Using the Theory of Planned behavior to Measure the Impact of Entrepreneurial Education on University Students: Key findings from a process-based course in Tijuana, Mexico

Abstract

We evaluated the effectiveness of a process-based entrepreneurship undergraduate course. Data was collected via an online survey, prior to the start, at mid-term, and at the end of the course. The findings reveal that students' attitudes, subjective norms, and intention to become an entrepreneur initially increase. But by the end of the course the scores return to the starting point. However, perception of behavioral control saw a statistically significant decline at mid-term which continued to the end of the course. Indicating that the process-based course is undermining students' perception of their ability to become an entrepreneur.

Keywords: Entrepreneurship Education, Latin America, Theory of Planned Behavior

INTRODUCTION

Our research is motivated by our desire to better understand how academic institutions in Latin America can help create entrepreneurs. Entrepreneurship is a key to economic development, and as such has become an important area of focus for policy makers in emerging economies (Wennekers S., Van Wennekers, A., Thurik, R., & Reynolds, P., 2005; Audretsch & Keilbach, 2004). There is a growing awareness that large companies do not have the capacity to drive economic growth, increase employment, and reduce poverty in developing countries (van Stel et al., 2005). As these countries move away from state led development initiatives towards more market-based solutions (Khanna, 2018) there is an interest in developing policies that promote individual agency and create an entrepreneurial culture.

As a result, universities are developing curricula based on the global agreement that promoting entrepreneurship will drive economic development and create jobs (Liñán, Rodriquez-Cohard, Rueda, 2011). We find that schools in Mexico are adopting teaching methodologies without considering the research on the effectiveness of typical entrepreneurship education (EE) courses that anchor on process-based methodologies. Such methodologies emphasize developing business skills through the writing of a business plan, developing business models, and exploring sources of entrepreneurial finance. The focus is on what ought to be done (Levie, 1999) or best practices of entrepreneurship and not what can be done. A meta-analytic study of 37,285 students globally found no statistically significant impact of EE on actual entrepreneurial activity (Bae, Qian, Miao, & Fiet, 2014). Further, recent research found that these types of entrepreneurial courses actually had a statistically significant negative impact on entrepreneurial attitudes, subjective norms, perception of behavioral control (PBC), and intention (Dobson, Castro, Dobson, & Moros 2020).

While the value of theoretically grounded courses to EE appears to be axiomatic. Entrepreneurial opportunities, however, develop in an ecologically situated socio-economic and political context immersed in a complex real-world market characterized by risk and uncertainty. None of this learning and knowledge mentioned above can be forecast, in advance, nor how these variables will actually map on to the marketplace. Thus, EE that relies on process-based methodologies are likely to be ineffective in creating entrepreneurs since entrepreneurship develops through action-learning in a real-world ecology of complex change (Rae & Carswell,

2000; Corbett & Katz, 2012; Pittaway & Thorpe, 2012; Neck, Greene & Brush, 2014; White & D'Souza, 2014).

We caution against adopting approaches of EE without considering results that question the suitability of applying these models in a Latin American context. The paper provides the first empirical examination of the impact of EE on developing entrepreneurs in Mexico.

There are six sections to this paper. After the introduction, section two will present the literature review. Section three will introduce the theoretical framework. Section four will provide an overview of the research design and methods. Section five will present the findings and analysis. Finally, section six, is the discussion. We present that theoretical and practical implications of this research on EE.

LITERATURE REVIEW

Our literature review examined the state of EE research in Latin America. We start by defining entrepreneurship, then review Latin America research on EE, and provide an overview of these efforts in Mexico. Next, we examined the literature of entrepreneurial learning. A conclusion outlines the gaps in the literature.

Definition

Entrepreneurship is a term that is widely used and often misunderstood. To clarify, we will rely on Harvard's working definition of entrepreneurship as the pursuit of opportunity beyond resources controlled (Stevenson, 1983). The utility of this definition is that we can differentiate entrepreneurship from small business management. We hasten to add that some small businesses do pursue novel opportunities, and so we agree that there is some overlap. However, most small businesses in Latin America do not form as the result of a novel idea. Instead, most are carbon copies of others. Within Mexico, this is especially poignant as most entrepreneurship is needs-based. The term 'baratada', refers to the output of these enterprises as cheap and low-quality copies. Additionally, within this definition, the term "pursuit*"* describes the actions that the entrepreneur takes to successfully develop opportunities, which allows us to differentiate entrepreneurship from many types of new venture creation activities. For example, the person that buys a franchise is not an entrepreneur since that person is pursuing someone else's opportunity. The term "opportunity" refers to opportunity recognition, and involves a process of

preparation, incubation, insight, and evaluation (Wallas, 1926; Hills, Shrader, & Lumpkin, 1999).

We believe that the preparation phase, in particular, is important to our reasoning for this research. The preparation stage of the opportunity recognition process can be understood as the entrepreneur's experiences prior to the entrepreneurial journey (Kao, 1989). The final element in the definition is scarcity of resources, since entrepreneurs function lacking the necessary human, capital, and technological recourses. Entrepreneurship is the process of overcoming these constraints in developing a novel solution to a market problem.

Entrepreneurship in Latin America

Attempts to explain entrepreneurial activity across countries has not been completely successful (Carree, *et al.*, 2002; Sternberg & Wennekers, 2005; Wennekers, *et al.*, 2005). Latin America is characterized by a large informal economy and high levels of business failure (Lopez & Alvarez, 2018). It appears needs-based entrepreneurs limit growth potential. There is some evidence that after surpassing $7,000 USD per-capital GDP opportunity-based entrepreneurship increases (Pinillos & Reyes, 2011). However, the varying degrees across countries with similar levels of incomes, suggests that there must be other factors involved. Culture and the context in which entrepreneurs' function may help explain some of these differences (Davidsson & Wiklund, 1997; Hayton, George & Zahra, 2002; Shane, 1993; Wennekers, Thurik, van Stel & Noorderhaven, 2007; Fernández-Serrano & Liñán 2014).

A review on the literature on entrepreneurship identified a paucity of EE research on Latin America (Chen et al, 2016; Lopez & Alvarez, 2018). Existing research focused on ways to increase emotional intelligence (Garcia-Cabrera, Deniz-Deniz, & Cuellar-Molina, 2015), understanding the role of creativity (Comeche & Pascual, 2014), and how to create an entrepreneurial spirit (Russo & Sbragia, 2017). Additionally, researchers have looked at entrepreneurial characteristics (de Sousa et al, 2017) the leaderships skills required (Van Hemmen, et al, 2013), and competencies of successful entrepreneurs (Ruppenthal & Cimadon, 2012). Various demographic characteristics, such as age, income, gender, and race, as a determinant of entrepreneurial action have also been examined (Sepulveda & Bonilla 2011). The GEM report (2020) noted that entrepreneurs in Mexico are not youth, but retired individuals. Finally, some have examined the education level of successful entrepreneurs (Texis, et al, 2016). The research demonstrates a goal of better understanding 'a priori' on what will make a person a

successful entrepreneur. The literature identifies two areas of focus. The first, teaching students how to start a business and the second on developing a prescribed set of entrepreneurial skills (Osorio & Pereira 2011).

Mexican context

The Organization for Economic Cooperation and Development (OECD) views entrepreneurship as a key driver of economic development, and as such has advocated for the development of academic courses to help develop entrepreneurs (Zarate, 2017). Micro small and medium enterprises (MSME) generate 70% employment. Mexico has mostly a needs-based entrepreneurship ecosystem. As a result, the federal government is committed to supporting the development of entrepreneurs. For example, in 2013, the National Institute of Entrepreneurship was established (González, Estrada, Álvarez, 2017). Additionally, the government set up new policies for the Department of Economic Development to create initiatives to grow MSME as a way to spur economic growth and reduce inequality. This is a pressing issue, as Mexico lags behind other countries and ranks 70 out of 132 in the Global Index of Entrepreneurship and has the highest business failure rate in Latin America (GEM, 2020). Finally, GEM studies have consistently found that Mexican youth tend to be less entrepreneurial than most other countries. The lack of entrepreneurial culture has been partially attributed to the lack of academic programming (Zarate. 2017). Intending to increase entrepreneurial activity among youth the government of Mexico has developed policies for EE programming within colleges and universities to create a culture of entrepreneurship.

When examining EE within universities, la Universidad Autónoma del Estado de México has developed programming that focuses on the identification of personal characteristics, behaviors, and attitudes of successful entrepreneurs in the hopes of developing a profile of an ideal entrepreneur (González, G., Estrada, E. & Álvarez, J., 2017). The Instituto Tecnológico de Estudios Superiores de Monterrey (Tec de Monterrey) has similarly focused on developing an intrument to meaure the entrepreneurial potential in a student. The instrument collects demographic information. It also presents students with a fictitious case study where students must provide the correct answer. A final element measure various personality dimension of successful entrepreneurs. The goal is to use this information to help select students for admissions into incubation center, accelerators, and maker spaces (Portuguez, Valenzuela & Navarro, 2018).

The Autonomous University of Yucatan (UADY) began teaching entrepreneurship courses in 1997, and in 2004 required all students to take entrepreneurship. The programming focuses on three main components. First, there are courses on developing business competencies such as planning, finance, human resources and production. Second, courses focus on training their students to manage MSME. Finally, courses to develop entrepreneurial spirit in students. With an emphasis on social responsibility, business development, and global perspectives. The hope is that this programming will build the confidence of students and demonstrate the attractiveness of entrepreneurship to them. (Garcia & Torreblanca, 2015).

Similarly, the Universidad Autónoma de Baja California (UABC) has developed an entrepreneurship education strategy, designed to help university graduates become successful entrepreneurs. They developed a psychometric properties scale to measure EE in universities centered on the teacher-learning process (López, Moreno, & Carrillo, 2017).

Within the literature in Latin America there is a call to focus on ways of increasing entrepreneurial intention (Soria-Barreto et al 2017). This includes the interactions of various stakeholders in the eco-system (Lozaono-Posso, 2017) and entrepreneurial education (Gamex & Garzon, 2017). Research has focused on identifying measurements, characteristics, personalities, and pre-determined skills one must have to be an entrepreneur. The literature review demonstrates an emphasis on characteristics of entrepreneurs but a limited focus of how entrepreneurs actually learn to become entrepreneurs.

The literature on entrepreneurial learning

A review of the literature on how entrepreneurs learn to become entrepreneurs finds that the promotion of Entrepreneurship by governments and universities did not align with theoretical advancements of EE (Fayolle, et al., 2016; Neck & Corbett, 2018; Pittaway & Cope, 2007) while pedagogical views, entrepreneurship terms, methods, content, and context varied (Wu & Gu (2017). The literature confirms entrepreneurial opportunities are not identified nor pursued in an experiential vacuum but are developed through action-learning from a culmination of a repeated or iterative process over time (Dobson, et al., 2019). Fundamentally, research on EE has not studied entrepreneurial action (Corbett & Kratz, 2012). There are inconsistent pedagogical approaches focused on subjective and short-term measures. Ignoring the longer-term impact of how EE can actually help develop entrepreneurs (Nabi, et al., 2017)

A key phenomenological study on entrepreneurs noted this about learning: "it is vital to view each entrepreneur's learning task as dynamic, contextual, and cumulative" (Cope 2005, p. 379). Furthermore, Krueger & Welpe (2014) argue that entrepreneurship is a two-fold process; an "intentional" action that is backed up by the "automatic", the unconscious belief system from which many of our underlying assumptions are framed. Entrepreneurs learn through concrete experiences that emerge from the interplay of ideas and actions (Hagg & Kurczewska, 2020). The entrepreneurial journey involves an aggregation of incidental experiences and sense making (Shane & Venkataraman, 2000, Cope, 2007; Fenwick, 2002; Morris, 2014; Pittaway & Thorpe, 2012; Smilor, 1997). As a result, it is critical that entrepreneurs develop and test their assumptions for learning to occur. Therefore, universities should incorporate concrete experiences into their EE programming.

An area of EE should be to develop persistence and resilience (Baron & Shane, 2004, Cardon, Wincent, Sing, & Drnovsek, 2009), which over time creates entrepreneurial grit (Syed & Mueller (2014). These factors are especially difficult for today's students since they lack many of the above-mentioned characteristics, coupled with heightened entitlement and an inflated sense of efficacy (Twenge, 2009), leaving them unable to navigate landscapes filled with uncertainty and failure (Marston, 2010) like entrepreneurship. Further, entrepreneurial learning requires reflection on past experiences that allow one to overcome their previous assumptions and failures. It is through reflective learning that students gain knowledge and preparation for future actions (Agryis & Schon, 1996).

Process-based courses that rely on developing a hypothetical business plan and business models (Morris 2014; Goldsby, Kurato, Matthew; Marvel & Nelson, 2017) may not provide students with the necessary concrete experiences to develop resilience, grit, and ultimately self-efficacy actually leading to feeling that, one can be a successful entrepreneur. While these courses may develop student self-efficacy, research found that it undermined entrepreneurial intention (Piperopoulos, P., & Dimov, D., 2015). Such courses focus on increasing the understanding of what should be done to start a business by following an ideal process (Levie, 1999) that tend to focus on unproductive approaches, while ignoring the research of how people learn (Sarasvathy, 2009; Kirschner, Sweller, & Clark, 2006). Thus, if EE is to produce successful entrepreneurs, it may rest upon curricula that develop such knowledge, skills, and abilities

necessary to navigate the inherent ambiguity and uncertainty of the entrepreneurial marketplace and entrepreneurial learning, noted from entrepreneurship literature (Dobson, et al. 2019).

Gaps in the Research

There is a paucity of research in Latin America on the impact of EE on creating entrepreneurs. Furthermore, the research that does exist lacks consideration of cultural differences. As a result, universities are adopting methodologies for which there is still no consensus on its effectiveness, and disagreement exists about the modalities and competencies needed to develop effective entrepreneurial programming (Middleton & Donnellon 2014). A 15-year review of the impact of EE revealed that there has been minimal attention paid to the impact of teaching approaches and methods (Kamovich & Foss, 2017). There is a large gap between the growing supply of EE and our understanding of how best to approach teaching and learning (Morris, 2014). This suggests that universities in Latin America and elsewhere should reflect on how to best develop EE programming for their context before adopting a pedagogy.

This paper helps fill this gap by examining the impact of a process-based course on university students' intention to become entrepreneurs in Mexico. While earlier research predicted that no improvement in entrepreneurial intention will occur after taking such a course, we believe context is crucial to understanding the entrepreneurial learning process. Cultural differences create lenses of understanding an eco-system and form one's problem-solving architecture. (Kelley, Singer & Herrington, 2012). Part of the novelty of this research is that it captures the learning journey of students during the course. Thus, providing insights to changes in student perception allowing for better understanding of various critical incidents (Flanagan, 1954), in terms of salient, disruptive, and emotional experiences, that influence entrepreneurial development (Cope & Watts 2000; Yiu et al. 2014; Mathias et al. 2015).

THEORETICAL FRAMEWORK

The Theory of Planned Behavior (TPB) is one of the most well-known theories to predict behavior and it has been applied across multiple domains. (Fishbein & Ajzen, 1980; Ajzen & Fishbein, 2005). We are interested in better understanding the impact of processed-based EE pedagogy on creating entrepreneurs. Thus, we focused on the ability of TPB to explain the impact of EE on students' intention to become an entrepreneur.

According to the TPB, there are three inter-related factors that influence an individual's intention to become an entrepreneur. First, the current state of their attitudes towards entrepreneurship. Second, their perception of subjective norms around entrepreneurial behavior. Third, their Perception of behavioral control (PBC) which involves their belief in their ability to become successful entrepreneurs. The theory predicts that if these factors are increased their intention will increase, and ultimately lead to someone becoming an entrepreneur. Consistent with TPB, this research examined the impact of a process-based class on the interrelationship of these factor. Further to better understand the learning journey data was collected three times; T1 (start of the semester), T2 (mid-term), and T3 (end of the semester).

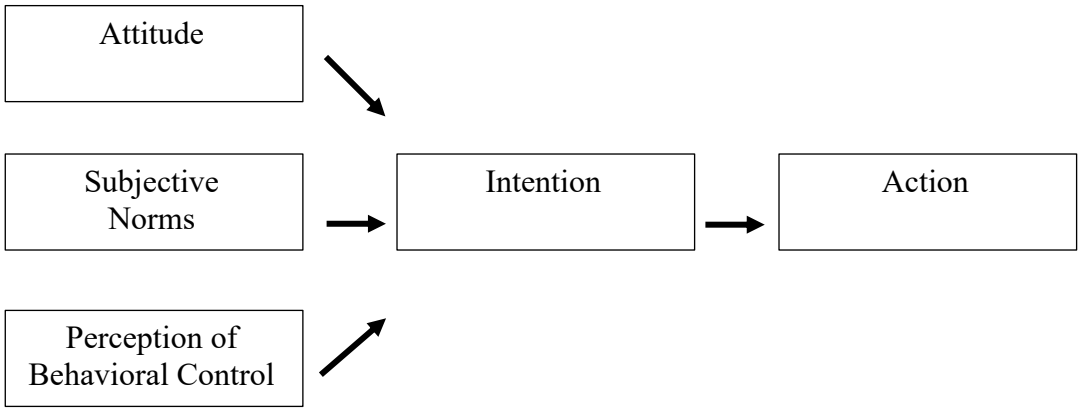

Figure 1: The relationship of attitudes, subjective norms, & PBC on entrepreneurial intention & action

Our **first hypothesis** (H1) is, prior to the start of the semester (T1) attitudes, subjective norms, and PBC will be positively correlated to intention. However, consistent with the literature review that stated, there is no measurable impact of EE on entrepreneurial activity, our **second hypothesis** (H2) is, that at the end of the semester (T3) students will not experience a statistically significant change in attitudes, subjective norms, PBC, and intention from the beginning of the semester (T1).

Mexico has low levels of entrepreneurial culture, combined with high levels of interest in entrepreneurship. This course is the students' initial introduction to entrepreneurship in an academic setting. Thus, we believe students will have an initial positive response to EE, so our **third hypothesis** (H3) is at T2 students will experience a statistically significant increase in attitudes, subjective norms, PBC, and intention from T1. Next, we predict as a result of the theory-laden approach course; all measures will drop by the end of the course. Thus, our **fourth**

hypothesis (H4) is at T3, students will experience a statistically significant drop in attitudes, subjective norms, PBC, and intention from T2.

RESEARCH DESIGN AND METHODS

We used a quantitative research design to examine the impact of a process-based EE classroom on entrepreneurial intention. First, we examined the correlational design, allowing us to assess the degree of linear relationship between attitudes, subjective norms, PBC and intention within an entrepreneurship course. We selected three points of data collection: Pre (T1), mid-term (T2), and post (T3). Based on critical incident technique (Flanagan, 1954; Cope & Watts, 2000), we collected data at T2 to help better understand changes in beliefs during the semester related to personal learning. This added data collection point provides a snapshot of the student learning experience at mid-term.

Participants

The sample came from students in a bachelors of Business and Tourism in a large comprehensive university in Tijuana, Mexico. The course titled Entrepreneur Development is mandatory within this degree. The course was in the 7th semester of their 8-semester degree.

Process-based classroom design

Students were taught a typical process-based class. First, they were introduced to the concept of entrepreneurship. Students then developed a business plan for a product or service. The business idea was captured through the business model canvas and the four-action framework. As part of their final, the students pitched their idea to real business owners.

Research Design

The survey instrument was developed following Ajzen's (2006) framework for constructing a TPB questionnaires. The questions were modified to focus on entrepreneurship. We created two to nine questions for each of the factors with salient outcomes, referents, attitudes, and control factors of entrepreneurship. The survey instrument also included additional measures of demographic information, and previous entrepreneurial experiences.

Measures

The data was collected via an online link. After participants provided general demographic information, they responded to a series of questions assessing the variables related to the TPB. Data collection used a 7-point Likert scale (1 = *completely disagree* and 7 = *completely agree*).

Thirty-seven students responded to the first wave of data collection, 39 completed wave two, and 39 completed wave three.

Students responded to three items that assessed their entrepreneurial intention, which focused on their willingness to do anything they could to become an entrepreneur. The data was correlated against their entrepreneurial attitudes, subjective norms, and PBC. The research did not measure actual entrepreneurial action, since this sample was undergraduate students, not expected to start a business. The purpose of the study was to measure the impact of EE courses on students' intention to become an entrepreneur.

Attitudes

Student attitudes towards entrepreneurship was measured through five questions that measured their attitudes towards becoming an entrepreneur. Attitudes were most highly correlated with intentions at T1 (.71), T2 (.75), and T3 (.66).

Subjective norms

Students were asked to indicate the extent that family and friends would be happy and proud is he/she were to start a business. For students in the process-based course, the correlation of subjective norms to intentions was T1 (.48), T2 (.29), and T3 (.61).

Perception of behavioral control

Students responded to nine questions that measured their perception of behavioral control to become a successful entrepreneur. For students in the process-based class, PBC correlations to intention were T1 (.48), T2 (.67), and T3 (.68).

Intention

Students responded to nine questions that focused on their intention to become an entrepreneur.

FINDINGS AND ANALYSIS

To establish a baseline of how entrepreneurial attitudes, subjective norms, PBC, and intentions were related, we computed a pair t-Test to account for variability and to determine if the means were different. We conducted a Pearson correlation coefficient at T1, T2, and T3 to test for statistically significant changes at 0.05. We can measure the statistical significance, or not, of the factors. We conducted a test for robustness and the p-value was greater than 0.05,

indicating that the survey questions were precise, and we do have enough evidence to reject the results.

The results support **hypothesis 1,** the scores for attitudes was strongly correlated, while subjective norms and PBC were moderately with intention.

The results partially support **hypothesis 2,** the scores for attitudes, subjective norms, and intention were not statistically different at T1 from T3. However, students showed a statistically significant drop in PBC from T1 to T3.

The results partially support **hypothesis 3**, as scores for subjective norms and intention increase statistically, while attitudes increased, but the increase was not significant from T1 to T2. And the PBC score experiences a significant decline.

The results partially support **hypothesis 4**, as all scores declined, with the subjective norms and intentions experiencing a statistically significant decline from T2 to T3. And the decline in attitudes and PBC was not significant.

The findings are presented below for each variable.

Attitudes	T1	T2	T3	T1 versus T2	T2 versus T3	T1 versus T3
Process-based	4.76	4.92	4.64	No	No	No

Chart 1. Results of attitudes in the process-based class measuring statistically significant changes

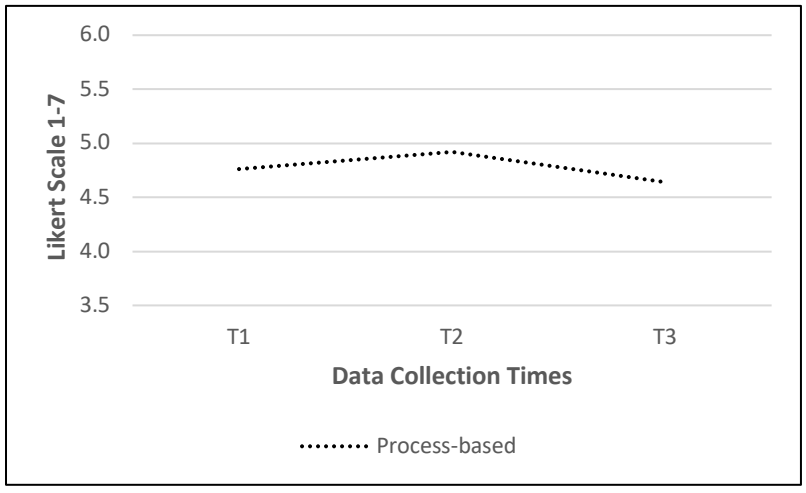

Table 1. Results of changes in attitudes in the process-based class

Subjective Norms	T1	T2	T3	T1 versus T2	T2 versus T3	T1 versus T3
Process-based	5.22	5.54	5.18	Yes	Yes	No

Chart 2 Results of changes in subjective norms in the process-based class measuring statistically significant changes

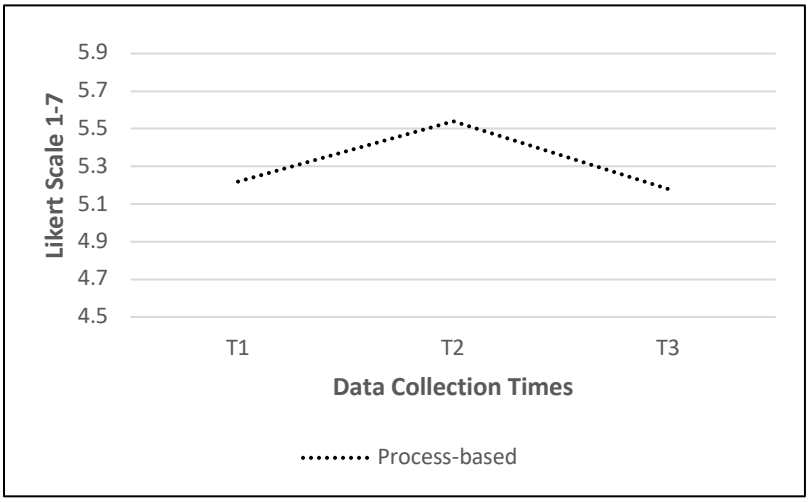

Table 2. Results of changes in subjective norms in the process-based class

PBC	T1	T2	T3	T1 versus T2	T2 versus T3	T1 versus T3
Process-based	5.22	4.62	4.38	Yes	No	Yes

Chart 3. Results of changes in PBC in the process-based class measuring statistically significant changes

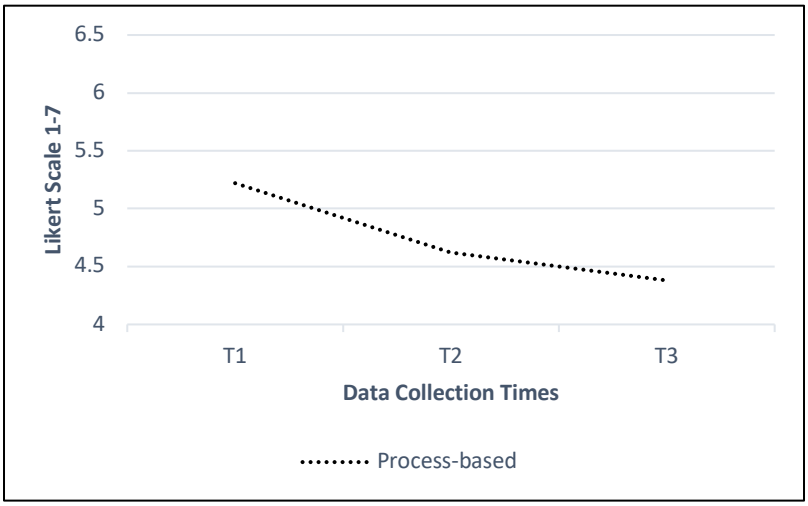

Table 3. Results of changes in PBC in the process-based class

Intention	T1	T2	T3	T1 versus T2	T2 versus T3	T1 versus T3
Process-based	4.58	4.82	4.54	Yes	Yes	No

Chart 4. Results of changes of intention in the process-based class in the process-based class measuring statistically significant changes

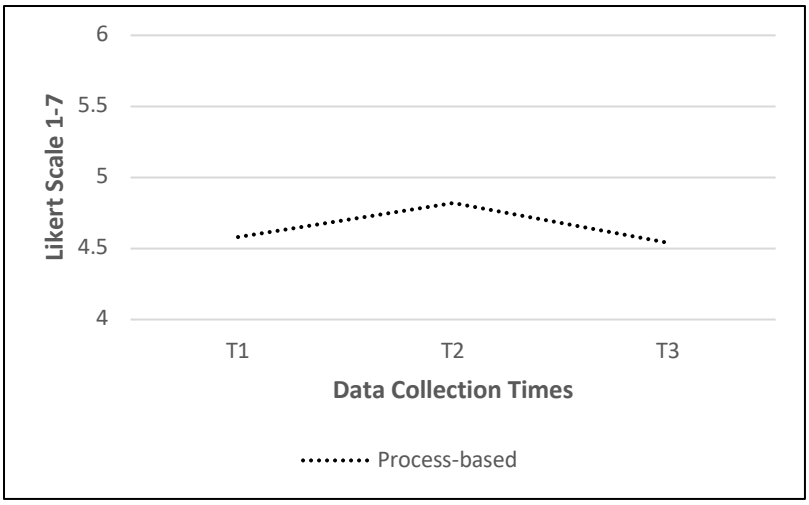

Table 4. Results of Changes in intentions in the process-based class

DISCUSSION AND CONCLUDING REMARKS

Discussion

Our primary assumption was that at the end of a process-based course there would be no impact on attitudes, subjective norms, PBC, and intention to become an entrepreneur. Considering the socio-economic implications of inadequately preparing students to become successful entrepreneurs, we believe that it is critical to investigate if current courses are effective. There is a growing body of research that questions the effectiveness of EE. The evidence suggests that traditional teaching methodologies are ill suited to develop actual entrepreneurs (Rae & Carswell, 2000; Pittaway & Thorpe, 2012; Neck, Greene, & Brush, 2014; White & D'Souza, 2014; Dobson et al, 2020).

The TPB is a theory of change, that focuses on the importance of intention (Azjen & Fishbein, 1980). We first sought out to assess the degree of relationships among attitudes, subjective norms, PBC, and entrepreneurial intentions. Our first hypothesis addressed this relationship directly by assessing the correlation between attitudes, subjective norms, and PBC to intention. Attitudes positively correlated with intention. With attitudes being the strongest at (.71), while subject norms (.48) and PBC (.48) were moderately correlated with intention. This finding may be a result of Mexico not having an entrepreneurial culture based on opportunity, so subjective norms do not favor entrepreneurial action. With limited concrete experiences, students tend not to believe that they can be successful entrepreneurs.

Turning to hypothesis 2, we noted that scores for attitudes, subjective norms, and intention all are all statistically similar to the start of the semester. Supporting our hypothesis that there is no impact on EE on these factors. The score for PBC was actually statistically lower at T3. This indicates that the focus on conceptual models of teaching entrepreneurship has a detrimental impact on students' desire to be an entrepreneur. This is critical since PBC has been identified as the most important determinant of entrepreneurial action (Vamvaka, et al., 2020).

Hypothesis 3 focused on students' experiences during the course. An increase in attitudes, subjective norms, and intentions at mid-term were measured, indicating the student's initial exposure to EE was positive. There was an exception, as PBC showed a significant decline, indicating that the process-based class had the opposite effect on PBC. This suggests that the introduction of the process-based approach undermined confidence in students' ability to be successful.

Hypothesis 4 examined the belief that after the initial exuberance in the class that scores would drop as students get overwhelmed with the process-based approach. Our research confirmed this hypothesis, indicating that writing business plans and creating business models does not positively impact intention. Further the absence of concrete entrepreneurial experiences undermines PBC as this score was statically lower at the end of the semester.

Theoretical and practical implications

Our research contributes to the knowledge of the lack of effectiveness of process-based EE courses, by exploring this context in a Mexican university. Initially, scores increased for attitudes, subjective norms, and intention during the entrepreneurship course. We have limited understanding of how to keep the scores increasing. However, this study sheds insights that support the notion that pedagogies that rely on hypothetical constructs like of writing a business plan resulted in no positive impact. More insightful is that the PBC score dropped from the onset of the course, implying that introducing students to theoretical constructs is counterproductive to actually developing entrepreneurs.

There are practical implications related to our findings. First, we found that introducing students to EE initially has a positive impact, so course should focus on providing students with concrete experiences to maintain the initial interest. Second, the drop in PBC may signal that action-learning techniques which rely on concrete experiences may be better suited to increase student's PBC. Third, schools must find contextually appropriate methodologies and not simply

introduced theoretical frameworks that may not be contextually appropriate. Furthermore, problem-based methodologies might serve the needs for opportunity-based entrepreneurship in Latin America.

Limitations and further research

All studies have limitations and it is important to identify the limitations in this study. First, the TPB is primarily focused on measuring action (Fishbein, 2007). We note, this study occurred within an academic setting, and there was no expectation that students actually start a business. A longitudinal study is required to measure the long-term impact of EE on action. Second, the class was a required class, so the participants may not actually be interested in becoming entrepreneurs. The results might be different in an elective class where students take the course because they are interested in entrepreneurship. Third, subjective norms and PBC were moderately correlated with intention. This might reflect the lower cultural acceptance of entrepreneurship as a career in Mexico. We encourage other scholars to help overcome limitation of this study and continue to build understanding on how to develop a generation of entrepreneurs in Latin America.

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