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Time Changes Everything: Examining Socioemotional Selectivity’s Effects on Entrepreneurial Intentions and Attitudes

An Honors Thesis submitted in partial fulfillment of the requirements for Honors in Business.
By
Zane Sudan

Under the mentorship of Dr. David Jiang

ABSTRACT
Entrepreneurship is still regarded as a popular career choice across generations, however, the Millennial generation has seen the lowest rates of entrepreneurship among past generations. The purpose of this study is to identify psychological mechanisms that could explain this drop in entrepreneurship, discerning whether or not time perspective has a significant effect on an individual’s entrepreneurial intentions and attitudes. Two studies were conducted: (1) a 2x2 experiment that manipulated time perspective (open time vs limited time) and perceived certainty (perceived certainty vs. perceived uncertainty) to see what effects these variables had on entrepreneurial intentions and emotion regulation regarding entrepreneurial goals. The results suggest that open time perspective has a decreased effect on entrepreneurial attitudes or intentions if the individual is certain about the business opportunity they are considering. Furthermore, open time perspective may lead to a decrease in entrepreneurial intentions, initially at least, as the individuals may deem it safer to improve their knowledge and experience before pursuing entrepreneurship as they have perceived open time ahead of them. In contrast, counterintuitive to what most millennials generally think, those that are certain and have a limited time perspective have higher entrepreneurial intentions and positive emotions. This thesis accordingly offers important implications for entrepreneurial theory and practice.

Thesis Mentor:________________________

Dr. David Jiang

Honors Director:_______________________

Dr. Steven Engel

April 2019
Department of Management
University Honors Program
Georgia Southern University
Acknowledgements

I would not be where I am today if it was not for my family, who believed in me, supported me, and pushed me to be the best version of myself. My family has always been a source of inspiration, and words cannot express how grateful I am for their influence in my life. Without Nicholas Sudan, Allison Sudan, and the late Roderick Sudan, there is no way this would have been possible.

I would also like to thank Dr. Trey Denton, for guiding me through the process and offering advice that was instrumental to the completion of this paper.

Finally, I want to thank my mentor for this project, Dr. David Jiang. His assistance and insight were crucial to the success and quality of this paper, and he made the process more enjoyable and interesting than I first expected. Dr. Jiang challenged my way of thinking and introduced me to the broader world of research and academia, which will stay with me for the rest of my life.
INTRODUCTION

Entrepreneurship is an important part of any nation’s economy, as it encourages innovation, satisfies many of the needs of consumers, and contributes a large proportion of the Gross Domestic Product. However, in recent years, the United States has witnessed a decline in entrepreneurship rates, particularly amongst members of the millennial generation, despite having high interest and positive attitudes towards entrepreneurship (Shane, 2008). Although this topic has been discussed, the root cause has yet to be concretely determined. With a complex topic such as entrepreneurship, positive attitudes may not necessarily directly translate to entrepreneurial activity (cf. McMullen & Shepherd, 2006).

The prospect of opening a new business can be seen as a daunting and risky task that results in short term failure more often than not. With that in mind, entrepreneurship is still a desirable career option that spans generations, which begs the question, why are younger generations not pursuing this career path at the rates of their predecessors? This study seeks to integrate socioemotional selectivity theory (Carstensen et al., 1999) and the theory of entrepreneurial action (McMullen & Shepherd, 2006) to test whether time perspective and certainty have a significant effect on a person’s entrepreneurial intentions, emotion regulation, and attitudes.

The basis of this assumption comes from Socioemotional Selectivity Theory (Carstensen et al, 1999) which theorizes that people with limited perceived time perspectives will pursue activities and relationships that are more personally and emotionally gratifying, while people with open perceived time perspectives are more willing to engage in less immediate gratifying activities that will pay off in the long term.
The Theory of Entrepreneurial Action (McMullen & Shepherd, 2006) is also applied, which suggests that increased certainty encourages individual’s at act on their entrepreneurial intentions.

The goal of this study is to make significant contributions to the understanding of entrepreneurial actions and how it can be affected, and eventually influenced. There have been studies conducted that show that younger generations’ entrepreneurial action can be influenced through increasing self-efficacy, by means of education (Jahani, 2018), but if time perspective potentially proves to be a significant factor behind this, additional means of stimulating startup rates can be developed. Theories and concepts have been drawn from several studies in order to develop a working theory and hypothesis that has not quite been explored as of yet, that the theory of socioemotional selectivity has a significant effect on an individual’s entrepreneurial intentions, attitudes, and actions. Moreover, the role of entrepreneurial uncertainty has been included in order to further the research done by McMullen and Shepherd (2006), and identify what factors specifically affect uncertainty and how they can be addressed.

**LITERATURE REVIEW**

This study integrates Socioemotional Selectivity Theory (SST, Carstensen et al, 1999) and the Theory of Entrepreneurial Action (TEA, McMullen & Shepherd, 2006), which were used to develop the hypotheses and methodology. The integration of these two theories is beneficial in this study because the theory of entrepreneurial action describes entrepreneurial motives but does not address time perspective as a possible reason why entrepreneurial action or inaction occurs. Similarly, socioemotional selectivity explains how time perspective changes goal pursuits but does not directly
address the matter of uncertainty. To help further unpack and explain these theories, I will examine each in turn below.

**Socioemotional Selectivity Theory**

As a theory, SST makes predictions about how time-sensitive events can change an individual’s time perspective, thus changing their emotional regulation, preferences for social relationships, and goal pursuits (Carstensen, 1999, 2006). The theory proposes that an individual with limited time perspective will have goals more geared towards emotional gratification to achieve happiness before a deadline or a closing life event. Conversely, an individual with open time perspective has a more long term orientation approach to goals, as they recognize that they have the available time to improve their future situation in which they can then pursue more emotionally driven goals. Ever since its proposal, SST has been applied to plethora of topics to reinforce its validity in multiple facets of life (Carstensen, 2006).

Accordingly, much of the literature review surrounds different applications of this theory to other areas of life. The theory lays out the idea that individuals with open time perspective will pursue goals with more logical purpose and may forego emotional gratification until a point where time is perceived to be narrower and more limited. A prime example, which was mentioned above, was the identification of voting patterns in the United States amongst different age groups (Panagopoulous & Prysby, 2017). This study helped to validate SST in that it highlights that older voters were more strongly influenced by party allegiance and emotions towards candidates, while younger voters were more heavily impacted in policy and stances on issues that they considered
important. Politics and business often can go hand in hand, which lends to the belief that SST could carry over into the world of business, and more specifically, entrepreneurship.

Studies have also been conducted to further delve into the psychological implications of SST, such as its effects on an individual’s memory (Barber et al, 2016). As a method of validating SST, the researchers tested the participants’ ability to remember certain stimuli, in this case, images, that could be described as generally positive or generally negative. The participants were given a task in which they wrote a response detailing their time perspective beforehand in order for the researchers to categorize them and therefore predict their responses to the stimuli later in the experiment. The results seemed to support SST, as individuals with a limited time perspective were more easily able to recall images that were generally more positive, highlighting the proposal that emotional gratification is more important to those with a limited time perspective. Moreover, regardless of self-described time perspective, the researchers identified a trend in which older individuals also displayed a memory preference for more positive stimuli, suggesting that goals naturally shift with age. This would make sense, as time becomes more limited towards the end of a person’s lifespan.

The Theory of Entrepreneurial Action

Despite being the basis of this thesis, SST is not the only relevant theory when discerning the factors which affect an individual’s entrepreneurial intentions, attitudes, and action. As McMullen and Shepherd (2006) put forward in the theory of entrepreneurial action, factors such as uncertainty play a role in determining whether or not a given individual will pursue entrepreneurship as a career path. A study conducted by Herdjiono et al (2017) proposed that family environment, motivation, and attitude
towards risk all have significant influences on one’s entrepreneurial intention, so it is important to take these into consideration when dissecting the potential effects of SST on entrepreneurial action. Furthermore, this study puts forth the idea that unemployment may be an outcome of people being job seekers as opposed to job creators, and entrepreneurship can lead to lowered unemployment rates as well as the aforementioned positive national economic performance. This study, however, may not be as representative as the population that will be surveyed in this thesis as it focused on individuals from a different part of the world, but the effects of entrepreneurship are comparable globally, so this still holds weights in the context of entrepreneurial action. The risk aversion mentioned in this article, and long term orientation mentioned in the SST’s predictions, may be factors that have the most variability from country to country, as they are both cultural dimensions put forth by Geert Hofstede in his six dimensions of cultural difference study (Hofstede, 1984).

As established, uncertainty plays a major role in the transition from entrepreneurial attitudes to entrepreneurial action, which poses a question: what can be done to combat this uncertainty and stimulate entrepreneurship. A study by Pantea (2018) suggests that experience through employment may be a way in which young people try to avoid the risk that entrepreneurship carries. This study suggests that younger individuals may be more willing to accept tasks and working conditions that they do not consider ideal in order to build their skillset and improve on certain aspects of their character, and not prioritize entrepreneurship. This creates a positive correlation between employment and entrepreneurship, as people are able to put the skills gained to use in their own business. This long-term orientation and forward thinking falls in line with SST, and
while it may seem like an explanation to why young Americans have not been pursuing entrepreneurship, this study is based in Romania, and therefore may not carry the same weight in the United States. That is not to say that this information is not valuable, as certain aspects of this thesis aim to test the relation put forth in Pantea’s study.

Additionally, self-efficacy was another aspect discussed in the realm of possibilities for this thesis and what direction it should follow. Studies into self-efficacy yielded similar results to the study about employment discussed prior, in that practice and experience are crucial factors in the development of young entrepreneurs. It has been theorized that increasing self-efficacy is a method in which to foster entrepreneurial action (Sahabuddin, 2017) and increasing self-efficacy through training and education will encourage students to commit to entrepreneurship as a career choice. The desirability of entrepreneurship training among students was one of the takeaways from this study that was also built into practical implications for this thesis.

There have been numerous studies within the United States attempting to identify why younger generations may not be pursuing entrepreneurship at the rates observed in past generations, and many reasons have to do with changes in general attitude and behavioral patterns. The millennial generation, one of the main focuses of this thesis, live in a time much different than their predecessors, and naturally their goals, attitudes, and subsequent behavior would have changed to some degree. For example, the millennial generation are said to be more motivated by affiliation and achievement, whereas generation X was more driven by the desire for power (Borges et al, 2010). This fundamental difference could be one of the driving factors behind the drop in entrepreneurship rates as entrepreneurship was a medium to achieve power, and since
that it no longer a primary motivation, rates may naturally decline. The study by Borges et al also came to the conclusion that American millennials have a greater desire to be part of social groups and value being in a team, combined with the desire for affiliation, may push them towards jobs which highlight teamwork. Moreover, the type of work favored may also be a reason why the millennial generation might not consider entrepreneurship a top prospect. A study done by Henstra and McGowan (2016) came to a similar conclusion, that the millennial generation, this time in Canada, has different values and attitudes towards work. This may also be a reason why Canada is experiencing declines in employment in their public sector. Henstra and McGowan (2016) imply that millennials have an intrinsic value to serve their community and do good for the community but believe that the government has done a poor job communicating that aspect to them. If the government could properly tap into millennials' core values, they can more effectively influence them to do better for their country. Just like the Canadian government can influence millennials’ employment action, there have been studies to show that there are things that can be done to encourage entrepreneurship amongst millennials.

Norton and Hale (2011) put forth an idea that students can and should be exposed to proper entrepreneurship training in order to better encourage entrepreneurial action and improve the skills needed to start a business. Here, these authors put forward a framework to teach students how to best be aware of their environment and how to take advantage of opportunities that potentially surround them, providing an argument in favor of the effectiveness of entrepreneurial education on encouraging entrepreneurial behavior. This may be one way in which declining entrepreneurship rates among younger
generations may be addressed, as the practice and experience participating in the activities proposed by Norton and Hale (2011) would equip them with skills to increase the likelihood of success when creating a startup. Similar practices are incorporated into University core curriculum, as students must take classes dealing with a wide range of subject matter, regardless or field of study, so this paper suggests the value of building in entrepreneurial elements into the class structure in an effort to stimulate entrepreneurial ability. Similar approaches have been taken in places like Nigeria, where the government mandated entrepreneurial education in an effort to reduce unemployment through entrepreneurship (Adekiya & Ibrahim, 2016). One of the major conclusions of this study was that entrepreneurial training is a strong predictor of entrepreneurial intention, but as seen earlier, intentions may not always translate into action (Shane, 2008).

**HYPOTHESES DEVELOPMENT**

SST, as mentioned before, predicts that goals change across a lifespan and can be affected by time sensitive events during an individual’s life. Open time perspective, according to Carstensen (1999; 2006), would lead to more information-based goals, which theory predicts would lead to the pursuit of knowledge and experience through higher education and employment. This would, in turn, theoretically result in lower entrepreneurial intentions because other options would be seen as higher priority, and entrepreneurship may be viewed as something to be pursued at a later time.

The millennial generation, which is the focus of this paper, would generally fall into the open time perspective category as they are on the lower end of the age spectrum (cf. Carstensen, 1999). Given that startup rates among millennials have been noted as lower than past generations, it would stand to reason that time perspective could play a
reasonable role in this revelation. The aforementioned information-based goals could lead the millennial generation to pursue alternative job opportunities before, if at all, pursuing entrepreneurship.

With the proposed goal of seeking education and employment, it would stand to reason that millennials, or individuals who perceive time as open, would forego entrepreneurial opportunities until they believe that the opportunity and timing is ideal, leading to my first hypothesis, that open time perspective would lead to lower entrepreneurial intentions. This would pose an explanation for the decreased entrepreneurship rates among millennials, as their perceived window of opportunity to be an entrepreneur is wider, giving them the impression that they can pursue entrepreneurship in the future while pursuing their higher priority goals beforehand.

*Hypothesis 1: Participants who perceive time to be more open will have lower entrepreneurial intentions*

The second variable accounted for in this study is level of certainty, which has been shown to affect entrepreneurial intentions, highlighted by TEA. If an individual is certain about the feasibility of a potential venture idea, it could be predicted that it would be more likely to be pursued. In an increasingly competitive business environment, opportunities can be a rare thing, meaning that an individual has to be prepared to pursue it if it arrives. If an individual is certain in their ability and the potential of the venture, there would be fewer factors that would be seen as a drawback to pursuing the given opportunity, which could potentially lead to higher entrepreneurial intentions.

Time perspective aside, it would be expected that individuals who are not certain about a potential entrepreneurial opportunity would more likely take steps to decrease
uncertainty. Taking steps to improve one’s situation, such as through education or employment, are ways to reduce this uncertainty that would lead to the decision to not pursue entrepreneurship or pursue it at a later time when one is more certain about the opportunity. Therefore, it can be theorized that when an individual is certain of an opportunity, he or she will feel more prepared to pursue entrepreneurship and therefore have higher entrepreneurial intentions.

_Hypothesis 2: Participants who have higher perceived certainty about an opportunity will have higher entrepreneurial intentions_

If open time perspective does lead an individual to forego entrepreneurship in favor of other information-based goals, it would stand to reason that individuals who perceive time as limited would be more likely to act upon entrepreneurial intentions. With the increased likelihood of being forced into a decision, the role of uncertainty then may play a crucial role in the decision-making process. As discussed in the second hypothesis, individuals who are certain about an opportunity would theoretically be more likely to pursue entrepreneurship, which may create a favorable environment for entrepreneurship.

If individuals with limited time are put into a position to make a decision, there would, in theory, be an emotional evaluation attached where an individual assesses how they feel about the opportunity. With a more concrete decision afoot, coupled with certainty about an opportunity, it could lead to positive affect towards entrepreneurship. Given that open time could frame entrepreneurship as an unfavorable immediate option, and uncertainty being an unfavorable condition, perceived limited time and certainty in
an opportunity theoretically creates a scenario where an individual is most comfortable pursuing entrepreneurship, and where their opinion of entrepreneurship is most favorable.

SST also proposes a positivity effect, where the emotional salience of a valued goal is stronger under limited time, meaning that an individual with perceived limited time would prefer to pursue opportunities that bring more emotional gratification. When faced with an opportunity under limited time, a more definite affective evaluation will be made, and an individual will more likely feel confident pursuing it if they feel more certain about its success. Under these conditions, it could be assumed that these two conditions (limited time and perceived certainty) would garner a strong positive affect, leading to a positivity effect among participants.

Hypothesis 3: Participants who perceive time as limited and who feel certain about an opportunity will exhibit the strongest positivity effect compared to other participants

STUDY 1

Research Approach

An experimental vignette study allows the controlled manipulation of variables and conditions relevant to the study while demonstrating mundane and psychological realism, acknowledging that cognition and meaning are situationally specific. The vignettes in this study are short descriptions about hypothetical situations. Students were asked to consider how they might act in these situations. Participants were told to respond to the study as if they had experienced the conditions that are described in the randomly assigned vignette that they read.

Sample
An experimental vignette study was conducted with 120 students in the millennial cohort age range at a large doctoral-granting university in the Southeast of the US. This method and sample is suitable for this study’s research aim for a few reasons. First, from a theoretical standpoint, in line with SST, the students in this sample are young and working toward information-goals by completing an undergraduate degree program. Second, a randomly assigned experimental vignette offers a chance to manipulate their time perspective and asks them to consider how they would act under personal assessments about certainty for an entrepreneurial opportunity. Finally, part of this study’s motivation is driven by data that suggests that young people, especially college-educated students, have positive attitudes towards entrepreneurship but are less likely to take entrepreneurial action (Shane, 2008). This study’s research question and theory suggests that cognitive aspects might be at play, so an experiment administered to college students helps address these needs.

Altogether, 120 respondents ranging in age from 18 to 29, with an average age of 20.6 years old, took part in the study. 47.5% of the sample were females and 52.5% were males. Students were recruited at a table set up in high traffic areas on campus, offering participants their choice of a candy bar as an incentive to complete a randomly assigned version of the vignette study.

**Design and Procedures**

For the experimental vignette, one of four versions of a scenario was randomly given to participants. Each condition in the experiment consisted of a baseline vignette and a manipulation that changed time perspective (open vs. limited time perspective) and personal assessments of an opportunity’s certainty (certain vs. uncertain). As seen in the
appendix, the baseline vignette was designed to keep all conditions in the experiment under the same decision environments, where funding and assistance with an entrepreneurial opportunity is available should the participants think they needed it. This baseline vignette was intentionally used to more readily take feasibility out of consideration, helping focus participants more on the two-sentence manipulations in each experimental condition. Here, the two independent variables – time perspective and perceived certainty - were manipulated to create a 2x2 experimental design that assessed four different conditions outlined in Table 1.

<table>
<thead>
<tr>
<th>Perceived certainty of a given entrepreneurial opportunity</th>
<th>Perceived Time Perspective</th>
<th>Perceived Open Time</th>
<th>Perceived Limited Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certain</td>
<td>Perceived Open Time</td>
<td>Moderate entrepreneurial intention</td>
<td>High entrepreneurial intention</td>
</tr>
<tr>
<td>Uncertain</td>
<td>Perceived Limited Time</td>
<td>Moderate entrepreneurial intention</td>
<td>Low entrepreneurial intention</td>
</tr>
</tbody>
</table>

Table 1. Hypothesized effects of perceived time perspective and certainty conditions on entrepreneurial intention

Participants were randomly assigned to one of the study’s four conditions. Participants filled out a survey that included background and control variables before reading a vignette. After reading their vignette, respondents completed another brief survey that collected their affective appraisals, entrepreneurial intentions, and realism checks.

Variables

**Time Perspective.** As mentioned before, SST argues that younger people will generally have more of an open time perspective that prioritizes goals concerned with knowledge acquisition and that older people will increasingly have a limited time perspective that prioritizes goals that they believe bring positive emotional satisfaction.
However, SST also argues that there are psychological mechanisms behind these aging trends, where salient events that bring something to an end can also instigate a limited time perspective and change outcomes for younger people. The experiment’s vignettes used university graduation as the salient event to manipulate either an open or a limited time perspective. Graduation was an advantageous event to use for the time perspective manipulation because it is psychologically consistent with everyday communications and expectations that the study’s sample experiences while completing their degree, thus providing both psychological and mundane realism that not only provides internal validity but also increases external validity (Jiang & Munyon, 2017; Wilson et al., 2010). For the vignettes that manipulated open time perspective, following the baseline vignette, participants read “Your time is opening up after graduation and you are trying to figure out what to do.” Similarly, for the limited time perspective manipulation, participants read “Your time is running out before graduation and you are trying to figure out what to do” after reading the baseline vignette. Therefore, the time perspective manipulations for each condition consisted of three words that were grammatically parallel between the open and limited time manipulations.

**Perceived Certainty.** Perceived uncertainty has long been known to be a crucial reason why people do not take entrepreneurship as a career path (McMullen & Shepherd, 2006). Thus, according to the theory of entrepreneurial action, perceived certainty, whether it is about an entrepreneurial opportunity and/or one’s ability to successfully follow through on the opportunity, increases entrepreneurial intentions and actions. The experimental vignette method is beneficial for assessing this variable because the vignette provides control over situational considerations while examining how participants
psychologically would act under conditions where they believe that their ability to follow through an opportunity is certain or uncertain. To manipulate certainty, following the sentence that manipulated time perspective, participants in a certain experimental condition read “Your research has led you to believe that the opportunity shows promise and you feel certain about its feasibility and market potential.” As for the uncertain manipulation, the prompt was the same, except the word “uncertain” replaced the word “certain.” The certainty manipulation therefore consisted of only one word. Altogether, each of the four experimental conditions were worded exactly the same except for four words that manipulated the two independent variables.

**Entrepreneurial Intentions.** To assess time perspective and certainty perceptions’ effects on personal entrepreneurial assessments, I used the personal attitudes towards entrepreneurship scale from Linan and Chen’s (2009) entrepreneurial intentions model as a dependent variable. Collected after participants read their experimental vignette, this five-item scale ($\alpha=0.86$) was beneficial because it assesses entrepreneurial intentions through attitudes and has been validated across different cultural backgrounds. This variable was measured with a 7-point Likert scale (1=totally disagree and 7=totally agree) and includes items such as “Among various options, I would rather be an entrepreneur” and “If I have the opportunity, I would start my own firm.”

**Positive Affect (Positivity Effect).** Consistent with past research on socioemotional selectivity theory, the positive affect schedule from a version of Watson, Clark, and Tellegen’s (1988) Positive and Negative Affect Schedule (PANAS) was used as a dependent variable to measure for the theory’s positivity effect in emotion regulation. More specifically, the positive affect schedule from the PANAS-X, an
updated reliable short form of the original PANAS scale was selected as an appropriate measurement of participant’s affective responses. After participants read their randomly assigned vignette, this measure asked participants to indicate on a 7-point Likert scale to what degree they felt a particular affective state, such as attentive, active, and inspired. There were five items in the positive affect schedule, which were summed together to create the participant’s positive affect score.

**Controls.** As the psychological manipulations could vary from person to person based on demographic characteristics, a number of theoretically relevant variables were also controlled for. First, gender was controlled for. Next, to help explain time perspective manipulation’s effects irrespective of age, the participants’ age was controlled for. Finally, participant intelligence measured by using their grade point average as a proxy for intelligence was controlled for. All controls were collected in a pre-experiment survey administered to participants before they were assigned to their experimental condition.

**Analyses and Results**

**Realism Checks.** The post-experiment survey included realism checks intended to demonstrate confidence in the psychological realism of the experimental vignettes, therefore helping reassure that the psychological processes and outcomes being assessed in the study were internally consistent while also being externally generalizable to the circumstances in which the study’s sample finds themselves. In particular, using a 7-point Likert scale, participants were asked to indicate to what degree they agreed with the statements “the situation described was realistic” ($M=5.98$) and “I had no difficulty imagining myself in this situation” ($M=5.73$). Consistent with past research, the results of
the realism check demonstrated that participants found the scenarios presented to them to be realistic. ANOVAs that compared realism check scores across different conditions found no statistical difference between groups, suggesting that participants in all conditions found the vignettes realistic and equally believable.

**Analysis of Variance.** A two-factor independent multiple analysis of covariance (Two-Way MANCOVA) that controlled for participants’ age, sex, and grade point average was used to assess the independent variables’ (time perspective and certainty perceptions) effects on the dependent variables’ (entrepreneurial intentions and positive affect).

**Planned Comparisons and Robustness Checks.** To conduct planned comparisons between experimental groups, I used the Fisher’s Least Significant Difference test. This test is used to assess which groups are statistically different from one another after the MANCOVA’s omnibus test indicates that one or means across groups are different.

Additionally, this thesis’ dependent variable assessed entrepreneurial intentions through attitudes instead of directly asking the respondents for their intentions. However, as a check for robustness, the post-experiment survey did have a single item that more directly assessed entrepreneurial intentions. This item asked participants to indicate to what degree they agreed with the statement “I have always wanted to work for myself (i.e. be self-employed).” I reran the analyses, switching this more direct entrepreneurial intention measure for the entrepreneurial intentions through attitudes measure. The results reported the same relationships at statistically significant levels.
Results

The mean scores for the dependent variables used across all four experimental treatment groups are summarized in Table 2. The two-way MANCOVA’s omnibus test indicated that the means of the entrepreneurial intentions variable were statistically different across experimental conditions in the study (p<.05). As hypothesized, the sample means for entrepreneurial intentions differ in the predicted direction, with the participants who were primed with a limited time perspective and perceived certainty in venturing conditions exhibiting the highest personal entrepreneurial intentions and attitudes. Also as expected, participants who were primed with a limited time perspective and perceived uncertain venturing conditions exhibited the lowest entrepreneurial intentions. Using Fisher’s Least Significant Difference test, pairwise comparisons between experimental treatment groups demonstrated that those in the limited time certain group (M=5.63) had significantly stronger entrepreneurial intentions than participants in the open time uncertain group (M=4.82; p<.01) and the limited time uncertain group (M=4.62; p<.05). However, entrepreneurial intentions were not statistically different between the limited time certain (M=5.63) and open time certain (M=5.28) groups. Altogether, this suggests that time perspective does change entrepreneurial outcomes, but perceived certainty is a stronger psychological determinate than time perspective in this manner.
Table 2. Mean entrepreneurial intention (EI) and Positive Affect (PA) across the four scenario groups

Additionally, beyond entrepreneurial intentions, positive affect was also measured across the four scenario groups to identify which scenario garnered the most favorable affective response. As predicted in hypothesis three, the group with perceived limited time and certainty recorded the highest positive affect score ($M=27.48$). This would suggest that the most emotionally gratifying time to become an entrepreneur would be under limited time and where the opportunity is certain. This finding would fall under the assumptions of SST that predicts goals are more emotionally salient under limited time. However, pairwise comparisons conducted with Fisher’s Least Significant Difference test show that only the limited time certain condition was statistically different from the limited time uncertain condition. These considerations taken together (limited time and certainty vs. uncertainty) create a scenario where people would feel more pleasant affinity toward the pursuit of a potential business venture when time is limited and they are certain compared to when time is limited and they are uncertain. Although this is not
the strongest support for the third hypothesis, which strongly favored SST’s predictions, the findings are still in line with what TEA and SST, albeit to a lesser extent, would predict.

**STUDY 2**

**Research Design**

In study one, quantitative data was collected to identify the effects of certain conditions, namely time perspective and certainty, on an individual’s entrepreneurial intentions. In an effort to understand cognitive explanations and processes behind entrepreneurial intentions under different time constraints and certainty assessments, a qualitative study was also built into this thesis’ research design to provide more context and allow participants to provide information rooted in their personal and professional experiences. After completing the survey in study one, participants participated in a semi-structured interview that was designed to gain a better understanding of what millennials perceive as ideal entrepreneurship conditions and how they would theoretically react if faced with the scenarios previously outlined. This is in following with past research procedures that combined experiment and qualitative methods (Raaijmakers et al 2015). The sample population for study two is the same as study one, as both studies were conducted consecutively.

**Design and Procedures**

Participants were asked a set of semi-structured interview questions relating to their opinions about entrepreneurship and the factors behind decisions about pursuing potential ventures. Following general questions about the participants’ personal
entrepreneurial intentions, questions such as “What factors do you believe have kept you from becoming an entrepreneur?” and “When do you believe the ideal time would be to start a business?” were among the common talking points in the interviews, which would provide insight to the thinking patterns of millennials. Participants were given ample time to explain themselves and elaborate as much as they desired as to maximize the richness of information. To help aid coding, interpretation, and analyses of the qualitative data, each interview was recorded and transcribed within 48 hours after completing the interview. These transcripts were formatted as single space document that used 12-point Times New Roman font, yielding 240 typed transcript pages. The interview times following the post-experiment survey roughly lasted between two and eight minutes.

**Analyses and Results**

After completing and transcribing all the interviews, I worked with my thesis mentor, Dr. David Jiang, to develop a grounded theory model (cf. Glaser & Strauss, 1967; Corbin & Strauss, 1990) for the cognitive processes and explanations behind participants’ expressed entrepreneurial intentions in each scenario. We iteratively moved from data reduction and display to conclusion drawing and verification. I coded all the interviews and Dr. Jiang cross-examined the coding and categorization. From there, we continued to collectively discuss recurring themes and ideas. These joint discussions occurred one to two times a week, helping foster dialogue and debate about the data. These recurring meetings accordingly helped refine our coding and theorizing.

When asked about factors stopping them from starting a business, students across all four groups listed some of the same factors, namely lack of resources, lack of
knowledge, and lack of experience. Putting off entrepreneurship to pursue further education is not a surprising response, as all participants were enrolled in a university program and this is consistent with what SST would predict. Moreover, education and entrepreneurial training have been documented as a method of improving entrepreneurial self-efficacy, which in turn would increase passion, positive affinity, and certainty for the subject matter (Gielnek et al, 2017). Despite being a way of theoretically encouraging entrepreneurship, many participants cited lack of time and prior commitments due to school as a reason that inhibits their ability to pursue entrepreneurship. As such, the lack of knowledge, along with experience, money, and resources, are cognitive barriers that the participants, and Millennials in general, likely experience that discourage entrepreneurship.

When interviewing students about their opinions and attitudes towards entrepreneurship, there was a noticeable trend of the need for time to improve on certain attributes before pursuing this career path, leading us to believe that time perspective does play a role in deciding whether or not to start a business. Along with personal attitudes towards the prospect, an individual can then assess the appropriateness of entrepreneurship to them. Using grounded theory coding methods (Glaser & Strauss, 1967), a model was proposed to explain the thought process that a Millennial would go through when deciding if entrepreneurship is a viable career path. Using the qualitative data obtained through interviews, an explanation for entrepreneurial intentions that were obtained through the quantitative data was detailed in the grounded theory model. After transcribing all the interviews, categories were created to sort answers and identify trends and patterns. As all participants were prompted with very similar questions, this allowed
us to easily identify common answers that supported the model. Answers about time perspective, certainty, and ideal conditions to start a business were compounded to create the Grounded Theory model in Table 4, outlining the cognitive processes participants go through to arrive at the final decision about whether or not to pursue entrepreneurship.

Figure 1. Grounded theory model mapping out proposed thought process which explains survey results in study one

As we discussed and analyzed in the data, the structure of our experiment and nature of responses led us to conclude that there were three distinct outcomes when deciding whether or not to pursue entrepreneurship as a career across the two studies: pursue entrepreneurship, improve conditions before pursuing entrepreneurship, and not pursing entrepreneurship. Using this approach, the four vignette outcomes were linked to these different models, and are supported through the qualitative analysis of the interview transcriptions.

The grounded theory analyzes interview findings, suggesting that individuals with perceived limited time and who were certain about a prospective opportunity would be most likely to pursue entrepreneurship, which can be seen through these quotes from
participants who were randomly assigned the limited time certain outcome. When asked whether there was an ideal time to start a business, one participant responded:

“I think it depends on you, like, if you feel ready and you've mapped everything out then that would be your time. Once you feel like 'this is it', do it, because it's going to take time regardless. If you wait, the longer it's going to take for a good outcome to come.”

Both time perspective and certainty were used as justifications, which falls in line with what we proposed and found in study 1, and the quote above expressed that it would be more beneficial to start sooner rather than later, which was an outcome shown in the grounded theory model. This next quote, by another participant, seems to echo what was implied in the previous example. Again, the participant was asked about their perspective on the ideal time to become an entrepreneur.

“I think whenever you have the, like, whenever you have the goal and the idea, then all you have to do is come up with a plan, which is never easy, but if you have the drive then anytime. The present is always the best time.”

The model puts forth the idea that when faced with limited time, participants would be less focused on improving certain characteristics and attributes, as they perceive their window of opportunity as closing. To test whether this was the case, participants were also asked about factors that would dissuade them from pursuing entrepreneurship. Here is a quote that helps to justify the outcome of the Limited Time Certain perspective:

“Any factors that would stop me? Not at all, it's never a good time to start a business, so that means you should start... make time for one, the best I can go about that.”

In contrast, interview responses indicated that individuals with perceived open time would choose to engage in activities to reduce uncertainty and improve their current
conditions, regardless of their actual current entrepreneurial prowess and potential. As mentioned earlier in the paper, some of the biggest reasons participants cited as factors stopping them from becoming an entrepreneur were lack of resources, knowledge, and experience, so individuals who have perceived open time would tend to focus more on remedying these issues before pursuing entrepreneurship. For example, when asked about the ideal time to start a business, one open time certain student said:

“I think it would be ideal to start my business approximately 6 months after graduation while I'm 6 months a deep into a job so I could have financial assets to help fund my business and not be one of those broke entrepreneurs struggling.”

These types of answers were common throughout the participants in the Open Time and Certain group, and closely resembled responses and opinions of the Open Time Uncertain group, helping to justify their shared outcome in the grounded theory model. Again, open time gives the participants the perception that they have the ability to improve their situation before starting a business, such as this individual, who plans on furthering education before considering an entrepreneurial career.

“So I wrote down (on the survey) probably 10 years from now because I know that where I am in school right now, I don't have enough knowledge to adequately even approach a marketplace setting, let alone guarantee that I have a mastered understanding of my field, but I'd say within 10 years. I plan on at least getting my Master's or something like that.”

The last outcome on the grounded theory model is the intention not to pursue entrepreneurship, which was the result of limited time and uncertainty of the feasibility of an opportunity. Participants in the Limited Time Uncertain group scored the lowest entrepreneurial intentions across the four scenarios, and when asked if they want to start their own businesses and when would be the ideal time, some participants gave the following responses:
“I do not believe so, but I would give it a try. Maybe in the future if I got the chance.”

“Well, I’m in accounting, so I don’t really want to go, I mean I want to work for business, not own a business. But if I did want to open my own business, like an accounting firm, it probably won’t be for a long while until I get the experience.”

“ Probably not... If I was going to be an entrepreneur I would think, like, I don’t know in terms of years but on the thing (survey) I said like 32 because that’s 10 years from now, so I felt like that would give me time to get experience and knowledge and maybe save up money or resources and build connections. But I guess it would just depend on the person and when they were able to acquire all of the things that they need to do.”

These discoveries hold some interesting insights and could lead to further understanding of the career goals of individuals of the Millennial generation. Accordingly, this study’s results could help to explain the low startup rates among them (Shane, 2008). In the coming sections, these insights will be examined further, and ideas for future research and potential solutions to this issue will be discussed.

**DISCUSSION**

In the results for both study one and study two, we see the way in which time perspective and certainty interact and potentially change a person’s motives and intentions, which falls in line with both Socioemotional Selectivity Theory (Carstensen, 1999) and the Theory of Entrepreneurial Action (McMullen & Shepherd, 2006). The proposed idea that individuals with perceived open time would be less likely to pursue entrepreneurship in order to engage in activities that would reduce uncertainty and improve skills and characteristics is one of the main ideas of SST, as they would be more motivated by the pursuit of knowledge rather than personal gratification that establishing a successful business would bring. What is interesting is the role that certainty plays when present in varying time perspectives. In study one, the entrepreneurial intention of
the Limited Time Certain group was higher than the Limited Time Uncertain group, implying that uncertainty would play a crucial role in deterring an individual from pursuing entrepreneurship. This effect is less apparent between the open time groups, as the relationship between Open Time Certain and Open Time Uncertain does not have a relationship of comparable significance, although the uncertain group still held lower average entrepreneurial intentions. This leads to the idea that certainty plays less of a role when time is open, as individuals would still rather engage in activities that would further reduce uncertainty, even though they may be appropriately prepared, or at least just as much at their limited time counterparts. This psychological explanation could be one of the major reasons for the decline in entrepreneurship rates among millennials and could help to answer the question as to why they would not immediately, if at all, pursue entrepreneurship.

As mentioned above, individuals with perceived open time would be more likely to forego entrepreneurship in preference of a job or some other choice that could increase their knowledge and experience, as well as provide a steady source of income, which can then be used later on if they decide that an entrepreneurial career is worthwhile. Younger people will naturally have open time perspective (Carstensen, 1999), as they are still relatively early into their lives, and feel like their window of opportunity almost has no limits. As a result, entrepreneurship is pushed off in favor of a point that is considered the ‘right time’, which could also increase the chance that the ‘right time’ is always pushed to the cognitive horizon, until it is no longer considered an emotionally satisfying pursuit at a later age.
Conversely, individuals with limited time perspective, along with certainty about an opportunity, would be more likely to pursue entrepreneurship under the assumptions outlined in this study. As mentioned in the study one results, this combination also recorded a significantly higher positive affect score than the other three scenarios, outlining that millennials hold this combination of conditions as conducive for entrepreneurship to be an emotionally gratifying endeavor. As SST would suggest, limited time would more likely lead the individual to act upon positively viewed intentions, which the findings in this study support. Moreover, TEA would suggest that certainty would also lead to a more positive outlook towards a given opportunity, so with both theories taken into consideration, this result supports the assumptions proposed. Altogether, the findings offer strong support for this thesis’ three hypotheses.

Beyond having favorable opinions and affect towards entrepreneurship, studies would suggest that millennials are well suited to finding new ways to accomplish tasks and innovate roles due to their access and proficiency in information and technology (Gong et al. 2018), which could translate to entrepreneurship. However, this study implies that millennials put these innovative skills to work within the context of their regular employment in hopes of gaining new skills and information, pushing entrepreneurship to be a possible but often distant career path for later. This highlights potential reasons why younger generations may be capable of starting a business but ultimately chose not to. Stated differently, millennials may have the capabilities to start their own businesses, but their open time perspective gives them the idea that they can use this as a building block on which to further construct the foundations to start a business in the future. Past studies have suggested that training and employment could
better prepare millennials for entrepreneurship (Pantea, 2018), potentially helping increase certainty. However, seeking employment with the hopes of becoming an entrepreneur in the future could possibly lead to indefinite procrastination, where there is no limited time window to give people the push to start a new venture.

Open time perspective could lead to employment as mentioned above, but education is another way in which entrepreneurial attitudes could be changed, leading to increased intentions (Bhat & Singh, 2018). The aforementioned Norton and Hale (2011) study recognized this and created a process to focus on entrepreneurial education within a classroom setting to better prepare students to start their own business. Students involved in study two even cited education as a way they chose to better prepare for entrepreneurship. However, school was interestingly also cited as a reason to put off entrepreneurship. This paradoxical relationship could lead to a cycle where students prepare to become entrepreneurs, but cannot pursue entrepreneurship because of their increased responsibilities and prior commitments. In a more limited time setting, millennials may perceive education as getting in the way of an opportunity they are certain of, while others with comparable certainty may forego the opportunity in search of further education to act on the opportunity.

**Future Directions**

There are many directions in which this research could lead to a better understanding behind the psychology of millennials and their relationship with entrepreneurship. In study one, entrepreneurial intention was one of several sections filled out, other sections dealing with self-efficacy and confidence in certain abilities related to entrepreneurship, such as managing people, searching for opportunities, and
dealing with the financial aspects of running a business were also collected. In future analyses, the way in which certainty and time perspective affect a person’s confidence in their ability to fulfill these tasks could be examined to identify if any are more subject to change than the others.

In study two, the qualitative data collected hold so much insight and deal with topics beyond what was discussed in terms of entrepreneurial uncertainty. One of the most promising sets of data came from the interviews and could be studied within the realm of Socioemotional Selectivity Theory, examining the people who millennials would prefer to work with or partner with if they were to start their own business. Under SST, the assumption could be made that earlier on into a person’s life, they would prefer to go into business with somebody who could better assure success and bring something to the table that could benefit the business and insure its survival. Contrastingly, later on in life, a person may prefer to work with a friend or family member, as to make the experience enjoyable, as later on in life people prioritize emotional gratification. Participants interviewed were asked about ideal partner characteristics, who they would prefer to work with when now starting a business, and their opinions on working with friends and family later on in life. In the future, this data will be analyzed to discern who millennials consider ideal business partners across a lifespan.

Another population - an older generation for example - being surveyed and interviewed in a similar fashion to test for differences in their entrepreneurial intentions under certain conditions could also serve as a future research direction. This could help test if there are noteworthy differences in motives between generations. Borges et al (2010) made the point that Millennials were more motivated by affiliation, which could
explain the hesitation to pursue entrepreneurship, so future research could focus on how Baby Boomer or Generation X motives affected and continue to affect their entrepreneurial attitudes and intentions. Furthermore, since older generations are later on into their life, they could explain how their motives changed over the course of their lives, the results of which can be used to make predictions about the future trajectory of entrepreneurship rates among millennials.

**CONCLUSION**

Through the simulation of altered time perspective and certainty, the studies conducted in this thesis were able gain insight on potential relationship between millennials and entrepreneurship, and factors which may deter them from pursuing this type of career path. Results showed that the most conducive environment for entrepreneurship is perceived limited time and certainty, which would fall in line with the hypotheses proposed at the beginning of the experiment. The perceived limited time forces an individual into a more definitive choice, either to pursue entrepreneurship or not, while perceived open time affords the opportunity to continue searching for ways to increase knowledge and skills with the intention of pursuing entrepreneurship at a later date, confirming the first hypothesis proposed. This falls in line with SST, as open time is associated with the pursuit of information based goals, and affirms that time perspective does play a role in an individual’s decision to become an entrepreneur.

The intent of this thesis was to identify possible psychological explanations for why millennials have the lowest startup rates of past generations, and the results seem to offer a reason as to why this might be the case. Millennials, regardless of life events, are on the lower end of the age spectrum, which in general offer an open view of their time
perspective, which entails that their goals will be more focused on improving their knowledge and skill base. Thus, entrepreneurship can often be considered to be a non-priority. Open time perspective also lessens the effect that uncertainty plays in the decision to become an entrepreneur, as individuals still believe that they have the time to improve and revisit the prospect of becoming an entrepreneur later in their life, which could explain their low entrepreneurship rates if they continue to push entrepreneurship to the cognitive horizon.

In conclusion, this thesis’ results indicate that time perspective does indeed play a role in a person’s career choice and decision to become an entrepreneur. The role of certainty was also shown to have varying effects on a person’s entrepreneurial intentions based on their perceived time perspective. Accordingly, these two factors can be key to continue understanding the psychological routes an individual travels while deciding a career path.
Appendix A: Experimental Vignette Baseline and Manipulations

**Base Vignette:** Today’s generation has higher educational attainment levels and more positive views towards entrepreneurship than previous generations. As a college student, your studies and experiences - both inside and outside the classroom - have collectively helped you improve your understanding of career opportunities that await after graduation. Yet, suppose that what you’ve learned up to this point has also led you to identify an entrepreneurial opportunity that you think fits your knowledge, skills, and abilities. Having entertained the thought of this opportunity to start a business, you have sought some advice from family, friends, and professors. Overall, people you’ve talked to are generally receptive to your idea and many even have contacts that can help you secure any additional funding, should you need it.

**Limited Time and Certain Manipulation:** Your time is running out before graduation and you are trying to figure out what to do. Your research has led you to believe that the opportunity shows promise and you feel certain about its feasibility and market potential.

**Limited Time and Uncertain Manipulation:** Your time is running out before graduation and you are trying to figure out what to do. Your research has led you to believe that the opportunity shows promise and you feel uncertain about its feasibility and market potential.

**Open Time and Certain Manipulation:** Your time is opening up after graduation and you are trying to figure out what to do. Your research has led you to believe that the opportunity shows promise and you feel certain about its feasibility and market potential.

**Open Time and Uncertain Manipulation:** Your time is opening up after graduation and you are trying to figure out what to do. Your research has led you to believe that the opportunity shows promise and you feel uncertain about its feasibility and market potential.

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**Appendix B**

Entrepreneurial Intention (EI) Scale

<table>
<thead>
<tr>
<th>To what extent do you totally agree or totally disagree with the following statements? (Circle one number for each question)</th>
<th>Totally Disagree</th>
<th>Totally Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Being an entrepreneur implies more advantages than disadvantages to me</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>A career as entrepreneur is attractive for me</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>If I had the opportunity and resources, I’d like to start a firm</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>Being an entrepreneur would entail great satisfactions for me</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>Among various options, I would rather be an entrepreneur</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
</tbody>
</table>

Positive Affect Negative Affect Schedule (PANAS) Scale
Thinking about yourself and how you feel right now, to what extent do you feel:
(Circle one number for each question)

<table>
<thead>
<tr>
<th>Feeling</th>
<th>Very Little</th>
<th>Very Much</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upset</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>Hostile</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>Alert</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>Ashamed</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>Inspired</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>Nervous</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>Determined</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>Attentive</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>Afraid</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
<tr>
<td>Active</td>
<td>1 2 3 4 5 6 7</td>
<td></td>
</tr>
</tbody>
</table>
REFERENCES


Psychology, Hoboken: John Wiley & Sons, 49–79.