

# **Agripreneurs and/or Agriculture Science Teachers?: An Examination of Agribusiness Students Entrepreneurial Attitudes Orientations and Entrepreneurial Intentions**

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*The study advanced a social cognitive understanding of entrepreneurial intention through examinations of psycho-social factors (situational context and entrepreneurial education) on entrepreneurial attitudes orientations (EAOs) and entrepreneurial intentions (EIs). Results pointed to significantly higher EIs means for male students in comparison to female students. Students' perception of situational contexts showed significant relationships with EIs, but not EAOs. The agribusiness program had positive but insignificant effects on both EAOs and EIs. Entrepreneurial self-efficacy had no indirect associations with students' perception of their agribusiness program, situational contexts, EAOs and EIs.*

## **INTRODUCTION**

As the process of globalization increasingly penetrates into what has been described as 'passive developing' countries, questions of economic sustainability, future development options and prospects remain recurrent themes in noted socio-economic analyses of the contemporary Caribbean (Potter et al. 2004; Girvan 2001). An added source of concern rest on relatively recent Global Entrepreneurship Monitor (GEM) data which suggest that while middle and low income countries such as those in the Caribbean have high rates of early stage entrepreneurial activity, they generally exhibit lower prevalence of high entrepreneurial growth expectations when compared to high income countries like North America and Europe (Bosma et al. 2008). Within this *glocal* context, the lack of a 'perceived entrepreneurial culture and the absence of a vibrant small and medium size sector (SME) in the Caribbean' (Devonish et al. 2010, p. 49), have heightened further deliberations on global participation and survival.

Trinidad and Tobago however, presents a unique case of many paradoxes. On one hand, Trinidad and Tobago's has a relatively high per capita income, has maintained energy-based financial stability within recent years (Inter-American Development Bank, 2004), ranks 6 among the 24 middle income efficiency driven economies with a Total Early Stage Entrepreneurial Activity (TEA) rate of 15.1% (Murdock et al. 2010). As such, there is a growing perception that it is becoming the financial hub of the Caribbean. On the other hand, despite the increasing revenues from the energy sector, the flat and limited growths of other non-energy sectors, the high food import bill, growing concerns for food security and the sorry percentage of agriculture (0.6%) to the gross domestic product remain daunting problems facing the government and peoples of Trinidad and Tobago; a dilemma that places Trinidad and Tobago under increasing economic and social pressures to sustain its competitiveness.

Given these continuing trends of and implications for the *glocal* processes, fostering students' entrepreneurial attitude orientations within higher education institutions is increasingly becoming part of

an economic strategy of highest governmental priority (Peterman and Kennedy 2003; Pittaway 2005). For instance, Murdock et al. (2010, p.6) in the Global Entrepreneurship Monitor for Trinidad and Tobago report highlights that:

‘the increasing emphasis on entrepreneurship as a panacea for economic growth, especially as growth through traditional avenues has stagnated, is evident in the increasing support for teaching entrepreneurship in established universities around the world, and in the efforts that institutions such as the Organization for Economic Co-operation and Development (OECD) and the European Union, the Inter-American Development Bank (IDB) and national governments have placed on the issues’.

In the case of Trinidad and Tobago, there still remains a ‘lack of specifically focused and purposeful entrepreneurial training that is targeted to all levels of the education system’ (Murdock et al. 2010, p. 15) and a dearth of higher education programs which sort to integrate some measure of these entrepreneurial objectives into existing institutional curricula. The agribusiness program is one such case in which local educators have attempted to reorient its focus through an integration of its traditional agricultural orientation with that of entrepreneurial development. However, despite this timely response, little is known about the effect of this dual education model on students’ entrepreneurial attitude orientations (EAOs) and on entrepreneurial intentions (EIs). Furthermore, research support and entrepreneurial development agenda is virtually non-existent in Trinidad and Tobago, which in itself ‘raises troubling questions as to the usefulness and relevance of programs aimed at promoting business creation and entrepreneurship particularly within the tertiary and secondary education system’ (Murdock et al. 2010, p. 34). Therefore, the purpose of this study was to examine the impact of this agribusiness program on the EAOs and EIs using an eclectic social cognitive approach (SCT) that seeks to explore the following research questions:

- (i) What is the relationship between students’ perception of their situational contexts, agribusiness program, their EAOs and their EIs?
- (ii) Does students’ entrepreneurial self-efficacy (ESE) mediate the relationship between their perception of the agribusiness programs, situational contexts, their EAOs and EIs?
- (iii) Do these EAOs and EIs vary by sex?

The structure of the paper is therefore three-fold. First, the paper will examine the proposed relevance of the social cognitive model of entrepreneurial attitudes and intentions. Second, the paper will explore the findings of related literature on contextual and cognitive antecedents of EAOs and EIs. Third, the paper tests for, reports on and discusses the assumed applicability of the SCT approach for understanding EAOs and EIs via the examination of students’ perception of their agribusiness program, their situational contexts (as the two main antecedents or independent factors), the theoretically proposed mediating role of entrepreneurial self-efficacy as a core construct, and for possible variation on dependent factors based on sex. Fourth, the paper discusses the implications of the findings for theory, policy and practice of entrepreneurial education within higher education institutions in Trinidad and Tobago.

### **Program Description**

As a direct response to (i) the failing state of agricultural production in Trinidad and Tobago and (ii) local calls for sustainability and innovation in agriculture, local economists and policy makers have embraced entrepreneurial development as an economic strategy aimed at encouraging entrepreneurs and small businesses in the private sector, general society and higher education system. Thus, in building that ‘entrepreneurial capacity’ (that is, building ‘autonomous producers and managers’ [Best 2001, cited by IICA, 2008, p. 8]), the recently developed agriculture department responsible for training agriculture science teachers has been given an institutional mandate to ‘*develop agricultural entrepreneurs who can teach*’ where ‘entrepreneurship has come to be perceived as the engine of economic and social development throughout the world’ (Acs and Audretsch 2005, p. 31). Thus in 2007, the agriculture

department within the School of Education moved away from their historical focus on training teachers to teach agriculture to developing agriculture science teachers who can also become *agripreneurs*. As part of this dual thrust, this four year degree program emphasized both content-based (agricultural, entrepreneurial, pedagogical theory and practice) and experiential aspects (agribusiness experience and classroom teaching). In the case of the former, students are introduced to theories and practices of classroom teaching and social learning, agricultural and entrepreneurial content and methods. In the case of the latter, students are given several opportunities to engage in experiential learning through six week field experiences in entrepreneurial teaching and practice, placement within agribusiness organizations and the design and implementation of a business plan displayed through open day activities on campus once per semester as part of their final assessments.

## **THEORETICAL FRAMEWORK**

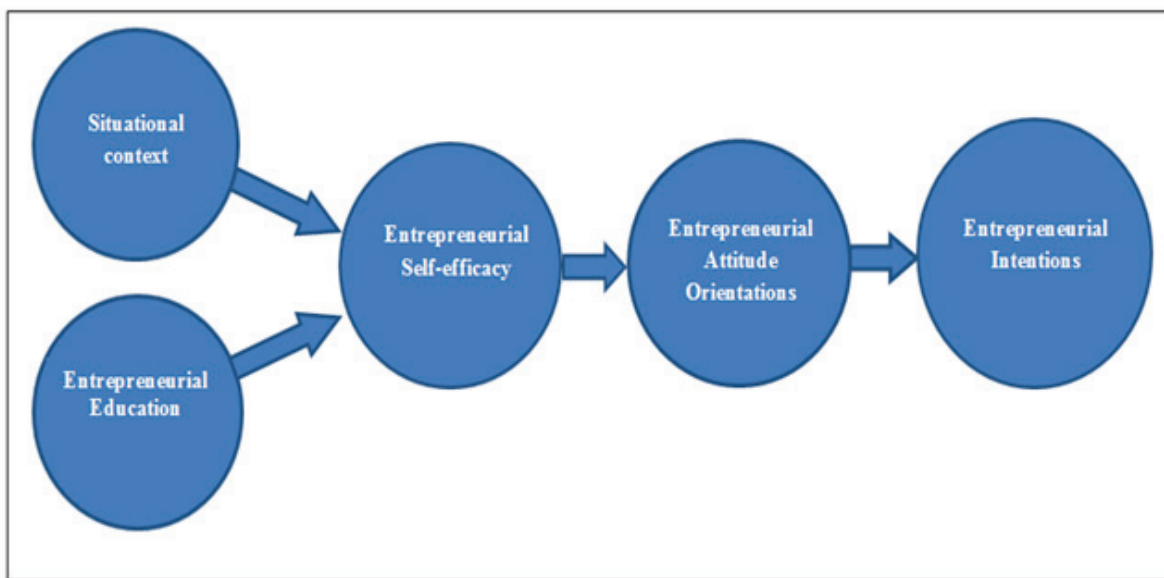
An established trend in the entrepreneurship literature is to consider the variety of ways in which entrepreneurs and potential entrepreneurs process information (Hmieleski & Corbett 2006, citing Baron, 2004). Within this cognitive focus many researchers have tested and advanced the theory of the entrepreneurial event (Krueger, 1993) and the structured theory of planned behaviour (Krueger et al. 2000; Autio et al. 2001) in the understanding of entrepreneurial intentions. It is important to note though that despite the growing application and support for the empirical validity of both theories, many researchers noted fundamental overlapping and compatibility of many theoretical constructs and inconsistencies in their findings on the predictability of major tested antecedents within these two camps (Krueger and Brazeal, 1994; Li, 2006; Krueger et al. 2000; Autio et al. 2001). However, another growing though not established trend in the entrepreneurship literature is the use of the social cognitive theory as an eclectic theoretical framework which allows for the integration and exploration of the interplay of key contextual, situational, and personal theoretical antecedents to entrepreneurial attitudes and intentions (Boyd & Vozikis, 1994; Shepherd & Krueger, 2002; Krueger, 2003; Linan & Chen, 2009). Here, Krueger (2003, p. 106) sees the application of cognitive theory to entrepreneurial behaviour as rigorously driven theory-based research that ‘.....offers more than its fair share of potential for exciting and productive research in entrepreneurship.’ Hence, this study tests for the theoretical and empirical validity of this social cognitive theory approach and by so doing, the researcher hopes to make a contribution to related discussions surrounding the same.

### **Social Cognitive Theory**

The multidisciplinary nature of the social cognitive theory presents a dynamic approach that engages in a scientific study of ‘how people’s thoughts, feelings, and behaviors are influenced by the actual, imagined, and implied presence of others’ (Allport 1985, p. 3). The hallmark of such an approach therefore is its claim that social interaction informs cognitive processes in a *triadic reciprocal process* in which behavior, personal factors and environmental events all operate as interacting determinants of each other. Thus, Bandura (1997, p. 9) explained that ‘it is largely through their actions that people produce environmental conditions that affect their behavior in a reciprocal fashion’. These environmental experiences generated by behavior also partly determine what a person becomes and can do which in turn, affects subsequent behavior. For Bandura (1989) five basic and unique human capabilities (symbolizing, observational learning, self-regulation, self-efficacy and self-reflection) facilitate the evaluative assessment of attitudes and behaviours in these environments or contexts and provide powerful cognitive means of mitigating the above mentioned triadic process. Symbolizing, as a theoretical construct, operates through the identification and illumination of the importance of symbols as the mechanism for engaging in cognitive thought processes based on observations (as attitudinal or behavioral guides) for future courses of action about the environment. Self-regulation speaks of the person’s capacity to motivate him/herself and guide his/her future actions (Bandura, 1989). Thus, the theory postulates that self-efficacy, that is, one’s belief in his/her ability to reproduce a specific attitude or behavior, is a powerful psycho-social self-regulatory mechanism that mediates external influences. The assumption here is that

this allows for individuals to have some extent of personal control over their thoughts and actions, motivations and feelings based on a period of self-reflection where one internalizes their own successes and or failures based on one's assumed identification with the specific attitude or behavior (Bandura, 1989). By extension, any change in the external, situational, or environmental contexts is expected to produce a similar change in an individual's assessments of these and their self-efficacy based on continued periods of observational learning, self-reflection, and self-regulation. Theoretically, attitudes and behaviors also vary based on personal factors of age and gender. Given these possibilities, there is growing applicability and empirical validity of this social cognitive theoretical framework on entrepreneurial studies in developed countries (Boyd & Vozikis, 1994; Luthans, Stajkovic, & Ibrayeva, 2000; Douglas & Shepherd 2002; Kim & Baylor, 2006). Fewer entrepreneurial studies testing for the applicability of this theoretical approach exists in developing or emerging economies (Luthans & Ibrayeva 2006) and particularly that of the Caribbean (Esnard-Flavius, 2007; Devonish et al. 2008). This exploratory paper aims to fill in these gaps by testing for the relative importance of a dual model of agribusiness program, perceptions of situational contexts, entrepreneurial self-efficacy, entrepreneurial attitude orientations, and entrepreneurial intentions. Thus, figure 1.1 represents a visual representation of the hypothesized relationships.

**FIGURE 1**  
**SOCIAL COGNITIVE MODEL OF ENTREPRENEURIAL INTENTIONS**



Source: Author

## REVIEW OF RELATED LITERATURE

Entrepreneurial intentions are perhaps the ‘first step to understanding the evolving nature and–sometimes-long-terms process of venture creation’ (Sagiri & Appolloni 2009, p. 68 citing Lee & Wong, 2004). As such, it remains ‘very pertinent and important for intriguing decision to start a new venture’ (Sagiri and Appolloni 2009, p. 62). In this context, many entrepreneurship researchers have explored the antecedents of entrepreneurial intentions with ‘Shapero’s Model of the Entrepreneurial Event (SEE) and Azjen’s Theory of Planned Behaviour (TPB) featuring prominently as frameworks to guide these studies’ (Nabi, Holden & Walmsley 2010, p. 538 citing Krueger et al. 2000). Many researchers within this camp have verified the theoretical, empirical validity and relevance of cognitive factors within both models

(Krueger et al. 2000; Autio et al. 2001; Engle et al. 2010). It is important to note here that while there is a heavy focus on attitudes as the best predictor of intent in the theory of planned behaviour (Nabi, Holden & Walmsley, 2010), research that seeks to evaluate the impact of these contextual and cognitive predictors on entrepreneurial intentions particularly in the Caribbean remains wanting. In an effort to bridge that gap, this research examines the relative impact of antecedent variables within two main research camps; that is, contextual (educational programs, social and economic contexts) and the cognitive (entrepreneurial self-efficacy and entrepreneurial attitude orientations). The study also examines for any variation in students' entrepreneurial attitudes and intentions based on sex differences.

### **Demographic Factors**

In the demographic realm, there is a consensus in the literature on entrepreneurial studies of the importance of demographic variables to entrepreneurial behaviour (Bird, 1993; Krueger 1993, 1999, 2005). Generally, these studies contend that demographic factors such as age, sex, ethnicity and prior exposure to business are critical to theoretical advancements in the field (Bird, 1993; Krueger & Brazeal 1994). More specifically, other studies argue that sex differences in entrepreneurial careers remain at the heart of demographic studies with fewer women compared to their male counterparts becoming involved in entrepreneurial careers (Bird, 1993; Minniti, Allen, & Langowitz 2005; Bosma & Harding, 2007). However, local research on sex and entrepreneurship among university students in Trinidad and Tobago suggest that at the attitudinal level there are no significant differences (Esnard-Flavius 2010). Given the above, the researcher hypothesizes that:

*H<sub>1</sub>: There are no significant sex differences in students' entrepreneurial attitude orientations.*

*H<sub>2</sub>: There are significant sex differences in students' entrepreneurial intentions.*

### **Entrepreneurial Self-Efficacy**

Perceived self-efficacy is defined as the personal evaluation of one's ability to execute competence in a target behaviour based on a given situation (Krueger & Brazeal, 1994). In the psychological domain, a strong body of research in the field of entrepreneurship has investigated the relationship between entrepreneurial self-efficacy, entrepreneurial attitudes and entrepreneurial intentions. Boyd & Vozikis (1994) espouses that a high degree of self-efficacy obtained through skills mastery, entrepreneurial role modelling serve as a critical positive influence on a persons' intention to create a new business. Empirically, many studies reveal that entrepreneurial self-efficacy and risk taking propensity have the most predictive antecedents on entrepreneurial attitude orientations (O'Neill & Mone, 1998; Luthje & Franke, 2003) as well as on entrepreneurial intentions (De Noble et al. 1999; Krueger, Reilly & Casrud, 2000; Zhao et al. 2005). Theoretically, self-efficacy has both direct and mediating effects. Given the above, another research hypothesis is that:

*H<sub>3</sub>: Entrepreneurial self-efficacy is positively related to students' EAOs and EIs.*

### **Entrepreneurship Education**

It is a consensus in the literature that entrepreneurship can be taught (Solomon et al. 2002; Gibb & Hannon, 2005; Kuratko, 2003) and that education can play an important role in building entrepreneurial attitude orientations (Hannon, 2006). Thus, researchers have pointed to the positive relationship between entrepreneurial education and entrepreneurial attitude, albeit some variation between institutional type (Gibson et al. (2011) and indirect effects on entrepreneurial intentions (Devonish et al. 2010). However, the comparative impact of entrepreneurial education on entrepreneurial attitude orientations and entrepreneurial intentions remains a major source of contention in the entrepreneurship literature. In this regard, many researchers have noted the positive correlation of entrepreneurial education to both entrepreneurial attitude orientations and entrepreneurial intentions (Peterman & Kennedy, 2003; Franke & Luthje, 2004; Pittaway & Cope, 2007; Cheung & Eric, 2010). On the other hand, another group of

researchers continue to question the extent to which these attitudes transfer into entrepreneurial intentions. As such, other findings suggest that at the tertiary level despite the harnessing of positive entrepreneurial attitudes, educated graduates tend to seek managerial or corporate careers as opposed to self-employment (Arenius, Autio, and Kovalainen (2004; Esnard-Flavius, 2007). Thus, Gibson et al. (2011, p. 12) contend that a 'better understanding of students' entrepreneurial attitudes and intentions can be used to develop more effective entrepreneurial education programs'. Given these contentions, the lack of research on entrepreneurial education and entrepreneurial attitudes and intentions in the Caribbean and the theoretical need to test for the mediating effects of entrepreneurial self-efficacy, three additional research propositions are:

*H<sub>4</sub>: There is a significantly positive relationship between students' perceptions of their agribusiness program and their EAOs.*

*H<sub>5</sub>: There is no significant relationship between students' perception of their agribusiness program and their EIs.*

*H<sub>6</sub>: Students' perception of their entrepreneurial self-efficacy mediates the relationship between their perception of the agribusiness program, EAOs and their EIs.*

### **Situational Contexts**

Situational contexts are critical to entrepreneurial intentions (Krueger, 1993; Izquierdo & Buelens 2003; Azjen, 2006). Many studies found that starting a business is related to family commitment including providing supplementary income and flexibility of new venture creation for domestic work and family commitments (Boden, 1999). Upon closer examinations, other studies suggest that unemployment presents a more powerful trigger for new venture creation and those students who have great difficulty finding employment will start their new venture (Storey, 1991; Krueger et al. 2000). Another study found a moderating effect of envisaged unemployment and family commitments on entrepreneurial intentions (Kennedy et al. 2003). Further explorations of employment status (unemployed, temporary or permanent) also found no significant relationship between status of employment and situational contexts but revealed that those who had permanent employment were less encouraged to start their own business (Davidsson, 1995). On a broader macroeconomic level, Shane, Locke and Collins (2003) found that market forces such as availability of capital, labour, institutional structure and depressed market conditions positively correlates with EIs. These were also mediated by self-efficacy (Shapero and Sokol 1982; Boyd & Vozikis, 1994. As such, two other research hypotheses are:

*H<sub>7</sub>: Situational contexts are inversely related to students' perception of their EAOs and EIs.*

*H<sub>8</sub>: Students' perception of their ESE mediates the relationship between their perception of their situational contexts, EAOs and EIs.*

In sum, the literature points to both the explanatory value of contextual (entrepreneurial education programs), situational (resources, family, opportunities), and cognitive factors (ESE and EAOs) in the understanding of EIs, with some variation in predictability based on context of the research, diversity of entrepreneurial programs and measurement of related theoretical constructs.

### **RESEARCH DESIGN**

With the objective of advancing the local research on the antecedents factors that affect the EAOs and EIs of in the agribusiness program, the researcher utilized a single case research design which allowed for the examination of a critical case in 'testing a well formulated theory' (Yin 2009, p. 47) and through which the researcher can use to generate a theoretical test bed for the social cognitive theory.

## **Sample Frame, Sample and Procedures**

This first cohort of 48 students were primarily in-service teachers, that is, students who were already teachers in the education system except for two pre-service teachers who had no teaching backgrounds. Given the small sample frame, all prospective teachers were approached based on their enrolment in the agribusiness program and not on any assumed or expected entrepreneurial background, thereby removing any possibility for self-selection bias. The final sample consisted of thirty-three (33) students who voluntarily expressed their availability and willingness to participate in the study under clear understandings of anonymity. The researcher also used self-report written questionnaires which were distributed to final year agribusiness students during lectures; a consistent approach to other research designs adopted in previous investigations on entrepreneurial intentions (e.g. Autio et al. 2001; Krueger et al. 2000). The self-administered questionnaire captured students (i) demographic characteristics (age and gender); perception of their (ii) agribusiness program; (iii) situational contexts; (iv) entrepreneurial self-efficacy; (v) entrepreneurial attitude orientations; and, (vi) entrepreneurial intentions. There were two open ended questions that allowed students to elaborate on their perception of the agribusiness program and the major factor influencing their entrepreneurial intentions. With the exception of the demographic section, all response categories in the questionnaire were based on a 5-point Likert scale where 1 represents strongly disagree and 5 strongly agree.

## **Measures**

### *Entrepreneurial Education: Agribusiness Program*

Entrepreneurial education can play an important role in shaping entrepreneurial intentions (Peterman & Kennedy, 2003). To measure its effects, the researcher used a ten-item scale to measure students' perception of two dimensions of the agribusiness program; namely entrepreneurial knowledge and skills. As an exploratory measure in this study, students were asked questions on whether the agribusiness programs exposure them to various knowledge bases (financial, human resource, marketing, innovation) and provided them with various skills (self-reliance, ability to identify entrepreneurial opportunities, ability to communicate effectively). The Cronbach alpha for this measure was .908.

### *Perception of Situational Contexts*

Situational variables serve as negative or positive push and pull factors that interact with perceptions of entrepreneurial attitudes and intentions (Shapiro, 1982, Bird, 1988). This PSC measure included a four item index that questioned the extent to which situational factors would encourage students to start a business. These included situations such as the need for supplementary income, investment opportunities, needs to meet further family commitments, and job insecurity. As an exploratory measure, the Cronbach alpha was .686.

### *Entrepreneurial Self-Efficacy (ESE)*

ESE as a theoretical and empirical construct) covers multi-dimensional aspects of new venture creation (Chen et al. 1998; Luthans & Ibrayeva, 2006) and is a strong predictor of entrepreneurial intentions (Zhao et al. 2005). Given the above, the study adopted De Noble, Jung, and Ehrlich (1999) measure of ESE which consisted of a set of items that ask a respondent to self-assess his or her ability to perform certain entrepreneurial tasks including developing new products and initiating investor relationships just to name a few. Some of the questions included those on defining core purpose, developing product and market, initiating investor relationship, coping with unexpected challenges and developing critical human resources. The Cronbach alpha score was 0.764.

### *Entrepreneurial Attitude Orientations (EAOs)*

Entrepreneurial attitudes are useful indicators of entrepreneurial intentions (Souitaris et al., 2007; Krueger et al. 2000; Douglas & Shepherd, 2002). The researcher embraced and adopted the 'tested and proven' tripartite measure (affective, cognitive and behavioral) proposed by Robinson et al. 1991 (Harris, Gibson & Taylor, 2007; Harris & Gibson, 2008). This construct of EAO refers to the degree to which an

individual has favorable or unfavorable assessments of the behavior in question (Ajzen, 1991). While utilizing the core dimensions of the scale, the researcher omitted self-esteem as this was captured in the entrepreneurial self-efficacy index treated as a mediating variable. Additionally, given the integral nature of perceived feasibility and desirability to entrepreneurial attitude (Shapiro & Sokol, 1982) the researcher integrated these two sub-constructs as part of the broader entrepreneurial attitude orientation scale. The revised ten-item scale contained four (4) sub-scales. These included: (i) entrepreneurial achievement attitude; (ii) perceptions of entrepreneurship based on its feasibility, (iii) perception of desirability and respectability of entrepreneurship; (iii) perceptions of personal control over entrepreneurial outcomes, and; (iv) perceptions of entrepreneurship based on innovation. The Cronbach alpha was .962.

### *Entrepreneurial Intentions (EIs)*

EIs for the purpose of this study are defined as the conscious consideration and desire to start a new venture. Given the early stage of entrepreneurial education and the perceived lack of opportunities for entrepreneurship in the Caribbean (Skeete et al. 2007; Bosma et al. 2008), the researcher adopted a broad perspective of entrepreneurial intentions as devised in a three-item index by Davidsson (1995) and later extended with some variation by Kennedy et al. (2003). Within this index, individuals were asked about whether they considered starting their own business and their entrepreneurial plans in the next five to ten years. The Cronbach alpha was .848.

### **Analyses**

The primary objective of this study was to test for the theoretical relevance of the social cognitive model of entrepreneurial intentions through an examination of contextual and cognitive predictors. Given this, the data was subjected to direct and partial correlation (to test for hypothesized mediating effects) analysis and the analysis of variance in students' entrepreneurial attitude orientations and intentions based on sex differences.

## **RESULTS**

### **Sample Characteristics**

There were twenty (20) males and thirteen (13) females in the sample, which amounted to 61% and 39 %, respectively. Students were between the ages of 23-28 (21%), 29-33 (42 %), 34-39 (27 %), 40-45 (6 %), and 46-51 (3%). Students were divided between two campuses with one having 36 % of the sample and the other having 64 % of the sample.

### **Sex and EAOs**

*H<sub>1</sub>: There are no significant sex differences in students' entrepreneurial attitude orientations*

An examination of the distribution of scores for the EAOs index showed that the majority of students, that is, 76% of the sample, had favorable EAOs. 18 % of the sample had neutral perceptions of EAOs while 6% of the sample reported unfavorable EAOs. Tests of normality using the Kolmogorov-Smirnov statistic showed the distribution was skewed with -1.827, kurtosis at 5.957, Lilliefors significance correlation statistic at .222, df 33 and p value at 0.0000 below the required significance value of .05 for normality. Thus, to test for any variation in the EAOs based on sex, the researcher applied the Mann Whitney test which showed that females had higher EAOs than males in the sample with 19.12 and 15.63 respectively. However, these differences in the means for EAOs were statistically insignificant with the Z score at -1.018 and p value .308, therefore providing no support for H<sub>1</sub>.



## Sex and EIs

*H<sub>2</sub>: There are significant sex differences in students' entrepreneurial intentions*

Distribution of scores for the entrepreneurial intentions index scale revealed that 85% of the sample had favorable EIs, 9% of the sample as were neutral and 6 % of the sample had unfavorable EIs. The distribution was skewed (-1.013) with a kurtosis of .561. The data did not pass the Kolmogorov-Smirnov test of normality with a Lilliefors significance correlation statistic of .153, df of 33 and p value of 0.049, below the required value of 0.05 for normality. In terms of the mean differences between male and female students, data revealed that males had higher EIs means than their female counterparts with 20.50 and 11.62 respectively. Here, the Mann Whitney tests of difference for independent samples showed that EIs mean differences were statistically significant with the Z score was -2.606 and p value of 0.009, therefore providing support for H<sub>2</sub>.

## Entrepreneurial Self-Efficacy, EAOs and EIs

*H<sub>3</sub>: Entrepreneurial self-efficacy is positively related their perceptions of their EAOs and EIs*

Initial findings provided empirical support for H<sub>3</sub> as the data revealed that there was a significant positive relationship between students' perception of their entrepreneurial self-efficacy and their entrepreneurial attitude orientations (.507, p=0.000), students' perception of their entrepreneurial self-efficacy and their entrepreneurial intentions (.272, p=.038).

## Agribusiness, EAOs and EIs

*H<sub>4</sub>: There is a significantly positive relationship between students' perception of their agribusiness program and their EAOs.*

*H<sub>5</sub>: There is no significant relationship between students' perception of their agribusiness program and their EIs.*

*H<sub>6</sub>: ESE will mediate the relationship between their perceptions of their agribusiness program, their EAOs and their EIs*

Initial non-parametric correlations using Kendall tau-b statistic revealed that the agribusiness program had a positive but insignificant effect on their EAOs (.131, p=.309) and a negative but also insignificant impact on their EIs with -0.078, p=.550, thus allowing the researcher to reject H<sub>4</sub> but accept H<sub>5</sub>. Additionally, there was no empirical support for H<sub>6</sub>. In that regard, when controlling for the ESE, the results showed that the relationship between their agribusiness program and their EAOs increased from .131 to 0.280, p=0.61. Similarly, in the case of agribusiness programs and their EIs, when controlling for ESE, the correlation remained negative but increased from -0.078 to -0.201 with a p value of 0.135.

## Situational Contexts, EAOS and EIs

*H<sub>7</sub>: Situational contexts are inversely related to students' perception of their EAOs and their EIs.*

*H<sub>8</sub>: Students' perception of the entrepreneurial self-efficacy mediates the relationship between their perception of their situational contexts, EAOs and EIs.*

Findings showed that there was an inverse but insignificant relationship between their perception of situational contexts and their EAOs (-.078, p=.576) and a strong inverse relationship between students' perception of their situational context and their EIs (-.518, p=0.000). Thus, the researcher can logically conclude that worsening situational contexts will not significant increase students' entrepreneurial attitude

orientations but will have a significant impact on students' entrepreneurial intentions. Additionally, there was no support for the mediating role of entrepreneurial self-efficacy on students' perception of their situational contexts and their entrepreneurial attitude orientations (an increase from -0.078 to 0.250) and between their perception of their situational contexts and their entrepreneurial intentions (increase from -.518 to -.652). Table 1.1 presents a summary of the research conclusions.

**TABLE 1.1**  
**SUMMARY OF RESEARCH CONCLUSIONS**

Hypotheses	Statistical test	Results	Decision
H1: There are no significant sex differences in students' EAOs	Mann Whitney	Z score -1.018 p value .308	Accept
H2: There are significant sex differences in students' EIs	Mann Whitney	Z score -2.606 P value 0.009	Accept
H3: Entrepreneurial self-efficacy is positively related to their perceptions of their EAOs and EIs	Kendall Tau-b	EAOs (.507, p=0.000)	Accept
		EIs (.272, p=0.038)	Accept
H4: Agribusiness program will have a positive effect on students' EAOs	Kendall Tau-b	EAOs (.131, p=.309)	Reject
		EIs (-0.078, p=.550)	Accept
H5: Agribusiness will have no effect on students' EIs			
H6: ESE will mediate the relationship between their perceptions of the agribusiness program and their EAOs and EIs	Partial Correlation	EAOs (0.280, p=0.061)	Reject
		EIs (-0.201, p=.135)	Reject
H7: There is an inverse	Kendall tau-b	EAOs (-0.78, p=.576)	Reject

relationship between students' perception of situational context and their EAOs and EIs		EIs (-.518, p=0.000)	Accept
H8: Entrepreneurial self-efficacy will mediate the relationship between students' perception of situational contexts and their EAOs and EIs	Partial Correlation	EAOs (.0250, p=0.167)	Reject
		EIs (-.652, p=0.000)	Reject

## DISCUSSIONS AND IMPLICATIONS

The purpose of this study was to test the applicability of the social cognitive theory in the understanding of students EAOs and EIs through the examination of two contextual factors, their perception of their agribusiness program, situational contexts and the mediating and direct effect of their perception of their ESE. Overall, the findings provided partial theoretical and empirical support for the social cognitive theory in three ways.

First, it provided empirical support for the theoretical validity of entrepreneurial self-efficacy as a direct psycho-social factor which has positive relationships with students' entrepreneurial attitude orientations and their entrepreneurial intentions. This is consistent with the findings within the literature on entrepreneurial self-efficacy (Krueger et al. 2000). However, this research did not provide empirical support for the findings that suggest 'that an individual's ESE may be elevated through training and education' (McGee et al. 2010, p. 965). Theoretically, this indicates a need to further compare the significance of this ESE construct based on institutional type and program structure as a way of drawing on the possible importance of contextual factors in explaining its predictability. Furthermore, given the early nature of such programs, it is recommended that higher education institutions with emerging entrepreneurial education programs to place greater emphasis on the purposeful designing of the educational activities and curricula that 'would give the student a realistic sense of what it takes to start a business' (McGee et al. 2009, p. 983) which can inadvertently strengthen this relationship.

Second, the findings provided no support for the hypothesized direct effects of the agribusiness programs on neither their EAOs nor their EIs. This controversial finding however must be contextualized to factor in the age, structure, and nature of this very early stage agribusiness program. This suggests a need to audit and revise existing models of entrepreneurial education at the local level and the use of the same to enhance students' entrepreneurial intentions. It also serves as a call to action for some further exploration of the curricula and pedagogy related to the teaching and fostering of entrepreneurship within programs such as this. This can serve as a critical juncture in the movement away from shaping simply being teachers who have favorable entrepreneurial attitude orientations to teachers who also have strong entrepreneurial intentions. In this contexts, 'educators need to identify individual students with the specific attitudinal characteristics suggesting entrepreneurial intent (e.g. need for autonomy and belief in

their own abilities to start a new venture) and ‘recognize their own potential influence as mentors and use it to nurture, encourage and support students’ (Engle et al. 2010, p. 51).

Relatedly, the findings point to a significant but inverse relationship between students’ perception of situational contexts and their entrepreneurial intentions. This implies that students’ entrepreneurial intentions will increase at times when their situations are not so favorable. In a few cases, students pointed to the favorable state of the economy and the teaching career alternative of the program as hindrances to stronger entrepreneurial intentions. At a research level, this also calls for further examinations of specific dimensions within the situational context factor and the extent to which entrepreneurial education programs can foster entrepreneurial intentions despite widespread perception of economic stability. This has great implications for higher educational theory and practice. In that regard, this can serve as part of a catalyst for needed reorientations in the pedagogical strategies by which entrepreneurial intentions are fostered. At a policy level, there is a need to start ongoing discussions on needed policy initiatives that could support institutional and individual drives towards new venture creation. Such an initiative should offer these higher education institutions, consultants or external facilitators resources to not only retraining instructors on specific entrepreneurial related skills and knowledge but also to address their pedagogical skills and revisit the curricula upon which these entrepreneurial education programs are framed.

Third, the study also provided partial empirical support for the theoretical expectation that the specific attitude or behaviour, that is EAOs and EIs in this case, will vary based on demographic characteristic of sex. In that regard, the study did not find any significant sex differences in their EAOs (a finding that remains consistent with previous research in the republic, [Esnard-Flavius, 2007, 2010]), but showed significant sex differences in their EIs. The latter remains consistent with existing sex and entrepreneurial intentions literature. This suggests that at the attitudinal level of entrepreneurship males and females in the sample are comparable; a position which changes at the behavioural level where males report significantly higher levels of EIs than females in the sample. This therefore calls for some deliberate attempt by educators and practitioners, entrepreneurs and researchers to explore the possible relevance of cultural norms surrounding entrepreneurship; a development which would allow us to move beyond the identification of sex differences to unearthing the underlining gender issues that affect observed levels of female entrepreneurial activities in Trinidad and Tobago.

## LIMITATIONS

Though this exploratory study seeks to contribute to understandings of EAOs and EIs in the Caribbean, there were four major limitations. One, the peculiarities of the study, that is, the use of a single case study, the small sample and the focus of the dual agribusiness model on entrepreneurial education inhibit the extent to which generalizations can be made from the data. Second, another limitation is the use of a questionnaire to determine students’ EAOs and EIs after the completion of their program, which did not allow for any measurement of possible variations before and after their agribusiness program. Third, the accuracy of students’ perceptions remains an inherent limitation as persons may have wrong impressions of their own ability to execute a given behavior (Ajzen 2002). Fourth, the study is also limited by the initial stages of the research in which the challenges of strengthening the measurement of the theoretical constructs and extending initial research remain.

## CONCLUSIONS

Increasing global trends dictates some rethinking of competitive strategies for engagement and survival. At the local level, the shaping of *agripreneurs* who can also teach agriculture represents one such institutional attempt that responds to growing challenges of globalization for Trinidad and Tobago. In that regard, the study presents an assessment of the first cohort of students within such an early stage entrepreneurship program and offers insight into the processes that do and do not shape students’ entrepreneurial intentions through the theoretical lenses of social cognitive theory. While the study

provided partial support for the theory, it serves as a timely empirically based source of analyses for needed stimulated discussions on the theoretical and empirical implications for training ‘agripreneurs who can teach’.

## NOTES

1. The twin island Republic of Trinidad and Tobago, is the most southerly of the West Indian islands, located 120 km south-west of Grenada and 11 km east of Venezuela. The island’s total population has been estimated to be 1.3 million based on the 2000 population census (CSO, 2011). In relation to its age structure, the population distribution is as follows: 45.2 % (below the age of 24), 44.8% (25-59) and 10 % (60 years and older). There exists a stable sex distribution with males representing 50.2 percent of the population and females 49.8 percent.
2. The author would to thank Professor Friederike Welter and Dr. David Tomczyk for their valuable comments on the earlier drafts on this paper during the Young Writers Workshop of the ICSB 2011 Conference.

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