



2016

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## Recommended Citation

Iscowitz, R. (2016). "Do Subtle Similarities Signal Success? The Effect of Superficial Commonalities on Investors' Predictions of Entrepreneurs' Success," *Joseph Wharton Scholars*. Available at [http://repository.upenn.edu/joseph\\_wharton\\_scholars/14](http://repository.upenn.edu/joseph_wharton_scholars/14)

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# Do Subtle Similarities Signal Success? The Effect of Superficial Commonalities on Investors' Predictions of Entrepreneurs' Success

## **Abstract**

When making investments, venture capitalists (VCs) emphasize their reliance on objective metrics in coming to funding decisions. However, recent research has found that these VCs underestimate their use of biases and subjective measures when analyzing entrepreneurs and their pitches. This study delved deeper into determining the extent of these biases by studying whether subtle demographic or behavioral similarities between investor and entrepreneur raise the investor's prediction of success. In this study, home state and favorite hobby were used as the demographic and behavioral variables, respectively. This study analyzed survey data from 361 University of Pennsylvania students by comparing the mean prediction of success from subjects with a similarity to that from subjects without a similarity. There was no statistically significant difference in predictions of success in the presence of either type of similarity indicating that there may be no investment bias from superficial commonalities. In the future, it is necessary to test the same hypothesis using in-person pitches and venture capital professionals.

## **Keywords**

investors, venture capitalists, bias, entrepreneur

## **Disciplines**

Business

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# **Do Subtle Similarities Signal Success?**

## The Effect of Superficial Commonalities on Investors' Predictions of Entrepreneurs' Success

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April 27<sup>th</sup>, 2016

## **ABSTRACT**

When making investments, venture capitalists (VCs) emphasize their reliance on objective metrics in coming to funding decisions. However, recent research has found that these VCs underestimate their use of biases and subjective measures when analyzing entrepreneurs and their pitches. This study delved deeper into determining the extent of these biases by studying whether subtle demographic or behavioral similarities between investor and entrepreneur raise the investor's prediction of success. In this study, home state and favorite hobby were used as the demographic and behavioral variables, respectively. This study analyzed survey data from 361 University of Pennsylvania students by comparing the mean prediction of success from subjects with a similarity to that from subjects without a similarity. There was no statistically significant difference in predictions of success in the presence of either type of similarity indicating that there may be no investment bias from superficial commonalities. In the future, it is necessary to test the same hypothesis using in-person pitches and venture capital professionals.

## **INTRODUCTION**

Psychologists have long understood the immense impact of heuristics – mental shortcuts – on everyday decisions. Venture capital is a field where major predictions are constantly made regarding which businesses will be successful. Given the large pecuniary nature of these decisions, it would seem that they would be based primarily on the merits of the entrepreneur's idea with strict objective criteria. However, due to the large amount of uncertainty and limited information, venture capitalists (VCs) rely heavily on heuristics and biases (Zacharakis & Shepherd, 2001). Research has shown that these range from reliance on easily recalled information (availability heuristic), like successful past investments, to comfort in investing in entrepreneurs who have the same education (similarity bias) (Murneiks et al., 2011).

This study investigates how superficial the similarities can be to evoke the investment bias. In particular, this paper homes in on the effects of similarity in home state (demographic) and favorite hobby (behavioral) on an investor's prediction of the entrepreneur's success. Given that these variables have no bearing on the success of the venture, this study seeks to understand the severity of biases in an investment setting. In order to test this hypothesis, there were two versions of the survey that both had two pitches (Pitch A and Pitch B). In one version, the subject saw a similarity in home state in Pitch A and no similarity in Pitch B. In the other version, the subject saw no similarity in Pitch A but a similarity in favorite hobby in Pitch B. After analyzing data from 361 University of Pennsylvania students, there was no statistically significant difference between mean predictions of success (rated from 1 being least likely to 7 being most likely) in the presence versus absence of either type of similarity. In other words, there was no evidence that the subject coming from the same home state or having the same hobby had any influence on the subject's prediction of the entrepreneur's success. It is necessary to test the same

hypothesis with in-person pitches in order to allow for greater emphasis on these similarities with face-to-face connections.

## **LITERATURE REVIEW**

In an average day, we make hundreds, if not thousands, of decisions. They can be as negligible as what to eat for breakfast to as significant as what job offer to accept. For decades, social and behavioral psychologists have researched the mechanisms behind decision-making so that we can understand how and why humans make certain choices. One of the most widely accepted theories of decision-making is the two-system view where our intuition (System 1) makes fast, automatic, effortless decisions while our reasoning (System 2) makes slower, more controlled decisions (Stanovich & West, 2000). The intuitive judgments created from System 1 create “impressions” that are involuntary yet overpowering (Kahneman, 2003). In other words, the perceptions created from our intuition are oftentimes expressed through quick decisions without much monitoring from System 2.

Additionally, individuals tend to rely on heuristics – mental shortcuts – to reduce complex situations into simple choices; they tend to be useful but can have deleterious effects (Kahneman et al., 1982). Decisions resulting from the use of heuristics are reliant on the rapid System 1 processes, and due to time pressures, the corrective tendencies of System 2 are severely reduced. Some of the most commonly relied upon heuristics that psychologists have extensively studied are the representativeness heuristic, the availability heuristic, and anchoring (Tversky & Kahneman, 1974).

More recently, however, the concept of an “affect heuristic” has gained significant recognition in behavioral psychology. Research has found that current intense emotions lead individuals to make decisions quickly and efficiently in complex situations ranging from cost-

benefit analyses of technologies to predicting performance of industries (Finucane et al., 2000, Slovic et al., 2002,). Due to the affect heuristic, people who feel positively toward a stimulus tend to think positively whereas people who feel negatively toward a stimulus tend to think negatively. An example of a stimulus that can evoke positive emotions is having a similarity with another individual.

In fact, Gestalt principles demonstrate that individuals can develop a “unit relationship” depending on the strength of similarity between them *and* the strength of differences between them and the surrounding people (Hensley & Duval 1976). It has been shown, however, that the “strength” of these similarities does not in fact have to be strong – it can be completely superficial. In fact, in one set of experiments, Miller and colleagues found that when individuals shared a birthday and were faced with a prisoner’s dilemma situation, they were more likely to cooperate with one another and form a social unit (Miller et al., 1998). The explanation for this connection from a seemingly irrelevant commonality is the simple fact that sharing something special to us evokes a positive feeling for those who share this distinct characteristic (Turnbull et al., 1990).

As described above, heuristics and Gestalt principles are particularly influential when individuals make decisions. One field where the decisions of relatively few people (VCs) have an enormous impact on the success of others (entrepreneurs) is venture capital. Especially with regards to seed-stage companies, most venture capitalists rely on intuition (Khan, 1987) due to the lack of data and proof of concept. Thus, it is important to determine what factors affect their perceptions that lead to “gut feeling” (Huang & Pearce, 2015) decisions. For example, researchers feel more comfortable investing in entrepreneurs that have similar educational backgrounds because they feel as though these individuals “think” in the same way that they do

(Murneiks et al., 2011, Franke et al., 2006). Additionally, research has shown that in these cases of extreme uncertainty, VCs rely heavily on the entrepreneurs' past employment (Burton et al., 2002), whether the entrepreneur has received funding from other VCs (Steier & Greenwood, 1995) and the quality of the entrepreneur's storytelling skills (Martens et al., 2007). VCs use these factors as a gauge for future success, as they are taken as evidence for entrepreneurs' innate abilities in practice in other fields. In addition to using these variables, there is evidence suggesting that VCs tend to invest locally; this home-state investment bias (Lichtenstein, 2006) is often attributed to the fact that local VCs are the first to see pitches of nearby businesses and so feel that they have quick and accessible information to provide more help than others by working directly with the entrepreneurs ("home-court advantage"). However, there is evidence that concentrating these investments leads to lower IPO rates suggesting that using locality is not the optimal way to allocate funds.

Recently, researchers have gained greater interest in what factors *subconsciously* affect VC decisions. For example, Brooks and colleagues found that gender and physical attractiveness are factored into VC decisions (Brooks et al., 2014), both of which have no bearing on the potential performance of the entrepreneurial idea. Additionally, research has shown that VCs have this "gut feel" that leads to an investment when they have an "interpersonal chemistry" with the entrepreneurs (Watson & Riquelme, 2002). Evidence from these studies show that VCs put major emphasis on intangible, immeasurable aspects of the entrepreneurs' character, which may play no role in the viability of the ideas. This is not suggesting that a strong, determined management team is unnecessary for a business' success, but rather that VCs may put excessive weight on superficial factors.



## **RESEARCH OBJECTIVE**

Given the research findings on similarities and likeability, it is important to determine if minor similarities that have no effect on an entrepreneur's business increase the probability of a VC investment. In this study, I decided to test the effect of coming from the same home state<sup>1</sup> and of having the same favorite hobby as demographic and behavioral variables, respectively. The availability and affect heuristics may play a major role in this mechanism, as VC investors may have had an unusually positive or negative experience with entrepreneurs with these backgrounds; this may lead to a subliminal influence on the investment decision. This project's purpose was to determine whether superficial similarities in background, all else being equal (i.e. quality of the business idea), increase the investor's perception of the future success of the venture. This research is a first step in determining the presence or absence of investment biases that will later be investigated in real VCs.

## **HYPOTHESIS**

Given previous research on the connection between similarities and liking along with that on "gut feeling" with VC decisions, superficial similarities between investor and entrepreneur will increase the investor's belief in the business' likelihood of success.

## **RESEARCH SIGNIFICANCE**

This research on venture capital decision-making is most relevant to a) venture capitalists, b) entrepreneurs (current and aspiring), and c) behavioral psychologists. First, most venture capitalists want to believe that they value businesses using objective data (i.e. viability of ideas, product-market fit, market size, etc.) when asked to reflect on how they make these

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<sup>1</sup> It is important to note that my research was focused on the effects of the actual similarity of home state between the subject and entrepreneur on the subject's prediction of success. This differs from the home-state investment bias, which predicts that investors will deploy capital close to home due to its convenience and ability to help directly run/control the business.

decisions. However, recently researchers have stressed that there are superficial, less relevant characteristics of entrepreneurs that lead to higher or lower likelihood of investment.

Second, this research is invaluable to current entrepreneurs who are pursuing VC investments and aspiring entrepreneurs who have an idea and are wondering how best to secure seed funding. This can help them to put in perspective how VCs make decisions and to adjust what they emphasize in pitches dependent on the findings. Third, this research will intrigue social and behavioral psychologists by applying some of their previous theories to a field where this research has been limited. Specifically, the study of heuristics and likeability has always interested psychologists but this provides practicality in a domain that has exploded in popularity in recent years. According to the theories explained in the literature review, these behavioral psychologists will expect that the VCs will be slightly biased in favor of those with superficial similarities and thus will be more likely to foresee success in their ventures.

All three of the audiences are going to expect to see different arguments. VCs and entrepreneurs want to believe that investment decisions are based on objective, observable attributes of their ideas. If it is shown that VCs can be susceptible to biased judgments in the presence of superficial similarities, they will want to take precautionary measures to avoid these in future pitches. Similarly, entrepreneurs go into a pitch with the expectation that VCs are solely analyzing the merits of their businesses (and perhaps, the strength of their team) in making investment decisions. It would also make them uncomfortable to find that characteristics that are out of their control are contributing to the decision made. However, it can provide entrepreneurs with the opportunity to stress similarities with the VCs, so they can exploit these subconscious decision processes to gain funding. On the other hand, social psychologists would be primarily interested in the arguments based on proven theories. For example, they want to see the role of

heuristics, Gestalt principles and other behavioral concepts that researchers have repeatedly proven in the past.

Most debates on VC research occur due to the use of introspective and ex post research meaning that VCs are asked how they made their decisions after they have occurred (Shepherd and Zacharakis, 1999). In these cases, it is clear that VCs will put greater emphasis on their skill rather than subtle cues; VCs, like all other people, want to feel as though their successes are directly related to their abilities. This study is ex ante and promotes individuals to make decisions rather than analyzing how they came to previous ones. In other words, this study does not rely on self-reporting, which is subject to biases that VCs either do not know exist or are too reluctant to admit. This allows for a better analysis of heuristics being used instead of reliance on self-reporting after the fact. Most previous research done on subconscious and superficial cues has been met with slight backlash from practitioners, which is expected from individuals who want to be known for their visionary skills in determining whether a business will be successful or not. One issue that may be raised as a result of my research is that I will be using average individuals as subjects rather than VCs; I argue that individuals fall into the same decision-making traps, but I concede that it will be necessary to expand this research to a study on only VCs. This research is a small step in determining the true insight and foresight of venture capitalists versus their reliance on likeability and similarity to previous experiences.

## **METHODOLOGY**

### *Subjects:*

Given the preliminary nature of this research and the difficulty in accessing hundreds of venture capitalists in such a short time frame, University of Pennsylvania students were used as subjects. The purpose of this initial research was to first determine if there is an innate bias for

individuals with similarities in the sphere of venture capital decision-making prior to testing professionals in the field. With the help of the Wharton Behavioral Lab, the survey (discussed below) was sent out to a panel of students who volunteer to participate in research studies. Upon opening the survey, the subjects read an informed consent form and either agreed to proceed or exited the study. All responses were kept completely confidential. Upon completion of the study, the subjects were made aware that the entrepreneurs and the pitches were fabricated for the purpose of the research. The survey received 566 responses of which 361 were used for analysis.

*Survey:*

The survey was given online using Qualtrics software so that it was dynamic for subjects. In other words, later questions adjusted based on answers to previous questions. The survey was composed of three parts:

- 1) **Section I: Demographic/Background Questions** (Appendix A): These asked straightforward questions about the subject that served as the basis for the superficial similarities later in the survey. Subjects were made aware that they were not required to answer any particular question if they felt uncomfortable. Additionally, subjects were prompted to answer some questions starting with a capital letter (i.e. “A”) and others with a lowercase letter (i.e. “a”) because responses to these questions would later be input into the entrepreneurs’ backgrounds. Therefore, if the input response would be in the middle of a sentence, it was necessary for the response to start with a lowercase letter to prevent the subject from recognizing the use of his/her earlier answers. The subjects were told that they were asked to start certain answers with uppercase or lowercase letters “to make sure you are answering the questions carefully.”

2) **Section II: Entrepreneur Backgrounds & Pitches** (Appendix B): Subjects read two brief prompts that included a section with the entrepreneur's background and a section with the entrepreneur's pitch. In this study, the two variables tested to determine if similarities between subject and entrepreneur increased the predicted likelihood of success were home state (demographic variable) and favorite hobby (behavioral variable). There were two versions of the study to which the subjects were randomly assigned. In one version, Pitch A would have an entrepreneur background for John that included the same home state as the subject, which was piped in from a response in Section I, but Pitch B would have an entrepreneur background for Riley with no similarity. In the other version, Pitch A would have an entrepreneur background for John with no similarity, but Pitch B would have an entrepreneur background for Riley that included the same favorite hobby as the subject, which was piped in from a response to Section I. It is important to note that Riley was selected as the name for Pitch B to provide a unisex name that would avoid preconceptions or confusion with any hobby (i.e. wrestling versus painting nails).

After reading each of the backgrounds and pitches, the subject was required to predict the success of each entrepreneur's business idea on a scale of 1 being very unlikely to succeed and 7 being very likely to succeed (Brooks et al., 2014). The quality of the two entrepreneurs' ideas need not be identical in quality (but cannot be drastically different) given that analysis was performed comparing likelihood of success ratings *within* pitches between subjects who had a superficial similarity and those who did not.

3) **Section III: Follow-Up Questions** (Appendix C): In this final section, subjects were asked to rank the factors that they believed had the most to least impact on how they

made their predictions of success. In this question, both entrepreneur background and gut feeling were provided options. Next, subjects were required to allocate a certain percentage of \$10,000 to each of the two pitches that they had previously read about. Lastly, they were asked to briefly describe how they came to the funding distribution that they selected.

### *Statistical Analysis:*

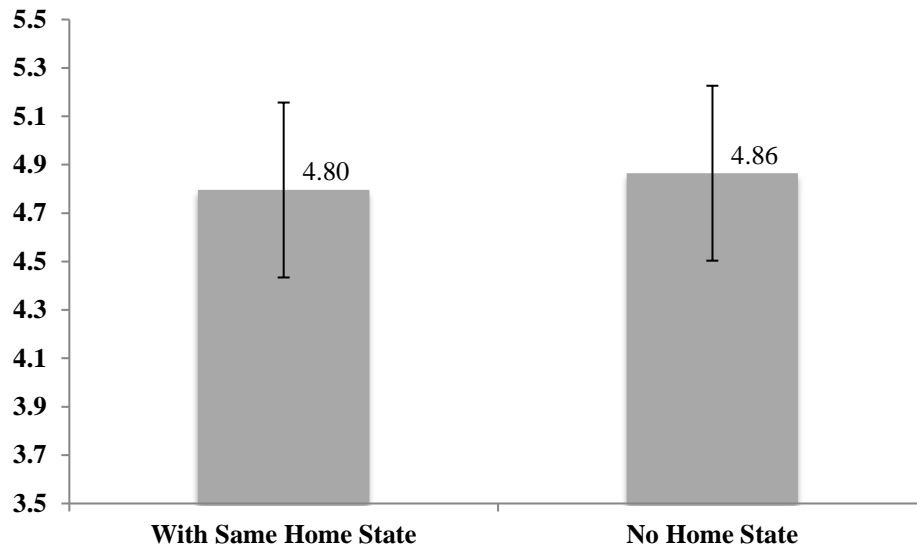
After collecting all of the data from the surveys, I had to exclude of all subjects that did not follow the directions regarding uppercase and lowercase responses. As mentioned earlier, it was necessary to exclude these responses since it would be obvious to the subject what was being tested if they did not respond as directed (i.e. uppercase letter in the middle of sentence). This reduced the sample size from 566 to 361 subjects.

With the clean data, I performed two t-tests to determine whether the difference between the mean likelihood of success with a similarity was significantly different from that without a similarity. Specifically, this study investigated whether the mean score (from 1-7) of subjects who had the same home state in Pitch A was statistically different from that of subjects who did not have this in Pitch A. The same analysis was performed with favorite hobby in Pitch B. After calculating the t-scores, the p-values were calculated using .05 as the threshold for statistical significance.

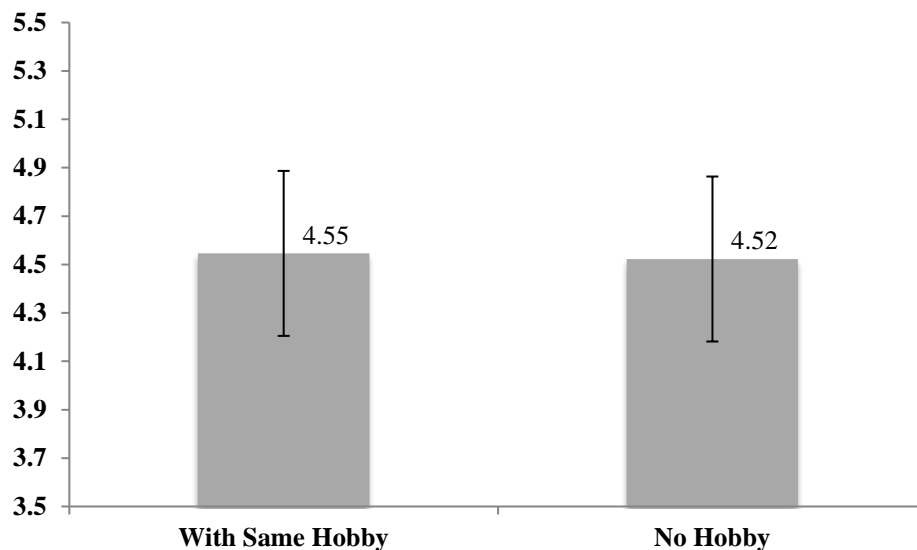
## **RESULTS AND DISCUSSION**

There was no statistically significant difference between the mean predicted likelihood of success in the presence versus absence of the same home state,  $t(359) = -0.55$ ,  $p = 0.29$  (Figure 1). Additionally, there was no statistically significant difference between the mean predicted

likelihood of success in the presence versus absence of the same favorite hobby,  $t(359) = 0.16$ ,  $p = 0.44$  (Figure 2).



**Figure 1:** T-test for the difference between the means resulted in t-score = -0.55, degrees of freedom = 359, p-value = 0.29. Results from survey data of 361 participants show no statistically significant relationship between subjects' having the same home state as entrepreneur and their prediction of the entrepreneur's likelihood of success.



**Figure 2:** T-test for the difference between the means resulted in t-score = 0.15, degrees of freedom = 359, p-value = 0.44. Results from survey data of 361 participants show no statistically significant relationship between subjects' having the same favorite hobby as entrepreneur and their prediction of the entrepreneur's likelihood of success.

There are two potential reasons that there was no effect found between superficial similarities and predicted success of entrepreneurs' ventures. First, given the subtlety of the manipulation, the subjects may not have recognized the similarity in the entrepreneur background; this would indicate that they read the pitches just like the other subjects considering they did not account for the similarity. Second, for the individuals who did recognize the similarity, they may have found it to be negligible given that their task was to determine the likelihood of success of the venture. Analysis of responses from the follow-up questions (Appendix D) shows that the subjects did not find the entrepreneur's background to be important in their prediction of success. Additionally, they attributed the majority of their decision to more objective variables like product-market fit, potential for monetization and profitability, and practicality of implementation.

Regardless of which reason led to this result, the findings reject the hypothesis that humans are subconsciously biased toward others with slight similarities in situations where they are asked to predict the success of the people's ideas. If this finding holds in future research studies, some of the speculation around VCs overuse of biases can be quelled and entrepreneurs can rely on the merits of their ventures over irrelevant factors. It is important to note, however, that this finding cannot necessarily generalize given that none of the subjects were asked to contribute their own money; therefore, the subjects had no vested interest, which is clearly not the case with actual VCs.

Another interesting finding that may point to the benefits of talent and expertise in the VC industry is the significant positive correlation between the subjects' predictions of success for Pitch A and Pitch B. In other words, there was a statistically significant relationship suggesting that a subject's prediction of success for Pitch A was related to the prediction of



success for Pitch B, regardless of which pitch had the similarity (i.e. in both random conditions),  $t(174) = 2.27, p = .01$  and  $t(183) = 3.12, p = .001$ . Considering that the entrepreneurs and their pitches were independent, we would expect there to be no relationship between expectations of success for the two. In the future, it would be necessary to test this with VCs to see if they are able to analyze and predict the success of ventures in different industries without demonstrating this positive correlation. If this positive correlation does not appear in VCs, it could indicate the importance of experience and expertise in the industry that helps them to avoid anchoring biases.

In addition to testing the hypothesis regarding the predictions of success, I also analyzed the funding decision on the allocation of \$10,000 to each of the pitches. As the home-state investment bias would suggest, the individuals who saw the entrepreneur (John) from the same home state would allocate a larger proportion to him than to the other. Analysis of this data showed that this did not occur, and in fact, there was no difference between the amount allocated to John in the presence (half subjects) and absence (half subjects) of the same home state,  $t(359) = -0.38, p = 0.35$ . This result could be due to the fact the funds being distributed were completely hypothetical or that the subject did not recall that John was from the same home state. It is necessary to continue to study the home-state investment bias to determine if there are special situations where it does and does not hold.

Additionally, in the future, research should be done testing the same hypothesis but in a different setting. In particular, it is necessary to test using in-person pitches where the individual can emphasize the superficial similarity so that the investor can better absorb it. With the written background and pitch, the investor can easily glance over these similarities since there is no face-to-face interaction to underscore them. Furthermore, in-person pitches allow for flexibility and for individuals to demonstrate their charisma, which promotes liking (Cherulnik et al., 2001) and

therefore, can lead to higher likelihood of investments. Lastly, as mentioned earlier, if this future research supports the hypothesis presented in this study, it is important to perform similar tests with venture capital professionals to determine if these innate biases exist even in the presence of extensive experience and knowledge.

### **ACKNOWLEDGMENTS**

I would like to thank Prof. Joseph Simmons for guiding me in my research over the past year. Also, I thank Kate Kelley and the entire Wharton Behavioral Lab for helping to distribute my survey to hundreds of University of Pennsylvania students. Lastly, I want to extend my gratitude to all of the students who took the time to take the survey.

## **APPENDICES**

### **APPENDIX A**

#### **Section I. Background Questions:**

*Answer the following questions honestly and to the best of your ability. If you feel uncomfortable answering any particular question, feel free to skip it and move on.*

**To make sure you are reading the directions carefully, you MUST start answers to the following questions with an uppercase letter (i.e. "A").**

Gender: [Multiple Choice, Male or Female]

Age: [Free Response]

Home State: [Drop-down Multiple Choice]

Religion: [Drop-down Multiple Choice]

Ethnicity: [Drop-down Multiple Choice]

Favorite Book: [Free Response]

Favorite TV show or Movie: [Free Response]

Role Model (fictional or real): [Free Response]

Did you answer all the questions above starting with an uppercase letter?: [Multiple Choice, Yes or No]

#### **Section I Continued. Background Questions:**

*Please answer the following questions honestly and to the best of your ability. If you feel uncomfortable answering any particular question, feel free to skip it and move on.*

**To make sure you are reading the directions carefully, you MUST start answers to the following questions with a lowercase letter (i.e. "a").**

Birthday Month: [Drop-down Multiple Choice]

Major/Concentration (**must answer in exact form, i.e. economics**): [Free Response]

Favorite Hobby (**must answer ending with "-ing," i.e. playing video games**): [Free Response]

Favorite Color: [Free Response]

Career Aspiration (**must answer in exact form, i.e. accountant**): [Free Response]

Did you answer all the questions above starting with a lowercase letter?: [Multiple Choice, Yes or No]

**APPENDIX B** - Note: If subject saw Section IIA with the highlighted red text, he/she saw IIB without highlighted red text, and vice versa.

**Section IIA. Entrepreneur Pitch**

*Please read the following brief description of an entrepreneur ("Entrepreneur Background") followed by his idea ("Entrepreneur Pitch") for a venture he plans to start here at Penn.*

**Entrepreneur Background:** John is a student at Penn [from Home State] majoring in Biomedical Science. Both of his parents are doctors - one a general physician and the other an anesthesiologist. Influenced by his parents, John has always been interested in medicine, particularly in sleep patterns. He suffers from sleep-onset insomnia meaning he finds it very difficult to fall asleep at the beginning of the night. With the help of his father, he has created what he believes to be the best available solution for insomnia. [He plans to move back to Home State after graduation to run his company.]

**Entrepreneur Pitch:** John's product is a gel that is rubbed under the nose before going to bed that makes falling asleep easier. It incorporates natural fragrances like lavender that have been proven to act as anesthetics. A prototype has been made, and he guarantees it works since it has significantly helped his insomnia. Additionally, it has gone through over three years of laboratory testing, but John wants to get real testimonials as to whether it works. Since there are not technically any drugs in the product, it does not require FDA approval and can be put onto shelves as soon as John decides. John sees his biggest obstacle moving forward to be educating the everyday consumer about his product and why it is better than the alternatives. After doing some research, John has found that over 60 million people have insomnia in the US establishing an enormous opportunity. He stresses that his product's competitive advantages are unparalleled to the currently used methods of treatment: drugs and nose strips. Specifically, it is cheaper, has fewer side effects and does not lead to drowsiness the next day like many of the drugs on the market. On the other hand, it actually works to help people fall asleep unlike the nasal strips found in all pharmacies.

In your opinion, how likely is this venture to succeed? (1 = extremely unlikely; 7 = extremely likely):  
[Multiple Choice, #1 – 7]

**Section IIB. Entrepreneur Pitch**

*Please read the following brief description of another entrepreneur ("Entrepreneur Background") followed by his idea ("Entrepreneur Pitch") for a venture he plans to start here at Penn.*

**Entrepreneur Background:** Riley is a student at Penn majoring in Materials Science and Engineering. Riley is outspoken and energetic [and enjoys Favorite Hobby with any free time.] [When not Favorite Hobby,] Riley is working on a new start-up. After performing research for the past two summers, Riley, with the help of Penn professors, synthesized a material that is described as "Styrofoam that does not destroy the environment." Knowing that the venture has the potential to be socially responsible and profitable, Riley plans to pursue it full-time.

**Entrepreneur Pitch:** Styrofoam, currently used for insulation and packaging, does not biodegrade for at least 500 years. On the other hand, Riley's product has equivalent properties (i.e. insulation, structure, buoyancy, etc.) as Styrofoam but biodegrades within five years, 100 times faster. Having perfected the material, Riley is in the process of determining how to best mass produce it so that it can compete in the market. The team is struggling to find a factory with the necessary equipment and in large enough quantities to achieve this goal, but the plan is to go to China next month to meet with factory owners there. Once manufacturing is secured, Riley is confident that the cost per unit will be the same as Styrofoam; however, his start-up clearly does not have the distribution capabilities that Styrofoam does. To get a grasp of the size of the market, Riley likes to point out that Americans throw away about 25 billion Styrofoam cups per year. Due to pressure from environmental groups, consumer-based companies have been gradually moving toward competitive offerings like paper, but construction companies continue to heavily use Styrofoam. Riley plans to reach out to environmental organizations/agencies (i.e. Environmental Protection Agency) to gain support and traction to overtake Styrofoam.

In your opinion, how likely is this venture to succeed? (1 = extremely unlikely; 7 = extremely likely):  
[Multiple Choice, #1 – 7]

## APPENDIX C

### Part III. Follow-Up Questions

Rank the following factors from MOST important to LEAST important in how you made your predictions of success:

- Product-Market Fit
- Entrepreneur Background
- Potential for Monetization and Profitability
- Size of the Potential Market
- Practicality of Implementation
- Gut Feeling
- Competitive Advantage
- Other: \_\_\_\_\_

If given \$10,000, what percentage would you invest in each of the start-ups? *Note: the two investments must add up to 100 OR LESS.*

Sleep Gel: [Sliding Scale from 0 to 100]

Styrofoam Alternative: [Sliding Scale from 0 to 100]

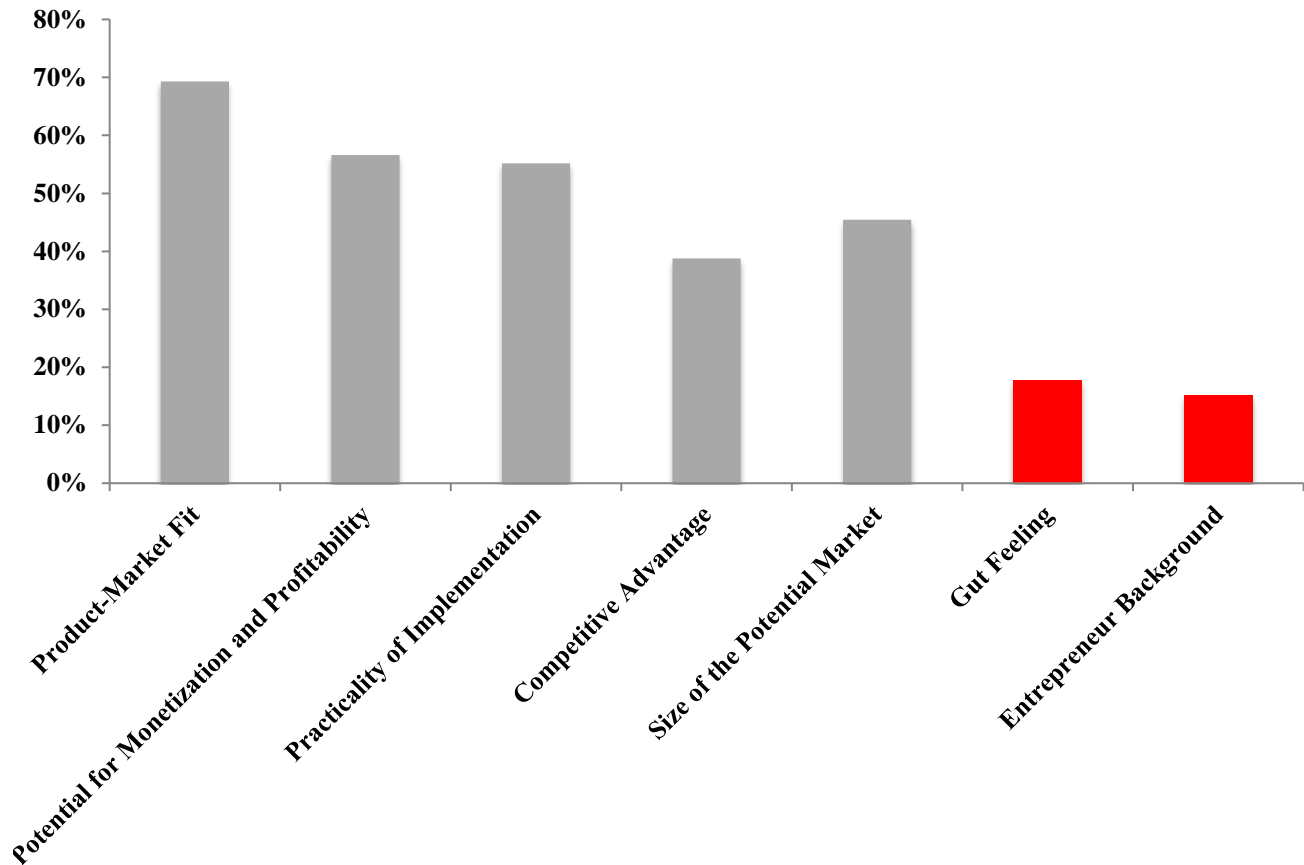
Please briefly describe how you came to the funding distribution above: [Free Response]

## APPENDIX D

Decision Variable	1 (MOST)	2	3	4	5	6	7 (LEAST)	Totals
Product-Market Fit	28%	24%	18%	15%	11%	3%	1%	100%
Practicality of Implementation	23%	18%	14%	17%	16%	9%	4%	100%
Potential for Monetization and Profitability	17%	19%	21%	18%	13%	8%	4%	100%
Competitive Advantage	10%	14%	15%	15%	20%	13%	12%	100%
Size of the Potential Market	9%	16%	20%	20%	17%	12%	4%	98%
<b>Gut Feeling</b>	<b>9%</b>	<b>3%</b>	<b>6%</b>	<b>6%</b>	<b>11%</b>	<b>22%</b>	<b>41%</b>	99%
<b>Entrepreneur Background</b>	<b>3%</b>	<b>6%</b>	<b>6%</b>	<b>8%</b>	<b>12%</b>	<b>32%</b>	<b>31%</b>	98%
Totals	99%	100%	99%	100%	100%	100%	97%	

**Figure 3:** Percentages of subjects that selected each decision variable/factor as most important (1) through least important (7) on their predictions of success. Subjects found gut feeling and entrepreneur background, two factors that were the focus of this study, to be less important than objective factors. Note that some rows/columns do not add up to 100% because subjects were provided with an option for “Other” that is not included in this analysis.

### Percentage of Subjects Selecting Variable as Top 3 Most Important in Making Predictions



**Figure 4:** Percentages of subjects that selected each decision variable/factor in top three most important for their predictions of success. Only 18% and 15% of subjects said gut feeling and entrepreneur background, respectively, were in the top three most influential factors for their decision on how likely the pitches were to succeed.

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