the communalities were all above .4. The components loaded as theoretically expected.

A two-component model best represented the classroom goal structures subscale from the Trinidad sample. The first component contained five *classroom-avoid* items, had an eigenvalue of 3.71, explained 46.33% of the model's variance (Table 12), and produced a Cronbach's alpha of α = .82, which was comparable to the alpha value (.83) reported in the original scale (Midgley, et al., 2000).

The second component (Table 12) comprised of three *classroom-approach* items that represented 18.35% of the model's variance with an eigenvalue of 1.47. The classroom-approach component showed strong internal reliability with α = .84, which was higher than the Cronbach's alpha value (.70) listed in PALS ((Midgley, et al., 2000)).

Table 12

Pattern and Structure Matrix Loadings for Principle Components Analysis with Oblimin Rotation of Students' Perception of Classroom Goals

	Pattern Matrix Loadings		Structure Matrix Loadings	
	Classroom Avoid	Classroom Approach	Classroom Avoid	Classroom Approach
Classroom Avoid (α = .82)				
In our class, it's important not to do worse than other students.	**.805**	.037	**.821**	.367
In our class, it's important that you don't make mistakes in front of everyone.	**.810**	-.035	**.795**	.297
In our class, one of the main goals is to avoid looking like you can't do the work.	**.784**	-.072	**.755**	.250
In our class, it's very important not to look dumb.	**.747**	-.022	**.738**	.284
In our class, showing others that you are not bad at class work is really important.	**.611**	.177	**.683**	.427
Classroom Approach (α = .84)				
In our class, it's important to get high scores on tests.	-.010	**.877**	.350	**.873**
In our class, getting right answers is very important.	.014	**.867**	.370	**.873**
In our class, getting good grades is the main goal.	.007	**.853**	.357	**.856**

Rotation converged in 4 iterations.

The two subscales, classroom avoid and classroom approach, created from the mean composite scores of the loaded items for each individual component, were used in subsequent regression analyses.

Students' perceptions of parents' goals. I assumed the components in the perceptions of parents goals subscale were correlated and performed an PCA on the 11 items from the Patterns of Adaptive Learning Scales—PALS (Midgley, et al., 2000). The sample of 210 participants and 11 items met the minimum requirement for reliable component structure (James, 1986).

I used principal component analysis, with oblimin rotations, to test if the items loaded on two components as with previous studies (Friedel, et al., 2007; Midgley, et al., 2000).Initial principal component analysis on the 11 items suggested the removal of four items. Item 34 (*My parents don't like it when I make mistakes in my class work.)* and item 35 (*My parents want me*

to spend time thinking about what things mean, not just memorize them.) were measuring theoretically different components, but had primarily loadings, of .805 and .731 respectively, on the same component. In addition, item 37 (*My parents want my work to be challenging for me.*) and item 38 (*My parents would like me to do challenging class work, even if I make mistakes.*) also loaded on an independent component with primary loadings of .815 and .63 respectfully. I re-ran a principal component analysis using oblimin rotations, with a fixed two-component extraction. All the items in this analysis behaved as theoretically expected, except for item 37.

Midgley, et al. designed item 37 to measure students' perception of their parents' mastery goal, however, the item loaded on the parents-performance goal component. I eliminated the item 37 because it did not contribute to a simple component structure, and executed a principal component analysis on the remaining 10 items, using oblimin rotations, and a theoretically expected two-component extraction (Table 13). This analysis explained 26.47%, and 17.49% of the variance respectively, and all items had primary loadings over .4. The Kaiser-Meyer-Olkin measure of sampling adequacy was .676, and Bartlett's test of sphericity was significant (χ^2 (45) = 335.27, $\rho < .001$).

The first component contained five *Parents-performance goals* items (Table 13), had an eigenvalue of 2.65, and produced a Cronbach's alpha of $\alpha = .69$ which was comparable with the Cronbach's value (.71) listed in PALS (Midgley, et al., 2000).

The second component contained five *Parents-mastery goals* items (Table 13), had an eigenvalue of 1.66. Although the Cronbach's alpha value was lower than what Midgley, et al. (2000) listed in PALS (.71), deleting item 37 from this study, improved the internal reliability of the parents' mastery goals subscale from .56 to .60.

Table 13

Pattern and Structure Matrix Loadings for Principle Components Analysis with Oblimin Rotation of Students' Perception of Parents' Goals

	Pattern Matrix Loadings		Structure Matrix Loadings	
	Parents Performance	Parents Mastery	Parents Performance	Parents Mastery
Parents Performance (α = .69)				
My parents would like it if I could show that I am better at class work than other students are in my class.	**.800**	-.187	**.761**	-.021
My parents would like me to show others that I am good at class work.	**.729**	-.022	**.725**	.129
My parents think getting the right answers in class is very important.	**.669**	.072	**.684**	.211
My parents would be pleased if I could show that class work is easy for me.	**.663**	.069	**.678**	.207
My parents don't like it when I make mistakes in my class work.	**.422**	.033	**.429**	.121
Parents Mastery (α = .60)				
My parents want me to understand what I learn, not just get good grades.	-.237	**.783**	-.074	**.734**
My parents want me to understand my class work, not just memorize how to do it.	-.084	**.748**	.072	**.731**
My parents want me to see how what I learn at school relates to things outside of school	.088	**.596**	.211	**.614**
My parents want me to spend time thinking about what things mean, not just memorize them.	.156	**.496**	.259	**.528**
My parents would like me to do challenging class work, even if I make mistakes.	.309	**.411**	.394	**.475**

Rotation converged in 5 iterations.

The two subscales, parents' performance and parents' mastery, created from the mean composite scores of the loaded items for each individual component, were used in subsequent regression analyses.

Scepticism about the relevance of the SEA for future success. I performed a PCA on the seven modified items from the PALS subscale. The sample of 210 participants and 7 items met the minimum requirement of five participants per item for reliable component structure (James, 1986).

Initial principal component analysis suggested the removal of one item. Item 10 (*Getting into a good secondary school will guarantee that I will get a good job when I grow up.)* loaded

as a separate component at .95. I eliminated item 10 because it did not contribute to a simple component structure, and executed a principal component analysis on the remaining six items, using oblimin rotations. All remaining items in behaved as theoretically expected (Table 14).

Table 14

Component Matrix Loadings for Principle Components Analysis with Oblimin Rotation of Scepticism about the relevance of the SEA for future success

	Component
Scepticism about the relevance of the SEA for future success (α = .77)	Scepticism
Doing well on the SEA doesn't improve my chances of having a good life when I grow up.	**.790**
Even if I am successful in the SEA, it won't help me fulfil my dreams.	**.777**
Doing well on the SEA won't help me have a good job when I grow up.	**.714**
My chances of succeeding later in life don't depend on doing well on the SEA	**.650**
Even if I do well on the SEA, it will not help me have the kind of life I want when I grow up	**.646**
Getting my school of choice does not matter because I will get a good education no matter where I go to school.	**.518**

This analysis explained 47.42% of the variance (eigenvalue 2.85) and all items had loading values over .5. The Kaiser-Meyer-Olkin measure of sampling adequacy was .82, and Bartlett's test of sphericity was significant (χ^2 (15) = 1767.26, $\rho < .001$), and the communalities were all above .3. The six items correlated (.00) with each other, and produced a Cronbach's alpha of $\alpha = .77$ (Table 7). The component from the PCA for this subscale was not used in the regression analyses, but the PCA offered some support for construct validity of the modified subscale.

In phase one, I ran principal component analyses on six subscales: SEA cognitive anxiety, students' achievement goals, students' perceptions of teachers' goals, students' perceptions of classroom goals, students' perceptions of parents' goals, and scepticism about the relevance of SEA for future success. Twelve components were extracted based on the

eigenvalues, loadings from the PCA, and theoretical support. Phase 2 will present the correlation matrix for the items as well as the response frequencies for items in the scepticism subscale.

Phase 2: Descriptive Analyses

I used the Statistical Package for Social Sciences (IBM SPSS, version 23.0) to calculate correlations, means, standard deviations (SD), and Cronbach's alphas for the subscales derived from the PCA. I reported descriptive statistics, zero order correlations, and reliability coefficients in Table 15.

The correlation matrix showed significant correlations between students' SEA cognitive anxiety, the beliefs they had about the relevance of the SEA for their future success, their personal performance goals, and the perceptions they had about their teachers' approach goals and classroom avoid goals.

Table 15

Bivariate correlations, descriptive data, and reliability coefficients

	Anxiety	S-Mastery	S-Approach	S-Avoid	T-Mastery	T-Approach	T-Avoid	P-Mastery	P-Performance	CR-Approach	CR-Avoid	Scepticism
Anxiety	—	-.02	.06*	.05	.04	.32**	.07*	.07**	.16**	.08**	.33**	.20**
S-Mastery	-.02	—	.13**	.09**	.18**	.01	.11**	.35**	.06*	.18**	.04	-.02
S-Approach	.06*	.13**	—	.46**	.08**	.20**	.40**	.18**	.49**	.25**	.43**	.11**
S-Avoid	.05	.09**	.46**	—	-.03	.11**	.16**	.17**	.23**	.13**	.28**	.11**
T-Mastery	.04	.18**	.08**	-.03	—	.07*	.12**	.23**	.04	-.01	-.09**	-.01
T-Approach	.32**	.01	.2**	.11**	.07*	—	.37**	.21**	.37**	.27**	.42**	.22**
T-Avoid	.07*	.11**	.40**	.16**	.12**	.37**	—	.20**	.48**	.37**	.43**	.29**
P-Mastery	.07**	.35**	.18**	.17**	.23**	.21**	.20**	—	.28**	.14**	.17**	.07**
P-Performance	.16**	.06*	.49**	.23**	.04	.37**	.48**	.28**	—	.45**	.51**	.20**
CR-Approach	.08**	.18**	.25**	.13**	-.01	.27**	.37**	.14**	.45**	—	.43**	.16**
CR-Avoid	.33**	.04	.43**	.28**	-.09**	.42**	.43**	.17**	.51**	.43**	—	.29**
Scepticism	.20**	-.02	.11**	.11**	-.01	.22**	.29**	.07**	.20**	16**	.29**	—
Mean	3.62	4.49	3.21	3.06	3.94	3.57	2.60	4.16	3.55	3.91	3.11	2.32
SD	1.03	0.55	0.98	1.12	0.88	1.10	1.10	0.68	0.97	1.07	1.13	1.00
α	.92	.73	.69	.52	.76	.65	.71	.59	.69	.84	.82	.77

Note. *ρ <.05 (two-tailed). **ρ < .01 (two-tailed).

In addition, I examined the descriptive statistics of students' responses on the *scepticism about the relevance of the SEA for future success* subscale to understand students' thoughts in this area (Table 16). Fifty-three percent of students said that *doing well in the SEA would not help them have the kind of life they want when they grew up* was "not at all true". Forty-nine percent indicated that *their chances of success in life does not depend on their SEA success* was "not at all true". Fifty percent said *doing well on the SEA will not improve their chances of having a good life when they grow up* is "not at all true". Forty-seven percent said that *success in the SEA would not help them fulfil their dreams* was "not at all true". Fifty-three percent indicated that *doing well in the SEA would not help them get a good job when they grew up* was "not at all true".

Table 16

Descriptive data for Scepticism subscale

		Even if I do well on the SEA, it will not help me have the kind of life I want when I grow up	My chances of succeeding later in life don't depend on doing well on the SEA	Doing well on the SEA doesn't improve my chances of having a good life when I grow up.	Even if I am successful in the SEA, it won't help me fulfil my dreams.	Doing well on the SEA won't help me have a good job when I grow up.	Getting my school of choice does not matter because I will get a good education no matter where I go to school.
Response Frequencies Percentages (%)	Not at All true	**52.9**	**49.3**	**50.3**	**47.0**	**52.9**	**30.0**
	Hardly ever true	11.4	10.5	14.0	16.6	15.4	14.3
	Sometimes true	11.4	14.8	11.6	14.1	14.9	16.7
	Most times true	8.6	13.9	11.6	12.1	8.2	12.0
	Almost always true	15.7	11.5	12.6	10.2	8.6	**27.1**
Central Tendencies	Mean	2.23	2.28	2.22	2.22	2.04	2.92
	Median	1	2	1	2	1	3
	Mode	1	1	1	1	1	1
	SD	1.53	1.47	1.47	1.4	1.34	1.59

The majority of responses for *getting my school of choice does not matter because I will get a good education no matter where I go to school* were split between "not at all true" (30%) and "almost always true" (27%). Responses revealed that students believed that the SEA will have an exaggerated impact on their future successes.

Phase 2 presented the correlation matrix for the subscales as well as descriptive statistics for items in the scepticism subscale. Phase 3 will address each research question with corresponding regression equations.

Phase 3: Regression Analyses

To ensure the data met regression assumptions, I screened the data for outliers, normality, linearity, homoscedasticity, multi-collinearity, and singularity. Tests showed that the data met most of the required regression assumptions; for example, all subscale scores computed using traditional sums to responses were normally distributed with skewness and kurtosis values within acceptable ranges. The assumption for independence, however, was violated. The study's sample was drawn from a hierarchical school structure, with students nested within classrooms, and classrooms nested within schools, thereby losing the independence of students' responses (O'Connell & McCoach, 2008). Therefore, I calculated the intra-class correlation coefficient (ICC) from a one-way ANOVA to measure of the proportion of within-class to between class student variability. ICC values close to 1 indicate a high proportion of within class variance, thus class nesting. The ICC value for this study (.13) confirmed that there was nesting within the data. To reduce Type I errors associated with nested data (O'Connell & McCoach, 2008), and determine if the beta values were significantly different from zero, I calculated a robust standard error adjustment using Huber-White sandwich estimators (Hox, 2010) for each regression equation.

In the following sections, each research question is modeled by a regression equation. Results from the regression analyses follow the order of the research questions listed in chapter two.

1. Are standard 5 students' personal achievement goals associated with their SEA cognitive anxiety?

To examine the first research question, I regressed students' SEA related anxiety onto students' mastery, performance-approach and performance-avoid goals (model 1).

Model 1. This model was a simultaneous linear regression of students' SEA cognitive anxiety onto their mastery, performance-approach, and performance avoid goals. The overall regression, presented by Model 1, was not statistically significant (R^2 = .006, F [3, 1257] = 2.367, ρ = .069). The three independent variables (students' mastery, performance-approach and performance-avoid goals) accounted for less than 1% of the variance in SEA cognitive anxiety; and none had statistically significant associations with students' SEA anxiety (Table 17).

Table 17

Model 1: multiple regression of students' cognitive anxiety onto their personal achievement goals; regression coefficients and robust standard error adjustments.

					95% Confidence Interval	
Standardized Predictors	**β**	**t**	**Sig.**	**Robust Std. Error**	**LL**	**UL**
(Students' SEA cognitive anxiety)		.000	1.00	.116	-.26	.262
S-Mastery	-.027	-.963	.336	.067	-.18	.124
S-Approach	.053	1.665	.096	.066	-.10	.203
S-Avoid	.032	1.023	.307	.095	-.182	.247
R^2	.006					
F	2.367					

*p<.05

2. Are students' achievement goals associated with their perceptions of their parents', teachers' and classroom goals?

Three separate linear regressions (Models 2, 3 and 4) tested whether students' perceptions of parents', teachers' and classroom goals were associated with their personal achievement goals.

Model 2. This model was a simultaneous linear regression of students' mastery goals onto students' perceptions of teachers' and parents' mastery goals. The overall multiple regression, presented by Model 2, was statistically significant (R^2 = .130, F [2, 1258] = 93.935, ρ = .0001). The two independent variables (students' perceptions of their teachers' and parents' mastery goals) accounted for 13% of the variance in students' mastery goals, and had statistically significant associations with students' mastery goals; however, when the robust standard error adjustment was applied, only the *parent-mastery* variable remained significant. The standardized regression coefficient (β) for students' perceptions of parents' mastery goals was .319 (t [2] = 11.810, ρ = .0001), meaning that for every unit increase in students' perceptions of parents' mastery goals, their own mastery goals *significantly* increased by .32 units, controlling for students' perceptions of teachers' mastery goals. Table 18 presents Model 2 statistics.

Table 18

Model 2: multiple regression of students' mastery goals onto their perceptions of parents' and teachers' mastery goals; regression coefficients and robust standard error adjustments.

					95% Confidence Interval	
Standardized Predictors	**β**	**t**	**Sig.**	**Robust Std. Error**	**LL**	**UL**
(Constant)		.000	1.00	.080	-.181	.181
T-Mastery	.109	4.025	.0001	.077	-.066	.284
P-Mastery	**.319***	11.810	.0001	.056	.192	.446
R^2	.130					
F	93.935					

*p<.05

Model 3. This model was a simultaneous linear regression of students' performance-approach goals onto their perceptions of parents' performance goals, and teachers and classroom

performance-approach goals. The overall multiple regression, presented by Model 3, was statistically significant (R^2 = .239, F [3, 1239] = 129.859, ρ = .0001). The three independent variables (students' perceptions of parents' performance goals, and teachers and classroom performance-approach goals) accounted for 23.9% of the variance in students' performance-approach goals; however, only students' perceptions of parents' performance goals had a statistically significant association with their own performance-approach goals. The standardized regression coefficient (β) for students' perceptions of parents' performance goals was .466 (t [3] = 16.083, ρ = .0001), meaning that for every unit increase in perceptions of parents' performance goals, their own performance-approach goals *significantly* increased by .466 units, controlling for students' perceptions of teachers and classroom performance-approach goals. Table 19 presents Model 3 statistics.

Table 19

Model 3: multiple regression of students' performance-approach goals onto perceptions of parents', teachers, and classroom performance-approach goals; regression coefficients and robust standard error adjustments.

					95% Confidence Interval	
Standardized Predictors	**β**	**t**	**Sig.**	**Robust Std. Error**	**LL**	**UL**
(Constant)		-.119	.905	.058	-.135	.129
T-approach	.020	.737	.461	.066	-.129	.169
P-performance (approach)	**.466***	16.083	.0001	.057	.334	.589
CR-Approach	.033	1.177	.239	.052	-.086	.151
R^2	.239					
F	129.859					

*p<.05

Model 4. The final model used to address the second research question was a simultaneous linear regression of students' performance-avoid goals onto their perceptions of their teachers' and classroom performance-avoid goals. The overall multiple regression, presented by Model 4, was statistically significant (R^2 = .072, F [2, 1240] = 48.420, ρ = .0001) with students' perceptions of their teachers' and classroom performance-avoid goals accounting

for 7.2% of the variance in students' mastery goals. Only students' perceptions of their classroom performance-avoid goals were significantly associated with their own performance-avoid goals. The standardized regression coefficient (β) for students' perceptions of classroom performance-avoid goals was .243 (t [2] = 8.009, ρ = .0001), meaning that for every unit increase in students' perceptions of classroom performance-avoid goals, their own goal to avoid demonstrating normative incompetence in academic settings *significantly* increased by .243 units, controlling for students' perceptions of teachers' performance-avoid goals. Table 20 shows the results of this regression analysis.

Table 20

Model 4: multiple regression of students' performance-avoid goals onto perceptions of teachers and classroom performance-avoid goals; regression coefficients and robust standard error adjustments.

					95% Confidence Interval	
Standardized Predictors	**β**	**t**	**Sig.**	**Robust Std. Error**	**LL**	**UL**
(Constant)		-.200	.842	.059	-.139	.128
T-Avoid	.052	1.703	.089	.092	-.157	.260
CR-Avoid	**.243***	8.009	.0001	.082	.061	.430
R^2	.072					
F	48.42					

*p<.05

3. Are students' SEA anxiety associated with their perceptions of their parents', teachers' and classroom goals?

Three independent linear regressions (Models 5, 6 and 7) examined the third research question.

Model 5. The fifth model was a simultaneous linear regression of students' anxious SEA cognitions onto their perceptions of their parents' performance and mastery goals. The overall multiple regression, presented by Model 5, was statistically significant (R^2 = .027, F [2, 1258] = 17.224, ρ = .0001), with the two independent variables (students' perceptions of their parents'

performance and mastery goals) accounting for 2.7% of the variance in students' anxious SEA cognitions. Students' perceptions of their parents' performance goals were initially significant, but lost that significance after applying the robust standard error calculations. Table 21 provides regression statistics for Model 5.

Table 21

Model 5: Multiple regression of students' SEA cognitive anxiety onto perceptions of parents' performance and mastery goals; regression coefficients and robust standard error adjustments.

					95% Confidence Interval	
Standardized Predictors	**β**	**t**	**Sig.**	**Robust Std. Error**	**LL**	**UL**
(Constant)		.000	1.00	.114	-.259	.259
P-performance (approach)	.151	5.227	.0001	.083	-.036	.338
P-Mastery	.033	1.123	.261	.067	-.118	.183
R^2	.027					
F	17.22					

*p<.05

Model 6. This model was a simultaneous linear regression of students' anxious cognitions about the SEA onto their perceptions of teachers' mastery, performance-approach, and performance-avoid goals. The overall multiple regression presented by Model 6 was statistically significant (R^2 = .106, *F* [3, 1245] = 49.182, ρ = .0001). The three independent variables (students' perceptions of teachers' mastery, performance-approach, and performance-avoid goals) accounted for 10.6% of the variance in students' anxious SEA cognitions; two had statistically significant associations with students' SEA anxiety, however, when the robust standard error adjustment was applied, only the *teacher-approach* variable remained significant. The standardized regression coefficient (β) for students' perceptions of teachers' performance-approach goals was .341 (*t* [3] = 11.846, ρ = .0001), meaning that for every unit increase in students' perceptions of teachers' performance-approach goals, their SEA related cognitive anxiety *significantly* increased by .341 units, controlling for students' perceptions of teachers'

mastery and performance-avoid goals. Table 22 provides the regression statistics for each predictor in Model 6.

Table 22

Model 6: multiple regression of students' SEA cognitive anxiety onto perceptions of teachers' mastery, performance-approach, and performance-avoid goals; regression coefficients and robust standard error adjustments.

					95% Confidence Interval	
Standardized Predictors	**β**	**t**	**Sig.**	**Robust Std. Error**	**LL**	**UL**
(Constant)		-.144	.886	.123	-.282	.274
T-Mastery	.041	.520	.603	.095	-.200	.228
T-Approach	**.341***	11.846	.0001	.075	.172	.510
T-Avoid	-.058	-2.007	.045	.075	-.228	.112
R^2	.106					
F	49.182					

*p<.05

Model 7. The final model to address the third research question was a simultaneous linear regression of students' anxious SEA cognitions onto their perceptions of classroom performance-approach and performance-avoid goals. The overall multiple regression was statistically significant (R^2 = .114, *F* [2, 1252] = 80.751, ρ = .0001), with the two variables (students' perceptions of classroom performance-approach and performance-avoid goals) accounting for 11.4% of the variance in students' anxious SEA cognitions. Each of the two independent variables had a statistically significant association with students' cognitive anxiety about the SEA, however, only the *classroom-avoid* variable remained significant after applying the robust standard error criterion. The standardized regression coefficient (β) for students' perceptions of classroom performance-avoid goals was .363 (*t* [2] = 12.319, ρ = .0001), meaning that for every unit increase in students' perceptions of classroom performance-avoid goals, their SEA related cognitive anxiety *significantly* increased by .363 units, controlling for students'

perceptions of classroom performance-approach goals. Table 23 presents the regression statistics for Model 7.

Table 23

Model 7: multiple regression of students' SEA cognitive anxiety onto perceptions of classroom performance-approach and performance-avoid goals; regression coefficients and robust standard error adjustments.

					95% Confidence Interval	
Standardized Predictors	**β**	**t**	**Sig.**	**Robust Std. Error**	**LL**	**UL**
(Constant)		-.065	.948	.105	-.240	.236
CR-Approach	-.074	-2.503	.012	.069	-.229	.081
CR-Avoid	**.363***	12.319	.0001	.065	.217	.511
R^2	.114					
F	80.751					

*p<.05

4. Will the interactions between perceived parents, teachers, and classroom performance goals correlate with increases in students' test anxiety?

Model 8. Regression Models 5, 6, and 7 revealed that students' perceptions of parents' performance goals, teachers' approach goals and classroom avoid goals had significant positive associations with their SEA related cognitive anxiety. To understand whether the interactions of these variables were associated with SEA anxiety, students' cognitive anxiety were regressed onto their perceptions of classroom avoid goals, teachers' approach goals, parents' performance goals, as well as the interactions of those predictors, in a series of sequential multiple regressions. Table 24 displays the regression results for the Models 8-A through 8-G, as well as the change in R^2 gained with the addition of a predictor variable.

Table 24

Sequential Multiple Regression of students' SEA cognitive anxiety onto perceptions of classroom avoid, teachers' approach, and parents' performance goals

Model	Standardized Predictors	β	t	Sig.	R^2	ΔR^2	ΔF	Sig. ΔF
A	(Constant)		-.225	.822				
	Classroom avoid	**.323***	12.009	.0001	.104	.104	144.212	.000
B	(Constant)		-.198	.843				
	Classroom avoid	**.229***	7.924	.0001				
	Teacher approach	**.225***	7.776	.0001	.146	.042	60.459	.000
C	(Constant)		-.192	.8548				
	Classroom avoid	**.254***	7.979	.0001				
	Teacher approach	**.236***	8.004	.0001				
	Parents performance	-.059	-1.884	.060	.148	.002	3.548	.060
D	(Constant)		-.353	.724				
	Classroom avoid	**.254***	7.953	.000				
	Teacher approach	**.236***	8.008	.000				
	Parents performance	-.058	-1.848	.065				
	CR-avoid x T-approach	.011	.426	.670	.148	.000	.182	.670
E	(Constant)		1.133	.257				
	Classroom avoid	**.231***	7.217	.0001				
	Teacher approach	**.233***	7.977	.0001				
	Parents performance	-.041	-1.296	.195				
	CR-avoid x T-approach	**.064***	2.258	.024				
	CR-avoid x P-performance	**-.138***	-4.862	.0001	.164	.016	23.642	.000
F	(Constant)		.955	.340				
	Classroom avoid	**.225***	7.120	.0001				
	Teacher approach	**.258***	8.824	.0001				
	Parents performance	-.045	-1.471	.141				
	CR-avoid x T-approach	.013	.437	.662				
	CR-avoid x P-performance	**-.204***	-6.653	.0001				
	T-approach x P-performance	**.170***	5.348	.0001	.183	.019	28.597	.000
G	(Constant)		.868	.386				
	Classroom avoid	**.212***	6.613	.0001				
	Teacher approach	**.237***	7.747	.0001				
	Parents performance	-.076	-2.270	.023				
	CR-avoid x T-approach	.042	1.307	.191				
	CR-avoid x P-performance	**-.209***	-6.807	.0001				
	T-approach x P-performance	**.158***	4.913	.0001				
	CR-avoid x T-approach x P-performance	.083	2.296	.022	.187	.003	5.271	.022

CI=95%. *ρ <.05

As shown in the Model 8-C, the initial three independent variables accounted for 14.8% of the variance in SEA cognitive anxiety (R^2 = .148, F [3, 1239] = 71.855, ρ = .0001). The subsequent models explained the addition of the interaction terms.

In model 8-D the addition of the 2-way interaction term for classroom performance-avoid with teacher approach goals did not explain any additional variance in students' cognitive anxiety (R^2 = .148, F [4, 1238] = 53.901, ρ = .0001). However, model 8-E showed a statistically significant 1.6% increase in the variance of students' SEA anxiety (R^2 = .164, F [5, 1237] = 48.638, ρ = .001) when the 2-way interaction of classroom performance-avoid with parents' performance goals was introduced in the model. The standardized regression coefficient (β) for the 2-way interaction of classroom performance-avoid with parents' performance goals was -.138 (t [5] = -4.86, ρ = .0001), meaning that for every unit increase in the interaction of classroom performance-avoid and parents' performance goals, students' cognitive anxiety significantly decreased by .138 units, controlling for the other variables.

To interpret the interaction of classroom performance-avoid and parents' performance goals, I examined them graphically (Figure 1). I transformed students' perceptions of parents' performance goals into a categorical variable of low, medium, and high values based on the standardized normal distribution of the variable. *Low* represented values below -.5 standard deviations from the mean; *medium* were values between -.49 through .59; and *high* represented values above .6 standard deviations from the mean. Figure 1 indicates that when students, who come from homes where they perceive their parents have low performance goal emphasis for the SEA, enter classrooms with perceived performance-avoid goal structure, they experience greater increases in their anxious cognitions about the SEA relative to those who perceive their parents have medium or high performance goals.

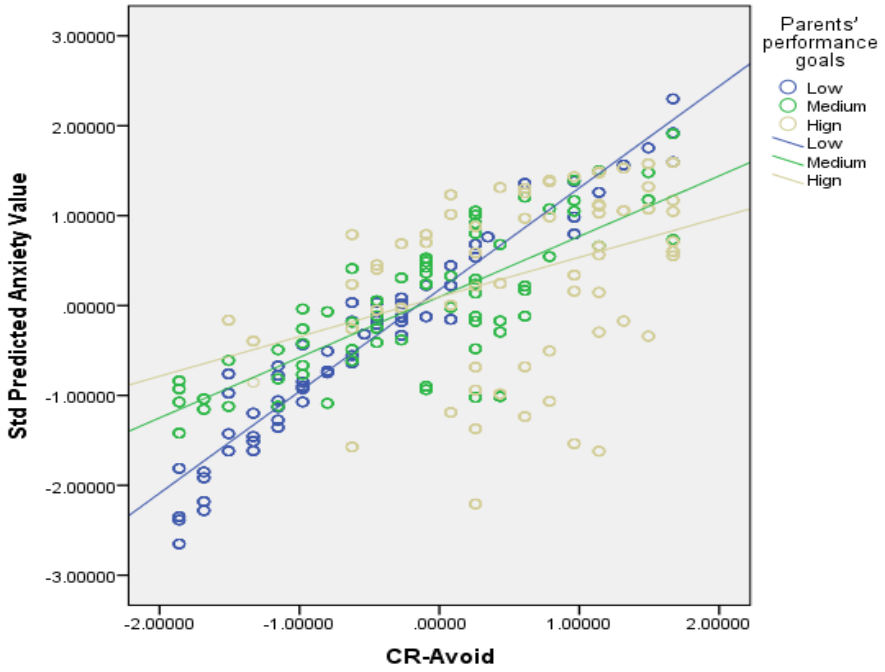

Figure 1. *Graph showing interaction effect of students' perceptions of parents' performance goals and classroom avoid goals on cognitive anxiety*

Model 8-F shows the addition of the 2-way interaction of teachers' performance-approach with parents' performance goals accounted for an additional 1.9% of the variance in students' cognitive anxiety, a statistically significant increase (R^2 = .183, F [6, 1236] = 46.202, ρ = .0001). The standardized regression coefficient (β) for the interaction of teachers' performance-approach and parents' performance goals was .170 (t [6] = 5.35, ρ = .0001), meaning that for every unit increase in the interaction of teachers' performance-approach and parents' performance goals, students' cognitive anxiety significantly increased by .170 units, controlling for the other variables.

Figure 2 shows the graphed interaction of teachers' performance-approach goals with parents' performance goals. Students' perceptions of parents' performance goals are represented

as a categorical variable with low, medium, and high values based on the standardized normal distribution of the variable. *Low* represents values below -.5 standard deviations from the mean; *medium* were values between -.49 through .59; and *high* represents values above .6 standard deviations from the mean. Figure 2 revealed that students who perceive their parents have a high performance goal emphasis for the SEA, and are taught by teachers whom they perceive are performance approach oriented, experience greater increases in their worried cognitions about the SEA than students who perceive their parents' goal emphasis for the SEA is medium or low.

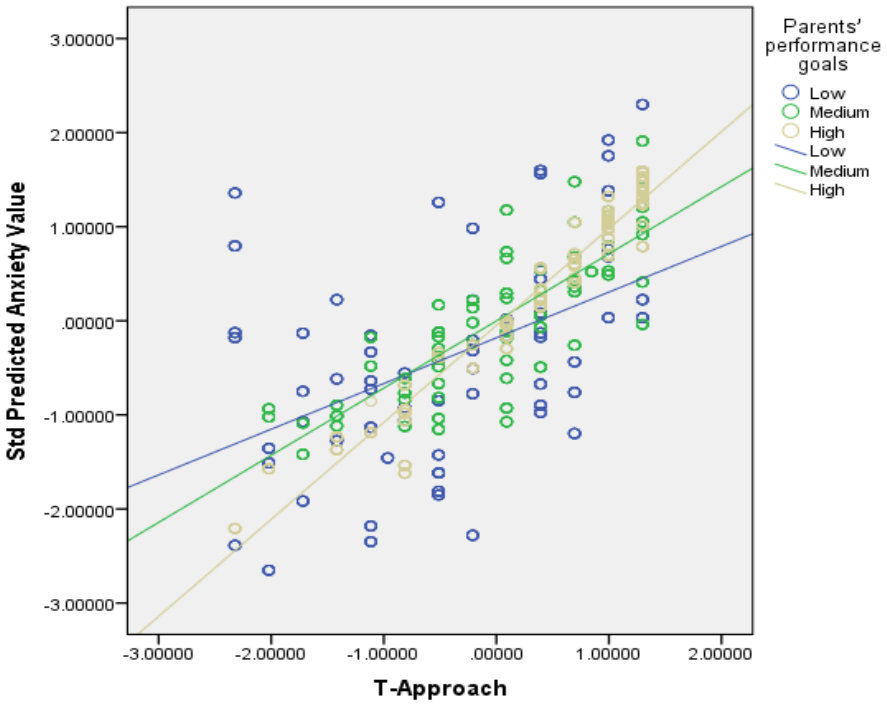

Figure 2. *Graph showing interaction effect of students' perceptions of parents' performance goals and teachers' approach goals on SEA Cognitive Anxiety*

Model 8-G shows the addition of the standardized values for the 3-way interaction of students' perceptions of classroom performance-avoid, teachers' performance-approach, and parents' performance goals. This model accounted for an additional .3% of the variance in

students' cognitive anxiety, which was a statistically significant increase in the total explained variance (R^2 = .187, F [7, 1235] = 40.491, ρ = .0001). The 3-way interaction was initially significant (β = .083, t [7] = 2.296, ρ = .022) however, lost significance when the robust standard error adjustment was applied (Table 25).

Robust standard errors of Model 8-G confirmed that the two 2-way interactions—the interaction of students' perceptions of classroom performance-avoid goals and parents' performance goals; and the interaction of teachers' performance-approach goals and parents' performance goals—were significantly associated with students' cognitive anxiety about the SEA.

Table 25

Multiple Regression Analysis of Students SEA cognitive anxiety onto performance predictors with Robust Standard error adjustments

					95% Confidence Interval	
Standardized Predictors	**β**	**t**	**Sig.**	**Robust Std. Error**	**LL**	**UL**
(Constant)		.87	.39	.104	-.210	.262
CR-avoid	**.21***	6.61	.00	.064	.071	.359
T-approach	**.24***	7.75	.00	.080	.056	.419
P-performance	**-.08***	-2.27	.02	.085	-.269	.117
CR-avoid x T-approach	.04	1.31	.19	.075	-.124	.217
CR-avoid x P-performance	**-.21***	-6.81	.00	.073	-.368	-.038
T-approach x P-performance	**.16***	4.91	.00	.047	.048	.260
CR-avoid x T-approach x P-performance	.08	2.30	.02	.060	-.071	.201
R^2	.187					
F	40.49					

Note. *ρ <.05

This chapter was dived into three phases. The first phase detailed the principal component analyses, the reliability of the subscales, and identified the variables used in the regression equations. The second phase provided descriptive information on the data, and the third phase detailed the regression models and interaction effects in relation to the research questions. Results showed that the interaction between students' perceptions of classroom

performance-avoid goals and parents' performance goals; and the interaction between teachers' performance-approach goals and parents' performance goals were significantly associated with students' cognitive anxiety.

In the next chapter, I will discuss the results through a theoretical and socio-cultural framework. I will also examine the limitations of the study and implications for future research.

Chapter Five

Discussions

Hypotheses Reviewed

The purpose of this study was to examine whether students' perceptions of their parents', teachers', and classroom goals were associated with their personal achievement goals and cognitive anxiety about the upcoming SEA. Based on the strong historical context of the SEA as a high stakes exam in Trinidad and Tobago, and beliefs about the exam that may be shared by parents, teachers, and peers, I presented four hypotheses that suggested both students' own achievement goals and their perceptions of their parents', teachers', and classroom goals would be related to their test anxiety. The results partially supported these hypotheses. While the personal achievement goal orientations of the standard 5 students in this study did not influence their levels of SEA anxiety, their perceptions of parents', teachers', and classroom achievement goals showed significant associations with their SEA cognitive anxiety.

The study revealed that when students perceive that their parents want them to *show that they are better at class work than other students,* and are taught by teachers who highlight *students who get good grades,* and *compare students with each other,* the interactions of these perceptions were associated with greater increases in students' concerns about their SEA performance (Figure 2). These results supported the fourth hypothesis. Receiving strong performance messages at home and at school, from both parents and teachers, are associated with greater increases in the anxiety children experience relative to those who have performance-oriented teachers but parents with medium or low performance emphasis. This study did not measure whether the increase in anxiety reported by the participants is optimal for performance success, or debilitating. Longitudinal research that includes actual test results is needed to

examine the effects of anxiety on students' SEA performance. Furthermore, longitudinal research would allow exploration of how situated contexts surrounding achievement goals, such as history and cultural beliefs shared by parents, teachers, and peers, can influence students' achievement goal orientations and test anxieties.

Consistent with previous research (Elliot & Covington, 2001; Shim, et al., 2013), regression Model 4 (Table 20), revealed that students' perceptions of classroom avoid goals were significantly associated with their personal performance-avoid goals—partially confirming the second hypothesis. This may be because peers' attitudes and behaviours shape classroom goal structures (Peklaj, et al., 2012; Roncevic Zubkovic, & Kolic-Vehovec, 2014), and peer perception is particularly important during early adolescence. In addition, students in classrooms with performance-avoid goal structures often experience peer rejection (especially low-achieving students) and consequently take on avoidance goals (Elliot & Covington, 2001; Shim, et al., 2013).

The present study also found that when students, who perceive that *minimizing mistakes* and *outperforming others* are not their parents' goals for them, are in performance oriented classrooms that emphasize comparison with others, the increase in their SEA related anxiety is greater than students in similar classroom environments who perceive their parents have high or medium performance goals (Figure 1). That is, students, who move between a low performance-driven worldview at home and a highly competitive classroom environment, experience greater increases in anxiety than students in other groups. Furthermore, teachers' performance-approach and classroom performance-avoid goals both showed positive, significant associations with students' SEA anxiety—partially confirming the third hypothesis. However, parents' mastery and performance goals were not significantly associated with students' SEA anxiety.

These results suggest, that in the absence of performance-approach from parents, students in classrooms with avoidance goal structures adopt the performance-avoid goals projected in their classrooms, and experience greater increases in anxiety. However, when students perceive that their parents have high performance-approach goals, the association with their anxiety is lower (Figure 2). Therefore, students' perception of their parents' goals may buffer some of the anxiety experienced in classrooms with avoidance goal structures, and serve as a protective factor by helping students build resilience following negative school experiences.

Alternatively, it may be that students with perceived high performance goal oriented parents, are also high performing students, and are therefore less anxious about *doing worse than other students* (Yeo, et al., 2016). Regression analyses revealed that students' perceptions of their parents' mastery and performance goals produced significant positive associations with their own mastery and performance goals (Tables 18 & 19). These results were consistent with literature (Gonida & Cortina, 2014), and confirmed the second hypothesis.

Contrary to the first hypothesis, results from this study revealed that students' personal achievement goals do not significant influence their test anxiety. These findings were consistent with some studies (Putwain, & Daniels, 2009) and not supported by others (Elliot & McGregor, 1999; Putwain, & Symes, 2012). One possible reason for this is that age may be a confounding variable (Putwain, & Daniels, 2009). Since students' perceptions of parents' teachers' and classroom goals were significantly associated with their test anxiety but their personal goals were not; the results imply that for the young adolescents in this study (mean age 11.5, SD = .65), the goal messages they receive from parents, teachers, and peers may have a greater influence on their anxious thoughts about the SEA, than their own goal orientations. That is, it could be that, during early adolescence, students are more worried about performing worse than peers, and

disappointing parents and teachers, than actually doing poorly on the SEA. Similar studies with older adolescents (college aged students), produce different results; students' achievement goals were significantly associated with their test anxiety (Putwain, & Symes, 2012). Employing a longitudinal study would have added a developmental perspective to these findings, and allowed the researcher to observe how students' achievement goals, perceptions of parents, teachers, and classroom goals, academic achievement, and test anxiety change over time. This can be a point of interest for future research.

The literature on the effects of performance-approach goals is equivocal. Contrary to the results reported by Gonida and Cortina (2014), that students with performance-goal oriented parents have less adaptive and coping skills, this study suggests that performance-approach goals from parents can help students become more resilient, and more equipped to cope in performance-avoid environments. Research continues to confirm the benefits of parental involvement in their child's school-related activities, especially during elementary school. Anderson, George, and Herbert (2009) reported that standard 3 students' academic achievements in Language and Mathematics were directly related to their perceptions of how involved their parents were in their school-related activities. Parenting styles (Friedel, et al., 2007) and the form and quality of parental involvement (Gonida & Cortina, 2014) are also important determinants of students' achievement goals and academic success. For example, parental involvement from performance-oriented parents, who hold low efficacy beliefs for their child (especially if the child is a low achiever), is characterised by control, pressure, intrusiveness, or dominance (Gonida & Cortina, 2014). Students in turn take on performance-avoid goals, and develop low academic self-efficacy. Whereas, mastery oriented parents with high efficacy

beliefs for their children, support their children's autonomy by encouraging mastery development, skill acquisition, and cognitive engagement.

Based on the results of these studies, if elementary school students' achievements are associated with parental involvement, and the quality of parental involvement is associated with parents' achievement goals—which in turn is associated with parenting styles; for future research, it would be interesting to investigate how parents' levels of education, socio-economic status, and parenting styles influence students' academic achievement and academic resiliency in Trinidad and Tobago.

Scales Examined

The current study also provided a unique opportunity to examine the achievement goals scales and the cognitive anxiety scale on a new population. The *Students' Anxious Cognitions concerning the SEA* subscale, developed from Wren's Children's Test Anxiety Scale (Wren, 2004), had strong internal reliability and high component loadings, indicating that the subscale was consistent in its measure of Trinidadian students' SEA cognitive anxiety; and offered some support for construct validity. However, the Cronbach's alpha value of .92 indicated that there may have been redundancy among the items (that is, repetition of the same question in a different way), and therefore some of items should have been revised or removed (Tavakol, & Dennick, 2011).

For this population, all the items in PALS original *Personal achievement goal orientations* subscale (Midgley, et al., 2000) did not load as theoretically expected. In particular, it is unclear how students interpreted the two personal performance-avoid questions (*It's not important to me that I look smart compared to others in my class* and *It's important to me that I don't look stupid in class.*) that did not load onto the other performance-avoid items. Based on

this study's results, (that showed students' performance-avoid goals are significantly associated with their classroom avoid goals), it may be, for those questions, students were unable to differentiate between their own performance avoid-goals and those of their classroom environment. Furthermore, the internal reliability coefficient of the performance-avoid subscale was particularly low (α = .52), but was consistent with the Cronbach's alpha value reported by Putwain and Daniels (2009; α = .57). The low Cronbach's value indicated that within the Trinidad sample, the subscale accounted for less error. One possible cause of the low Cronbach's alpha value is that the subscale was too short. The performance-avoid subscale only contained three items; adding more items could have improved the internal reliability coefficient of the subscale.

The *students' perceptions of parents goals* subscales were the least tested in literature. In this study, all the items in PALS original *students' perception of parents' mastery* subscale did not load together, evident by the low alpha coefficient—even with the deletion of an item (α = .60; Table 13). This may have been due to cultural differences, because population differences often affect the internal reliability of measures (Tavakol, & Dennick, 2011). For example, when students perceived that *their parents want their work to be challenging,* it could be that they did not understand why their parents would want that, and were unable interpret whether it was for their own academic development (mastery), or for better performance. That is, students may have perceived the item to be a performance based item rather than a mastery based item.

In this study, the students' perceptions of teachers' goals (Table 11) and classroom goals (Table 12) subscales produced strong component-loadings and acceptable Cronbach's alpha coefficients comparable with other studies (Ciani, et al., 2010; Midgley, et al., 2000; Walker, 2012). The results offered support for the internal consistency and construct validity of the

scales, therefore, future researchers might find these scales useful for Trinidad's primary school population.

Limitations

In addition to the usual limitations associated with self-reporting (such as attribution effects, and inability to independently validate responses), the responses in this study were solely from the students' perspectives, and many of the participants shared the same classroom. This resulted in data nesting and class clustering that compromised the independence of the predictors. Although regression equations are quite robust against this error, gathering data from the parents' perspectives, would have reduced attribution effects, and produced more accurate results.

This study was non-experimental and exploratory, therefore a relatively small, convenient sample was used, and *a priori* power was not calculated. Random sampling from the Trinidad primary school population would have improved the study's external validity, making it more generalizable. Adjustments based upon *a priori* power calculations would have increased the R^2 values, reduced error variance in the models, and produced more accurate associations between variables. These changes would have made the study more beneficial for large-scale adaptation—such as policy development and reform.

The trichotomous framework of achievement goal theory offers a fair amount of constrain as well. The goals that motive students' task engagement are not as disjointed as initially proposed, and the reasons individuals engage in a task is far more complex than the simplicity offered by the theory (Vansteenkiste, et al., 2014). For example, cognitively it would not be efficient, or realistic, to attempt to master every task one engages in. Alternatively, an individual may be quite performance driven towards a particular task, but very mastery oriented

in other areas. That is, individuals can hold more than one goal orientations, and engage in tasks for various reasons. Vansteenkiste, et al., (2014) suggested a 3x2 framework that encompasses the aims and reasons for task engagement; however, that theory is still in developing stages, and scales that test that model on children are not yet available.

This study, like most of the achievement goal research, was a quantitative study. However, qualitative or mixed-methods research can be helpful in understanding individual's lived experiences. Future studies should permit open-ended responses to allow students to express themselves more freely. A study that reports individuals' expressed reasons for engaging in a task may supply the necessary pieces to the puzzle that can help bridge the gap in achievement goal research.

Implications for Trinidad & Tobago

This was a non-experimental research with a convenient sample, therefore it is not adequate to make generalizations or use in policy. However, it does provide useful information about the beliefs held by this sample that can be beneficial for future research.

Based on the frequencies of students' responses concerning their beliefs about the relevance of the SEA for future success (Table 16), students believe that their future successes in life depend on their success in the SEA. It is unclear how beliefs about the exaggerated impact the SEA, will influence students' anxiety, efficacy beliefs, and future academic pursuits—such as the likelihood that they would pursue post-secondary education, or professional careers including those in trade and the arts. Can students' beliefs, which are influenced in part by the messages they receive from parents, teachers, peers, and society at large, limit their achievement pursuits, and therefore contribute to an underdeveloped human capital? According to De Lisle, Seecharan, and Ayodike (2010) "several inherited elements in the Trinidad and Tobago

education system foster inequality in educational attainment and may ultimately create unequal human capital" (p. 8). While a conglomerate of factors affects human capital, is it possible that included in those inherited elements is a stratified belief system that we continue to foster? De Lisle, et al. (2010) agreed that we, as a society, must strategically address beliefs and attitudes, such as elitism, stratification, low expectations of academic success, and gatekeeping behaviours, that restrict opportunities for learning and skill development, and ultimately contribute to unequal human capital.

Nevertheless, it was refreshing to note that 27% of participants believed that they would *almost always* get a good education regardless of school placement. Therefore, parents and teachers are unsung heroes who are capable of counteracting negative beliefs and empowering students, especially those placed in stigmatized schools, to maximum personal potential.

I postulate that, it is quite likely that parents, especially those of low socioeconomic status, or with minimal education, are unaware of the influence they have on their children's beliefs and academic success. A big part of education therefore should involve bridging the gap between schools, families, and communities. Creating workshops and disseminating information to educate parents on the importance of autonomy-supportive parental involvement, and equip them with the skills to better support their children academically, is one way this can be done. For example, a renowned neurosurgeon, in his autobiography, recalled how, his then illiterate, single mother diligently reviewed his homework, supported his mastery and autonomy, and contributed to his academic and professional success (Carson & Murphey, 1990). Giving parents hope is a simple but crucial step; listening to "ordinary people" share their stories can be a powerful tool. Creating social support networks, where parents with similar socio-economic

challenges share with other parents their children's success stories and details of the processes involved, can be an empowering initiative.

Teachers are without question some of the most valuable contributors to society; unfortunately, they often feel overworked and undervalued. It is therefore important to invest continually in teachers, and to esteem teaching as a highly desired, and respected profession. Teachers should be prepared, not only to teach a subject matter, but to understand the psychology of education, and the impact their influence has on students. The classroom should be used to support evidence-based practice; therefore, more research and evaluations are necessary to identify what is and is not working, and to assess outcome success. Outcome goals should transcend test grades, and should include the degree to which students learn to be academically resilient, demonstrate persistence, and determination to engage in task mastery. Outcome goals should also include the degree to which students are willing to support, and collaborate with peers.

One such way to do this is through social and emotional learning (SEL). SEL is the process through which a person applies self-regulated learning strategies, such as application of knowledge, attitudes, and skills, to develop capacities for prosocial behaviours and personal and emotional growth—such as, evaluating and understanding one's emotions, empathy development, successful goal setting, and responsible decision making (Crooks, et al., 2015). SEL not only contributes to the establishment and maintenance of positive relationships, but also to better academic achievement, and serves as a buffer against risk factors (Crooks, et al., 2015). Venturing into research in SEL based program interventions, will provide longitudinal data on the effect such programs will have on formation of healthy relationships, academic achievement,

anxiety, peer rejection, bullying and other forms of school-based violence—which is a growing concern in schools across Trinidad and Tobago.

Conclusion

In summation, the regression analyses revealed that students' worried cognitions about the SEA are not associated with their personal achievement goals, but by perceptions of the goal-messages they receive from their parents, teachers, and classroom environments; and that these messages interact in significant ways. Perceptions of high performance goals from parents can accentuate test anxiety in students who also perceive their teachers are performance-approach oriented, and can promote resiliency for students in classrooms with performance-avoid goal structures. Students' perceptions of their parents', teachers' and classroom goals were also significantly associated with their personal achievement goals.

Until similar findings are replicated within Trinidad and Tobago, the results from this study should be considered provisional; but can be useful for future research in related areas.

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Appendices

Appendix A: Ethics Approval

University of Victoria

Human Research Ethics Board
Office of Research Services
Administrative Services Building
PO Box 1700 STN CSC
Victoria British Columbia V8W 2Y2 Canada
Tel 250-472-4545, Fax 250-721-8960
ethics@uvic.ca www.research.uvic.ca

Certificate of Approval

PRINCIPAL INVESTIGATOR:	**Melissa Hunte**	**ETHICS PROTOCOL NUMBER** Minimal Risk - Delegated	**15-095**
UVic STATUS:	**Master's Student**	ORIGINAL APPROVAL DATE:	16-Apr-15
UVic DEPARTMENT:	**EPLS**	APPROVED ON:	16-Apr-15
SUPERVISOR:	**Dr. Joan M. Martin**	APPROVAL EXPIRY DATE:	15-Apr-16

PROJECT TITLE: **Achievement Goals and High Stakes Test Anxiety in Trinidad**

RESEARCH TEAM MEMBER Dr. Joan M. Martin (MA Supervisor and Data Collection Assistant, UVic)

DECLARED PROJECT FUNDING: **Faculty of Graduate Studies**

CONDITIONS OF APPROVAL

This Certificate of Approval is valid for the above term provided there is no change in the protocol.

Modifications
To make any changes to the approved research procedures in your study, please submit a "Request for Modification" form. You must receive ethics approval before proceeding with your modified protocol.

Renewals
Your ethics approval must be current for the period during which you are recruiting participants or collecting data. To renew your protocol, please submit a "Request for Renewal" form before the expiry date on your certificate. You will be sent an emailed reminder prompting you to renew your protocol about six weeks before your expiry date.

Project Closures
When you have completed all data collection activities and will have no further contact with participants, please notify the Human Research Ethics Board by submitting a "Notice of Project Completion" form.

Certification

This certifies that the UVic Human Research Ethics Board has examined this research protocol and concluded that, in all respects, the proposed research meets the appropriate standards of ethics as outlined by the University of Victoria Research Regulations Involving Human Participants.

Dr. Rachael Scarth
Associate Vice-President Research Operations

Certificate Issued On: 16-Apr-15

15-095 Hunte, Melissa

Appendix B: Letter of Consent

Department of Educational Psychology and Leadership Studies
MacLaurin Building A439
PO Box 1700 STN CSC
Victoria British Columbia
V8W 2Y2 Canada

Dear Parents/Guardians,

Achievement Goals and High Stakes Test Anxiety in Trinidad

The purpose of this letter is to invite your child to participate in research on test anxiety and motivation. The study aims to deepen understanding, and highlight the importance of students' feelings and beliefs about the SEA. Because of the uniqueness of the Trinidadian system, your child, a standard 5 student, is in a distinct position to contribute to the world's understanding of the effects of high stakes testing during early-adolescence. We hope that this research will help educators and policy makers understand how children's feelings, motivation, and beliefs about their futures affect their learning.

The research will be conducted in the form of a paper survey. The survey will be administered on **DATE**, and will take an hour of your child's time. My supervisor, Dr. Joan Martin, and I will administer it to your child at school with his/her classmates during regular school hours. It will be similar to taking a multiple-choice exam, except ***this is not an exam, it is not intended to be stressful***, any answer your child chooses will be correct. The survey will ask your child's opinion about the importance of learning new skills, doing well compared to others, and avoiding looking 'inadequate' in class. The survey also asks about your child's perceptions of parents'/guardians', and teachers' views on learning, achievement, and performance. Finally, the survey will ask your child to reflect on his/her thoughts and worries concerning the SEA. After the survey I will provide your child with tips to handle worrisome thoughts that might occur in relation to the SEA.

I would encourage you to discuss the details of this study with your child. However, the validity of this study is dependent on your child's honest answers, therefore ***please do not prime or prompt your child in any way***. His/her responses will be non-threatening and are not intended to evaluate you as a parent. It is meant solely to understand inner thoughts, perceptions and feelings about this major upcoming exam.

Your child's participation in this research is completely voluntary. Your child can decline or withdraw at any time without any consequences or any explanation. ***This is an independent study; teachers, principals and schools are not involved and will not have access to your child's responses***. ***All your child's answers will be confidential***. ***We do not require your child's name on the survey, so the answers will be anonymous***. ***Your child will not be disadvantaged in any way*** by his or her participation or refusal to participate. If your child does not participate, there will be no negative consequences to his/her education or treatment at school. There are no known or anticipated risks to your child by participating in this research. If he/she does withdraw from the study his/her data will not be used and will be shredded. If you do not want your child to participate: (i) the attached ***Notice of Declined***

Participation can be signed and returned to me (via your child) on the day the survey is administered; (ii) you may email me directly at huntem@uvic.ca and ask to have your child excluded from the survey; or (iii) you can tell your child to not participate. ***If I do not receive clear notice of declined participation, I will assume your implied consent was granted***.

After I have entered the data, in a name-less form, onto our secure computer I will shred the paper survey answered by your child. My supervisor, Dr. Joan Martin, and I will analyze and write about the survey results. This research is part of my Master's degree program, so the first publication to come from it will be my M.A. thesis. I will share what I learn with educators and policy makers through professional publications and conference presentations. I will also make the results available to your school and to the Trinidad and Tobago Ministry of Education.

If you have any comments or ideas you would like to share with me, feel free to email Dr. Martin or me at huntem@uvic.ca. Additionally, you can write us at the above postal address. Finally, you may verify the ethical approval of this study, or raise any concerns you might have, by contacting the Human Research Ethics Office at the University of Victoria (250-472-4545 or ethics@uvic.ca).

Thank you for taking the time to read this letter.

Respectfully,

Melissa Hunte

CC. Joan Martin, Ph.D., Assistant Professor - University of Victoria

Please cut on the line and ***return only if you do not want your child to participate in the survey***.

Notice of Declined Participation

I, _____ **DO NOT** want my child_____of
(parent/guardian's name) (child's name)

Primary School A to participate in the survey concerning Achievement Goals and High Stakes Test Anxiety in Trinidad.

Thank you

_____

Signature of parent/guardian