

THE RELATIONSHIP BETWEEN THE BIG FIVE PERSONALITY TRAITS
AND PARANORMAL BELIEF

by

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A thesis submitted in partial fulfillment of the requirements
for the Honors in the Major Program in Psychology
in the College of Sciences
and in The Burnett Honors College
at the University of Central Florida
Orlando, Florida

Fall Term 2013
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ABSTRACT

Studies into paranormal belief and the effects thereof have been gaining more attention. This study looked at the Big Five Personality Traits and how they could relate to belief in the paranormal, specifically which personality traits, if any, lended themselves to paranormal belief more than others. Four hundred forty-six college-age participants completed a Big Five survey as well as the Revised Paranormal Belief Scale. Results from a multiple regression showed a significant relationship between gender, religion, level of education achieved by the participant's mother, extraversion, and neuroticism (emotional stability) in relation to paranormal belief. Implications and elaboration of findings are discussed.

Keywords: paranormal belief, big five personality traits, five factor model, personality

DEDICATION

I would like to dedicate this thesis to:

My parents: Your endless patience, support, and love have shaped me into who I am today. Your unwavering encouragement and willingness to listen helps me more than you could ever know.

ACKNOWLEDGEMENTS

I would like to acknowledge and give my thanks to my highly skilled, knowledgeable, and insightful committee members. A very special thank you goes to Dr. Cyrus Azimi who encouraged me to pursue the HIM program. I would also like to thank Dr. Mustapha Mouloua who was always made time for me when I asked and was ready to give helpful critiques. A big thank you goes to Dr. Anthony Grajeda, who was kind enough to take a chance on a stranger and was always willing and ready to help, critique, and evaluate.

I would also like to show my appreciation to Dr. Daniel McConnell and Dr. Christopher Hanes, who were great sets of extra eyes close to the end of this journey and valued sources of insight and support.

Thank you!

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INTRODUCTION

Black cats being bad luck, communicating with the dead, moving things with your mind, witches, and astrology—all are examples of what could be considered paranormal. However, what is paranormal for one may not always be paranormal for the other. Literature concerning paranormal belief in psychology is growing, but still contains much controversy. This is partially due to varying definitions of what is and is not paranormal by researchers (Irwin, 1998). Despite this, in North America alone more than half of adults believe in psychic powers and extrasensory perception (Rice, 2003). Even with the rise of the paranormal in the media, whether it is in movies, books, or television, there is still a stigma on those who believe in the supernatural to exist. As researcher Gordon Claridge put it, “Socio-cultural influences often dictate whom we label mystic and whom we label psychotic.” (Claridge, 2010, p.75) Personality could very well be a factor in whether or not a person subscribes to these beliefs.

Why is Paranormal Belief So Hard to Define?

One of the major issues in studying, measuring, and reporting information about paranormal belief comes from the fact that rarely do definitions of what is and is not paranormal stay consistent across studies in the field. Some researchers might classify belief in religion as being paranormal or supernatural, others might not. Lindeman and Svedholm note that belief in witches has been linked in various studies to being either paranormal, supernatural, magical, or even superstitious (Lindeman & Svedholm, 2012). They also point out that another major conflict within the field that is preventing cohesiveness is varying definitions as to what

paranormal, superstitious, magical, and supernatural even mean. No true, accepted definition of these constructs exists that is universally held in the field.

In fact, when analyzing literature in the field, Lindeman and Svedholm propose that the concepts of paranormal, supernatural, magical, and superstition are not fundamentally different from one another (Lindeman & Svedholm, 2012) They also suggest that any discrepancies between the terms and their meanings is likely a matter of connotation instead of any firm division or difference in definition between constructs. Like others before them, such as Irwin (1998), Lindeman and Svedholm encourage further research and the development of a cohesive definition of these terms in order to make research more effective.

What Demographics Tend to Believe?

Paranormal belief appears to be affected by gender and by education level. Research has found that women were more likely to believe in witchcraft, superstition, traditional religious belief, spiritualism, precognition, and psi than men, but men were more likely to believe in extraterrestrial life. It has also been reported that students of vocational schools tend to have higher paranormal beliefs than their university counterparts, except in areas of religious belief, in which there was no difference between the groups surveyed (Aarnio & Lindeman, 2004).

When looking at ethnicity, however, there does not appear to be a simple answer. According to Tobacyk, Miller, Murphy, and Mitchell, African-American university students appear to hold stronger beliefs than their Caucasian counterparts in spiritualism, superstition, and witchcraft. This same study showed that Caucasians tend to hold higher levels of traditional religious belief and belief in extraordinary life forms (Tobacyk, et al., 1988).

Similarly, other research has shown that paranormal beliefs, with the exception of traditional religious belief, are more widely held by younger persons rather than older persons (Emmons & Sobal, 1981). With closer examination, there appears to be no relationship between age and belief in UFOs (Randall, 1990).

Pros and Cons of Paranormal Belief.

Researchers have suggested that paranormal beliefs could be used by persons to cope with a chaotic and unpredictable world (Perkins, 2001). Others have proposed that paranormal belief is a result of fantasy proneness, where a person has a set of characteristics that make them more likely to engage in fantasy more than the average person. This involves spending excess time fantasizing, reporting vivid childhood memories, experiencing paranormal phenomena, having fantasies so vivid that they come close to hallucinations, or even having intense religious experiences (Wilson & Barber, 1983).

A recent study of current literature also showed that, in general, believers in the paranormal tend to “make more deductive reasoning errors and display more delusional ideation, have poorer impulse control and organizations in executive functioning, perceive chance events and unchosen experiences as meaningfully connected, be more susceptible to suggestions consistent with their own paranormal beliefs, be prone to hindsight and confirmatory biases” which aid in “impairing the critical thinking processes”, and finally “be more fantasy prone, have higher levels of dissociativity, absorption and creativity; be unusually prone to false memories.” (Soh, Lee, Ng, & Chee, 2011, p.3)

However, not all research agrees that belief in the unexplained and paranormal is damaging to the psyche or indicative of mental illness. Clarke demonstrated that participants

who scored high on belief in spiritualism, psychic ability, and superstition correlated positively with high scores on self-actualization. Essentially, persons in this study who were self-directing, self-accepting, and were capable of freely expressing their emotions tended to also have more of these paranormal beliefs than their counterparts (Clarke, 1993). Research has also found that paranormal belief is not always an indicator of mental illness, but could instead be related to religious followers or those experiencing religious experiences (Matteo, Vellante, & Preti, 2012).

Some researchers (Claridge, 2011; Jackson 1997) even suggest a healthy form of schizotypy or psychoticism, which tend to have a common thread of belief in the paranormal or unusual experiences, can be related to positive outcomes, such as religious experience and creativity.

Paranormal Belief, Schizophrenia, and its Subsets.

Schizotypy can be seen as a possible vulnerability to developing schizophrenia with cognitive, perceptual, and affective symptoms (Meehl, 1990). Essentially, those who test highly for markers for schizotypy are more likely to develop similar symptoms to schizophrenia or a psychosis similar to schizophrenia (Swami, Pietschnig, Stieger & Voracek, 2010). Characteristic of schizotypy is a possible belief in magical thinking, unusual experiences, or delusional thoughts (Swami et al., 2010).

It has been shown as early as 1974 that those who said they believed in extraordinary phenomena tend to receive higher scores in Hypomania and Schizophrenia scales when administered the MMPI (Windholz & Diamant, 1974). This has led into much research in paranormal belief paired with schizotypy, such as the study done by Thalbourne and French. Their study showed that persons believing in and claiming experience of extrasensory

perception, psychokinesis, life after death, and possibly other extraordinary phenomena, tended to score higher on measures geared towards detecting schizoaffective disorder and schizotypy (Thalbourne & French, 1995).

But is schizotypy always negative? Jackson (1997) proposed the idea that there could be a form of benign schizotypy in the form of religious experiences. He argues that there could be areas of value in this category, along the lines of problem solving benefits. Recently, schizotypy has been associated with aspects of religious belief and New Age practices (Farias, Claridge, & Lalljee, 2005). In other research following this line of thought, McCreery and Claridge (2002) found that perfectly functional and mentally healthy persons who believed in having experienced an out of body experience received higher scores on measures of psychoticism which can be related to traits of schizotypy. Since these were normal, average, mentally healthy individuals, it suggests that just because one scores high on some aspect of paranormal belief, does not mean there is some sort of deficiency. It is possible that belief in the paranormal is not exclusive to mental illness or indicative of it, but rather some other facet of personality or effects of a belief system.

Personality and Paranormal Belief.

Research looking at the Big Five in relation to belief in the paranormal yields mixed results and is also sparse.

There is some evidence showing that there is a relationship between paranormal belief, neuroticism, and extraversion (Thalbourne, Dunbar, & Delin, 1995; Thalbourne & Haraldsson, 1980), while other research has found no such relationship between these variables (Willing & Lester, 1997). This is surprising, given that neuroticism is generally characterized as the state of

being moody, emotional, or anxious (Thompson, 2008) and there has been research confirming that superstition, a subset of paranormal belief, is highly related to these states (Wiseman & Watt, 2004). Further, persons with high levels of anxiety are known to have a high need for a sense of control (Irwin, 2000), which would provide a possible explanation for a higher level of belief in superstitious practices or constructs. However, a major flaw to many of these studies, as pointed out by Wiseman and Watt, is that the Revised Paranormal Belief scale, which is possibly the most widely used scale to assess various levels of belief in the paranormal and is, in fact, used in this current study, only has what are seen as negative superstitious beliefs that relate to unfortunate things happening to the person. There is no assessment of positive superstitious beliefs, such as bringing good fortune or positive experiences.

Other research has shown that the openness factor of the Big Five is related to belief in the paranormal, education, and scores on the unusual experience factor of schizotypy (Swami et al., 2010). According to a report done by McCrae showing data, persons who score high on the Openness factor of the Big Five tend to be more flexible, experience seeking, and creative, among others (McCrae, 1996). It is possible that this natural affinity towards flexibility and experience seeking predisposes persons scoring high on Openness towards a higher likelihood of entertaining belief in paranormal phenomena and concepts, since persons scoring lower on Openness would, hypothetically, be less likely to modify their current belief system or consider extraordinary phenomena.

Even when researching personality outside of the traditional Big Five of openness, conscientiousness, extraversion, agreeableness, and neuroticism, such as the research by Auton, Pope, and Seeger (2003), there appears to be no difference in personality traits in high or low

believers of paranormal phenomena. This is in contradiction of research by Tobacyk and Mitchell (1987) who found data to support a connection between narcissistic personality traits and paranormal belief.

The Current Study.

Due to the difficulty of defining paranormal belief, paranormal belief for this study has been limited in this study to the areas studied in the Revised Paranormal Belief Scale proposed by Dr. Jerome J. Tobacyk. This scale measures traditional religious belief, witchcraft, superstition, spiritualism, extraordinary life forms, precognition, and psi (Tobacyk, 2004). Given that the Big Five are empirically supported to potentially be considered a human universal (McCrae & Costa, 1997), this study will assess personality in accordance with measures of the Big Five.

The Big Five Personality Traits pertain to openness, conscientiousness, extraversion, agreeableness, and neuroticism, also known now as emotional stability. Openness refers to being open to experience. It involves imagination, understanding of one's feelings, and intellectual curiosity. Conscientiousness pertains to levels of efficiency, organization, and systematic behavior. Extraversion assesses the level a person is outgoing, energetic, or sociable. Agreeableness is characterized by how friendly, approachable, easy to work with, or sympathetic a person is. Finally, neuroticism, or emotional stability, is seen as anxiety, moodiness, low resiliency, or jealousy (Thompson, 2008).

Following the Revised Paranormal Belief Scale, traditional religious belief is held as the idea that there is a single or multiple gods, a heaven and a hell, a devil, and a soul that continues to exist after the physical body dies. Witchcraft is assessed as a belief that witches and black

magic exist and that there is an ability to cast spells. Superstition is limited to the belief of certain things or events being unlucky, such as breaking a mirror being bad luck. Spiritualism is seen as a belief that spirits can communicate with the living and that spirits can freely travel, with or without bodies. An extraordinary life form is defined as life forms outside of the norm, such as extraterrestrials or the Loch Ness Monster. Precognition is the belief in predicting the future, such as through psychic ability or reading the stars. Psi refers to paranormal processes such as extrasensory perception and psychokinesis, or the ability to move things with one's mind.

This study's goal is to research paranormal belief and its relation to the Big Five Personality Traits. There does not appear to be much literature in the field comparing the two, as most studies focus on the connection between the spectrum of schizophrenia and belief in the paranormal or paranormal belief and religiosity. As such, this study aims to add more data to the field, encourage and contribute further research in the relationship of personality in this complex belief system, and assist in eventual cohesion of the literature.

The Proposed Hypotheses.

This study proposes the following hypotheses:

- 1) There would be a relationship between personality traits and paranormal belief.
- 2) When measured against the Big Five, paranormal belief would correlate positively with Openness.
- 3) When measured against the Big Five, paranormal belief would correlate negatively with Neuroticism.

Although the third hypothesis is counterintuitive, the flaw of the Revised Paranormal Belief scale to only measure negative superstitions, as well as the bulk of literature that specifically

associates anxiety and other neurotic personality characteristics to the superstition subscale (Wiseman & Watt, 2004), leads to the possibility of belief in the paranormal as a whole, as measured by the Revised Paranormal Belief scale, to be negatively related.

METHOD

Participants.

The study consisted of four hundred forty-six participants recruited through a southeastern university's SONA system. The participants were able to sign up for and respond to the study through the SONA system. Upon completion, they received .25 SONA credits as compensation. All participants were treated in accordance with APA guidelines.

Materials and Procedures.

Data was collected using two surveys: Mini-markers, which is a brief version of Goldberg's unipolar Big-Five markers (Saucier, 1994), and the Revised Paranormal Belief Scale (Tobacyk, 2004). Participants were also asked basic demographic questions in order to gain a more comprehensive view of the sample.

Demographics. Participants were asked a total of 12 demographic questions. Such questions assessed age range, gender, ethnicity, religion, number of siblings, parental marital status, socioeconomic status, parental education levels, participant education level, and current academic year standing of the participant. (See Appendix A.)

Personality. The Mini-markers assessment of the Big Five contains 40 adjectives that participants use to describe themselves as accurately as possible. For each of the five dimensions of personality there are 8 adjectives that correspond to it. A 9-point scale is used for each adjective (*1=extremely inaccurate and 9=extremely accurate*). Results are taken at face value, with some values being positive and some being negative. These positive and negative values are then added or subtracted accordingly and divided by 8, the number of total adjectives per

dimension, to achieve the mean response for a given dimension. This scale was chosen for its short length, so as to decrease participant fatigue, and reasonable assessment of the Big Five dimensions (Saucier, 1994). (See Appendix B.)

Paranormal belief. The Revised Paranormal Belief Scale contains 26 items with a 7-point rating scale for each statement (*1=strongly agree and 7=strongly disagree*). Responses are taken at face value, aside from number 23 whose response is reversed, and added together to determine the score. The revised version of this scale has been shown to have higher reliability and validity than its predecessor and also an increased cross-cultural validity (Tobacyk, 2004). The Revised Paranormal Belief Scale measures 7 aspects of paranormal belief: traditional religious belief, psi, witchcraft, superstition, spiritualism, extraordinary life forms, and precognition. (See Appendix C.)

Statistical analyses. Frequency data was taken from the demographic questionnaire. A backwards multiple regression was used to see to what extent demographic information and scores on the mini-markers could predict scores on the Revised Paranormal Belief Scale.

RESULTS

Frequency analyses were run on the demographic information provided by the participants. Graphs visually representing this data are available in Appendix F, Figures F1-F10.

An alpha level of .05 was used for the following test. A backwards multiple regression was conducted with the following predictor variables: age, gender, ethnicity/ethnic affiliation, religion/religious affiliation, father's marital status, mother's marital status, number of siblings, socioeconomic status of family, father education level, mother education level, participant education level, participant year in college, extraversion score, conscientiousness score, openness score, agreeableness score, and neuroticism score, with score on the Revised Paranormal Belief Scale as the outcome variable. The final model produced an R square of .103, which was statistically significant at $F(5, 425) = 9.733, p < .001$. The only predictors that remained in the final model were gender, religion/religious affiliation, mother education level, extraversion, and neuroticism (emotional stability). These predictors accounted for 10.3% of the variability in paranormal belief. Gender was significant and negatively related to paranormal belief, $\beta = -.128, t = -2.738, p < .006$. Religion was significant and positively related to paranormal belief, $\beta = .154, t = 3.326, p < .001$. Mother education level was significant and negatively related to paranormal belief, $\beta = -.156, t = -3.371, p < .001$. Score on extraversion was significant and positively related to paranormal belief, $\beta = .148, t = 3.126, p < .002$. Score on neuroticism (emotional stability) was significant and negatively related to paranormal belief, $\beta = -.114, t = -2.407, p < .017$. No other results were statistically significant. Table 1 below outlines the significant results.

Table 1. Significant Results of the Multiple Regression

Predictor	<i>B</i>	<i>B (SE)</i>	β	<i>t</i>	<i>p</i>
Gender	-8.431	3.080	-.128	-2.738	.006
Religion	1.834	.551	.154	3.326	.001
Mother Education Level	-4.164	1.235	-.156	-3.371	.001
Extraversion	2.908	.930	.148	3.126	.002
Neuroticism (Emotional Stability)	-2.365	.983	-.114	-2.407	.017

Note: $R^2=.103$, $P<.001$

DISCUSSION

The study presented gives a look into factors that could potentially contribute to belief in the paranormal. The results provided support for some of the proposed hypotheses. As stated before, the proposed hypotheses were:

- 1) There would be a relationship between personality traits and paranormal belief.
- 2) When measured against the Big Five, paranormal belief would correlate positively with Openness.
- 3) When measured against the Big Five, paranormal belief would correlate negatively with Neuroticism.

There was a relationship between personality traits and paranormal belief, however, paranormal belief did not relate significantly to openness when measured against the Big Five. The only significant personality traits to relate to paranormal belief were neuroticism and extraversion, where the third hypothesis proposed by this researcher was supported.

Possible Explanations of Findings.

Religion and paranormal belief. In line with some of the literature on the subject, the data shows that, for this sample of predominantly 18-21 year old college students, religious belief and belief in the paranormal are very strongly related. There is much controversy in this area since data shows that sometimes they are very highly related and sometimes they are not related at all. This could be indicative of more research needing to be done on age groups and the relationship between religiosity and belief in the paranormal, even so far as to look at which religious affiliations are the most related to paranormal belief or the least. A survey to assess how closely

one identifies with their religion might also be useful, as those who observe aspects of their faith more closely might have more or less paranormal beliefs than those who occasionally or loosely observe. Additionally, there could be a social influence in the college environment that could be a contributing factor in attitudes towards religion and paranormal belief.

Extraversion and paranormal belief. The positive relationship between paranormal belief and extraversion could be explained by the nature of extraverted persons. These individuals are very social and engage in many activities, which could explain a more receptive attitude towards belief in the paranormal or perhaps even a higher likelihood to indulge and explore activities that could be related or perceived to be related to paranormal belief.

Neuroticism and paranormal belief. Neuroticism, despite the results of previous studies mentioned in the introduction, was revealed to be negatively related to paranormal belief in this study. Although further studies would be needed to draw any conclusive cause-and-effect, there is a possibility that since the other studies may have only used the superstition subscale of the Revised Paranormal Belief Scale, that neuroticism is not related to paranormal belief as a whole as measured by the Revised Paranormal Belief Sale, but just to superstition. This could potentially be related to ideas of locus of control and trying to prevent perceived negative events from occurring in the form of superstitious actions or beliefs, which would be a likely concern for persons scoring high on neuroticism. Another possible answer could be that since the Revised Paranormal Belief Scale only measures superstitions that could be perceived as negative, the scale misses a subset of persons who would belief in good luck charms, throwing salt over one's shoulder to prevent bad luck, and other positively viewed superstitions.

Openness and paranormal belief. One truly puzzling result is the non-significance of openness in relation to belief in the paranormal. While an answer is not immediately clear as to why openness and paranormal belief are not related, it is possible that the intellectual curiosity characteristic of openness is more deeply rooted in scientifically supported phenomena. Since most paranormal belief is dismissed as being unsubstantiated and is often ridiculed, the potential for it to be dismissed by intellectuals could account for the lack of significance.

Mother's education level and paranormal belief. Probably the most curious result is the significance in level of education of the mother and belief in the paranormal. Results show that this is a negative relationship, implying that as the mother's education level increases belief in the paranormal decreases. Given the previously mentioned research by Aarnio & Lindeman (2005) stating that vocational students have higher paranormal beliefs than university students, it is possible that this is simply reflecting the previous study on a different level, but it is unclear as to why a similar result did not surface in relation to the father's education level. It is possible that for the sample collected, the mother was the primary caregiver and thus held a greater influence on the participant's attitudes towards the paranormal and unexplained. Since previous research, as well as the current study, have shown that women tend to hold more paranormal beliefs than men, it is very possible that if the mother was the primary caregiver in the home, she modeled or influenced these belief systems. However, since this researcher did not ask participants who the primary caregiver was in the participant's household, this is purely speculation, but could be an area of interest to future researchers.

Limitations of the Current Study.

This study was limited in a few important, key ways.

Gender. First, this study's sample is dramatically skewed when surveying gender, with 74.4% of the participants being female. This already sets the tone for a high report of belief in the paranormal according to the previous literature. However, since participants through the SONA system have the freedom to choose whichever research they wish to participate in, it is very possible that since women are more likely to believe in the paranormal they are also more likely to participate in activities relating to the paranormal, such as a research project or survey. It is possible that the pool of possible participants is more evenly distributed as being male or female, but because the title of the survey included the term 'paranormal belief,' women were more interested and thus more likely to complete the survey.

Generalization issues. Another major disadvantage of the surveyed population is that 67.5% of respondents identify as Caucasian/European, 56.3% identify as either Christian or Catholic, and 80.3% reported having a family in the middle socioeconomic class. This makes it difficult to confidently generalize the findings of this study to other demographics, or to say for certain that the results from this research either support or contradict previous research.

Future Research.

It is the opinion of this researcher that this is an area with unique promise and insight. Future research would be useful when looking at positive effects of belief in the paranormal. Although the sample acquired was skewed, it would suggest that not all paranormal beliefs would lend themselves to schizotypy and its associated disorders. Given that these are predominantly college-age students, it would suggest a level of academic success and achievement. Another area of interest would be paranormal belief, religious belief, and age. A look at the cultural acceptance of paranormal belief in relation to young adults paired with their

views of religion in this current age might lend itself to insight as to the conflicting data on the relationship between religiosity and paranormal belief. Paranormal belief as a coping mechanism is also a possibility to look in to and research. Persons might subscribe to belief in paranormal phenomena when their traditional routes of sense and reason fail them on some level to answer a question or explain an experience. Finally, parental impact on the acquiring and fostering of paranormal beliefs might be of interest in studying family dynamic and acquired traits and belief systems.

APPENDIX A
Demographic Questionnaire

APPENDIX A

Demographic Questionnaire

How old are you?

- 18-21
- 22-25
- 26-29
- 30-33
- 34-37
- 38-41
- 41-44
- 45-48
- 49+

What is your gender?

- Female
- Male

What is your ethnicity or what ethnicity do you most closely align with?

- African/African American
- Asian/Asian American
- Caucasian/European
- Hispanic or Latino
- Mixed; parents are from two different ethnic groups
- Native American
- Other

What religion or religious view do you most align with?

- Agnostic
- Atheist
- Buddhism
- Christianity
- Catholicism
- Hinduism
- Judaism
- Islam
- Wiccan/Pagan/Druid
- Other

How many siblings do you have?

- 0
- 1

- 2
- 3
- 4+

What is your father's marital status?

- Single
- Married
- Separated
- Divorced
- Remarried
- Deceased or absent

What is your mother's marital status?

- Single
- Married
- Separated
- Divorced
- Remarried
- Deceased or absent

What socioeconomic status does your family most closely align with?

- Lower class
- Middle class
- Upper class

What is the highest level of education your father completed?

- High school/GED
- Some college/Associate degree (A.A.)
- Bachelor's degree
- Master's degree
- Ph. D/M.D./Psy. D. or equivalent

What is the highest level of education your mother completed?

- High school/GED
- Some college/Associate degree (A.A.)
- Bachelor's degree
- Master's degree
- Ph. D/M.D./Psy. D. or equivalent

What is the highest level of education you have completed?

- High school/GED
- Some college/Associate degree (A.A.)

- Bachelor's degree
- Master's degree
- Ph. D/M.D./Psy. D. or equivalent

What is your current standing in college?

- Freshman/First year
- Sophomore/Second year
- Junior/Third year
- Senior/Fourth year
- Super senior/Fifth year and above
- Graduate student

APPENDIX B
The Revised Paranormal Belief Scale

APPENDIX B

Table 2

Revised Paranormal Belief Scale

Please put a number next to each item to indicate how much you agree or disagree with that item. Use the numbers as indicated below. There are no right or wrong answers. This is a sample of your own beliefs and attitudes. Thank you.

1=Strongly Disagree 2=Moderately Disagree 3=Slightly Disagree
4=Uncertain 5=Slightly Agree 6=Moderately Agree 7=Strongly Agree

1. The soul continues to exist though the body may die.
2. Some individuals are able to levitate (lift) objects through mental forces.
3. Black magic really exists.
4. Black cats can bring bad luck.
5. Your mind or soul can leave your body and travel (astral projection).
6. The abominable snowman of Tibet exists.
7. Astrology is a way to accurately predict the future.
8. There is a devil.
9. Psychokinesis, the movement of objects through psychic powers, does exist.
10. Witches do exist.
11. If you break a mirror, you will have bad luck.
12. During altered states, such as sleep or trances, the spirit can leave the body.
13. The Loch Ness monster of Scotland exists.
14. The horoscope accurately tells a person's future.
15. I believe in God
16. A person's thoughts can influence the movement of a physical object.
17. Through the use of formulas and incantations, it is possible to cast spells on persons.
18. The number "13" is unlucky.
19. Reincarnation does occur.
20. There is life on other planets.
21. Some psychics can accurately predict the future.
22. There is a heaven and a hell.
23. Mind reading is not possible.
24. There are actual cases of witchcraft.
25. It is possible to communicate with the dead.
26. Some people have an unexplained ability to predict the future.

Note. Item 23 is reverse scored. Traditional Religious Belief = Mean of Items (1, 8, 15, 22);

Psi = Mean of Items (2, 9, 16, 23); Witchcraft = Mean of Items (3, 10, 17, 24);

24

Superstition = Mean of Items (4, 11, 18); Spiritualism = Mean of Items (5, 12, 19, 25)

APPENDIX C
Mini-markers

APPENDIX C

Mini-markers

Dr. Gerard Saucier, 1994

Please use this list of common human traits to describe yourself as accurately as possible. Describe yourself as you see yourself at the present time, not as you wish to be in the future. Describe yourself as you are generally or typically, as compared with other persons you know of the same sex and roughly your same age. Before each trait, please write a number indicating how accurately that trait describes you, using the following rating scale:

- 1=Extremely Inaccurate
- 2=Very Inaccurate
- 3=Moderately Inaccurate
- 4=Slightly Inaccurate
- 5=Neither Inaccurate nor Accurate
- 6=Slightly Accurate
- 7=Moderately Accurate
- 8=Very Accurate
- 9=Extremely Accurate

- | | | | |
|---------------------------------------|---------------------------------------|--|---|
| <input type="checkbox"/> Bashful | <input type="checkbox"/> Energetic | <input type="checkbox"/> Moody | <input type="checkbox"/> Systematic |
| <input type="checkbox"/> Bold | <input type="checkbox"/> Envious | <input type="checkbox"/> Organized | <input type="checkbox"/> Talkative |
| <input type="checkbox"/> Careless | <input type="checkbox"/> Extraverted | <input type="checkbox"/> Philosophical | <input type="checkbox"/> Temperamental |
| <input type="checkbox"/> Cold | <input type="checkbox"/> Fretful | <input type="checkbox"/> Practical | <input type="checkbox"/> Touchy |
| <input type="checkbox"/> Complex | <input type="checkbox"/> Harsh | <input type="checkbox"/> Quiet | <input type="checkbox"/> Uncreative |
| <input type="checkbox"/> Cooperative | <input type="checkbox"/> Imaginative | <input type="checkbox"/> Relaxed | <input type="checkbox"/> Unenvious |
| <input type="checkbox"/> Creative | <input type="checkbox"/> Inefficient | <input type="checkbox"/> Rude | <input type="checkbox"/> Unintellectual |
| <input type="checkbox"/> Deep | <input type="checkbox"/> Intellectual | <input type="checkbox"/> Shy | <input type="checkbox"/> Unsympathetic |
| <input type="checkbox"/> Disorganized | <input type="checkbox"/> Jealous | <input type="checkbox"/> Sloppy | <input type="checkbox"/> Warm |
| <input type="checkbox"/> Efficient | <input type="checkbox"/> Kind | <input type="checkbox"/> Sympathetic | <input type="checkbox"/> Withdrawn |

APPENDIX D
IRB Approval Letter

APPENDIX D
IRB Approval Letter



University of Central Florida Institutional Review Board
Office of Research & Commercialization
12201 Research Parkway, Suite 501
Orlando, Florida 32826-3246
Telephone: 407-823-2901 or 407-882-2276
www.research.ucf.edu/compliance/irb.html

Approval of Exempt Human Research

From: **UCF Institutional Review Board #1**
FWA00000351, IRB00001138

To: **Cyrus Azimi and Co-PI: Autumn M. Perdue**

Date: **December 11, 2012**

Dear Researcher:

On 12/11/2012, the IRB approved the following activity as human participant research that is exempt from regulation:

Type of Review: Exempt Determination
Project Title: The Relationship between the Big Five Personality Traits and Paranormal Belief
Investigator: Cyrus Azimi
IRB Number: SBE-12-08895
Funding Agency:
Grant Title:
Research ID: N/A

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these changes affect the exempt status of the human research, please contact the IRB. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

In the conduct of this research, you are responsible to follow the requirements of the Investigator Manual.

On behalf of Sophia Dziegielewski, Ph.D., L.C.S.W., UCF IRB Chair, this letter is signed by:

Signature applied by Joanne Muratori on 12/11/2012 11:56:49 AM EST

A handwritten signature in black ink that reads 'Joanne Muratori'.

APPENDIX E
Informed Consent

APPENDIX E
Informed Consent



The Relationship between the Big Five Personality Traits and Paranormal Belief

Principal Investigator: Dr. Cyrus Azimi

Co-Principal Investigator: Autumn Perdue

Investigational Site: University of Central Florida SONA Systems

Researchers at the University of Central Florida (UCF) study many topics. To do this, we need the help of people who agree to take part in a research study. You are being invited to take part in a research study of approximately 200 persons, which will include students participating in the UCF online SONA system. You have been asked to participate in this study because you are a member of the SONA system or are enrolled in a class which is using the SONA system. You must be 18 years or older to participate in this survey and provide your consent. The principal investigator is Dr. Cyrus Azimi of the UCF Psychology Department.

What you should know about this research study:

- Someone will explain this research study to you.
- A research study is something you volunteer for.
- Whether or not you take part is up to you.
- You should take part in this study only because you want to.
- You can choose not to take part in this study.
- You can agree to take part now and later change your mind.
- Whatever you decide it will not be held against you.
- Feel free to ask all the questions you want before you decide.

Purpose of the research study:

The purpose of our study is to assess personality traits and how those interact with varying degrees of belief in the unexplainable.

What you will be asked to do in the study:

This study will ask you to participate in a voluntary online questionnaire. The questionnaire will ask you general demographic questions about yourself and then ask you about your personality and how much you believe or disbelieve in certain phenomena.

Location:

Online

Time required:

Each participant will fill out a questionnaire that will require no more than 30 minutes in total.

Risks:

There is little to no risk involved in participation of this survey. If you feel uncomfortable with the types of questions being asked on the questionnaires, you may cease participation at any time. If this study triggers negative past experiences, you can request the number to the UCF Counseling Center from one of the investigators. You will not lose any benefits if you decide to withdraw from the survey.

Benefits:

As a research participant, you will not benefit directly from this research.

Compensation or Payment:

There is no payment offered for this study, however extra credit may be assigned by SONA systems. Once you complete the study, we will send verification to SONA Systems which is in charge of assigning points to your account.

Confidentiality:

No personal data is being collected in this study. Your participation in this survey remains anonymous, therefore confidentiality is a non-issue.

Study contact for questions about the study or to report a problem:

If you have questions, concerns, or complaints, or think the research has hurt you, contact:

Dr. Cyrus Azimi, Faculty Supervisor, UCF Psychology Department at (407) 823-2544 or by email at cyrus.azimi@ucf.edu.

IRB contact about your rights in the study or to report a complaint:

Research at the University of Central Florida involving human participants is carried out under the oversight of the Institutional Review Board (IRB). This research has been reviewed and approved by the IRB. For information about the rights of people who take part in research, please contact: Institutional Review Board, University of Central Florida, Office of Research & Commercialization, 12201 Research Parkway, Suite 501, Orlando, FL 32836-3246 or by telephone at (407) 823-2901. You may also talk to them for any of the following:

- Your questions, concerns, or complaints are not being answered by the research team.
- You cannot reach the research team.
- You want to talk to someone besides the research team.
- You want to get information or provide input about this research.

If you are harmed because you take part in this study:

If you believe you have been injured during participation in this research project, you may file a claim with the UCF Environmental Health & Safety, Risk and Insurance Office, P.O. Box 163500, Orlando, FL 32816-3500 (407) 823-6300. The University of Central Florida is an agency of the State of Florida for purposes of sovereign immunity and the university's and the state's liability for personal injury or property damage is extremely limited under Florida law. Accordingly, the university's and the state's ability to compensate you for any personal injury or property damage suffered during this research project is very limited.

Signature: _____

Date: _____

APPENDIX F
Demographic Figures

APPENDIX F
Demographic Figures

Figure F1. Age Demographics as Reported by Participants

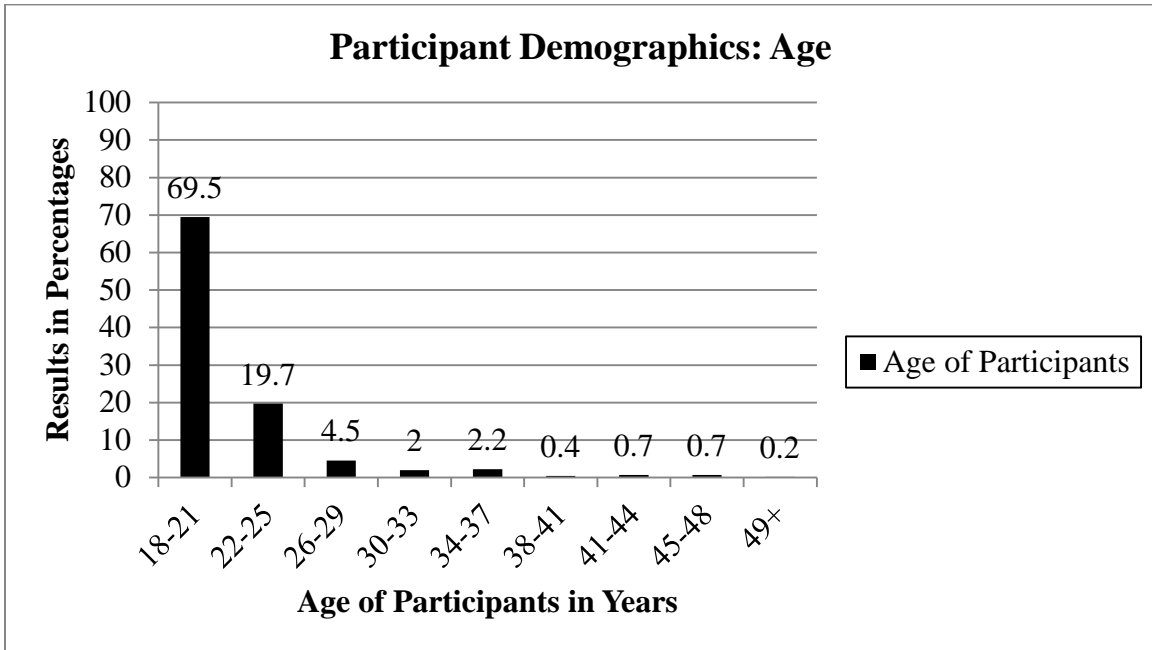


Figure F2. Gender Demographics as Reported by Participants

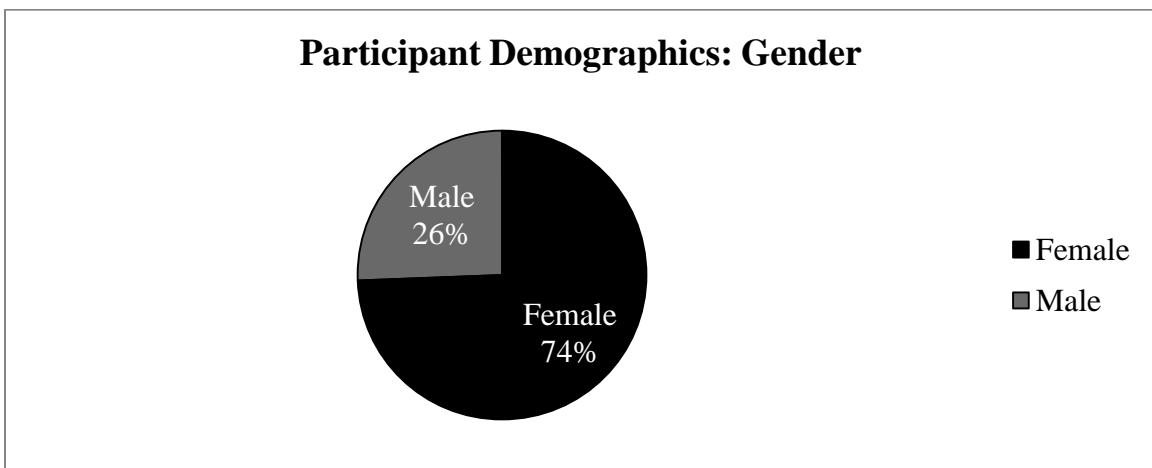


Figure F3. Ethnicity/Ethnic Identification as Reported by Participants

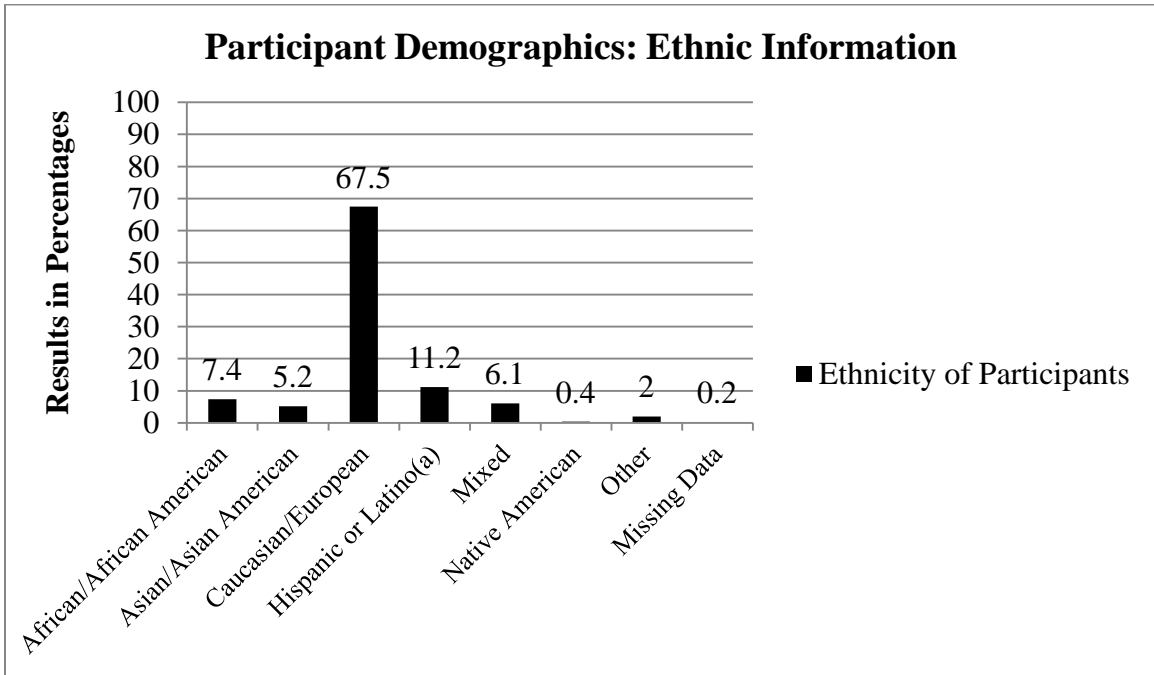


Figure F4. Religion/Religion Affiliation as Reported by Participants

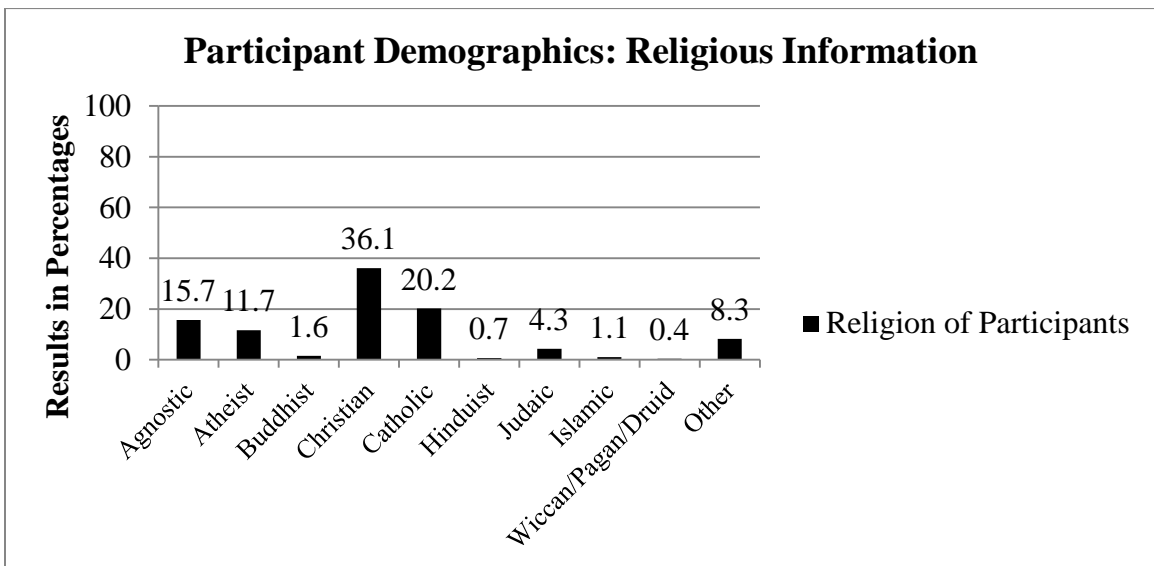


Figure F5. Number of Siblings of Participants as Reported by Participants

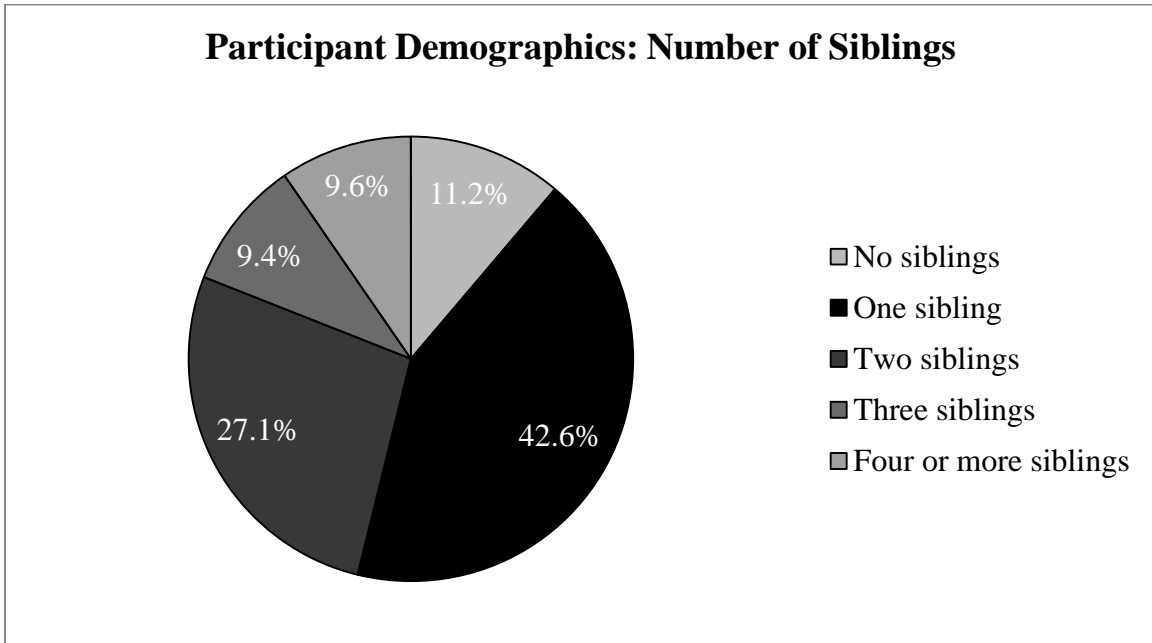


Figure F6. Marital Status of Parents of Participants as Reported by Participants

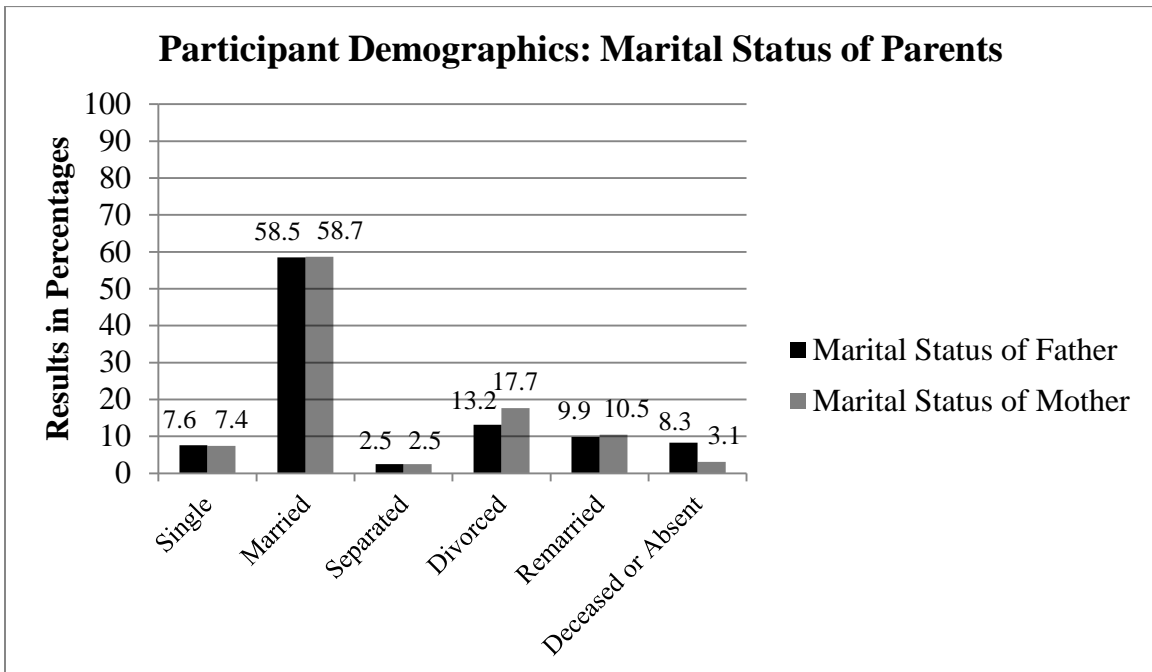


Figure F7. Education Level of Parents of Participants as Reported by Participants

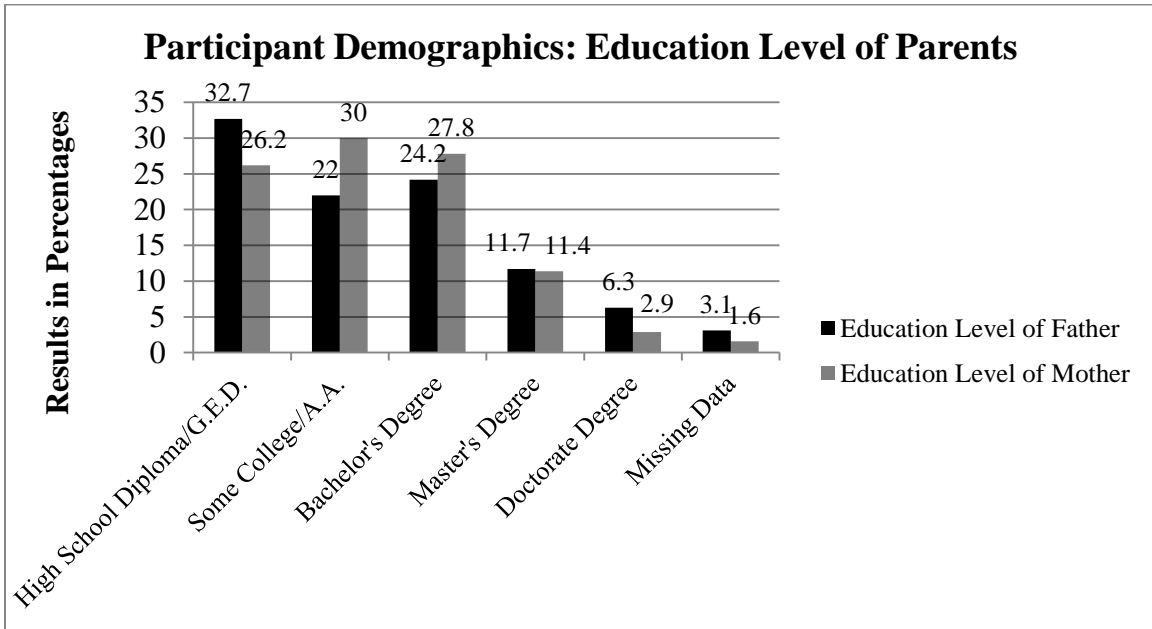


Figure F8. Family Economic Class as Reported by Participants

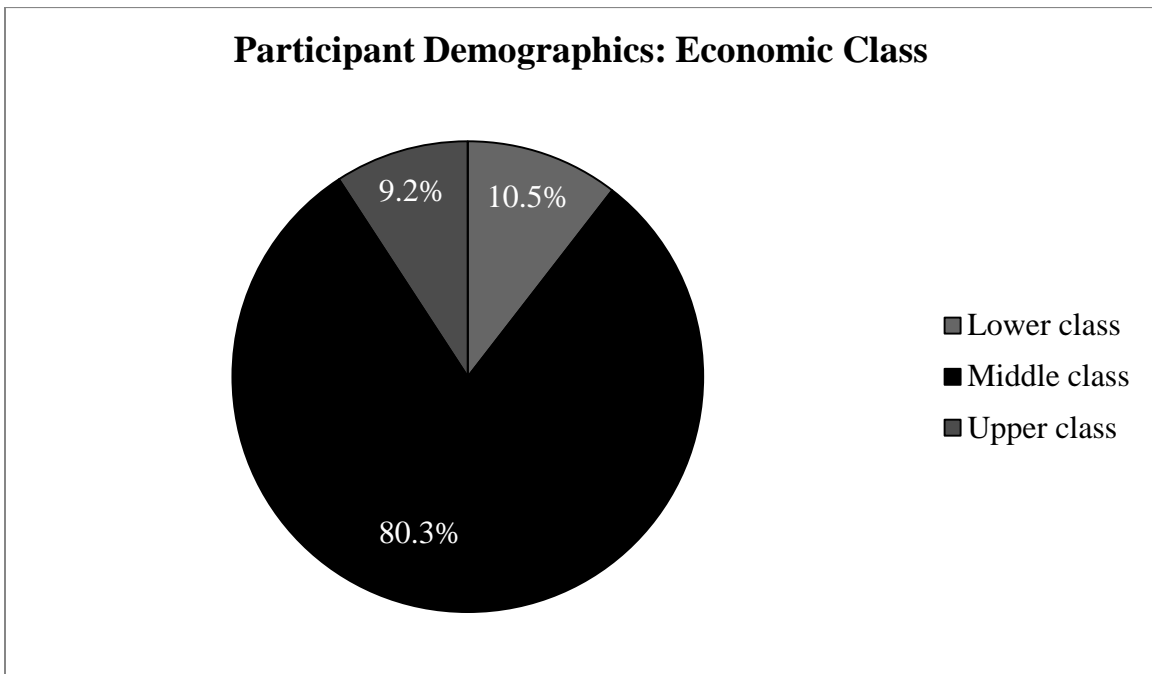


Figure F9. Education Level of Participants as Reported by Participants

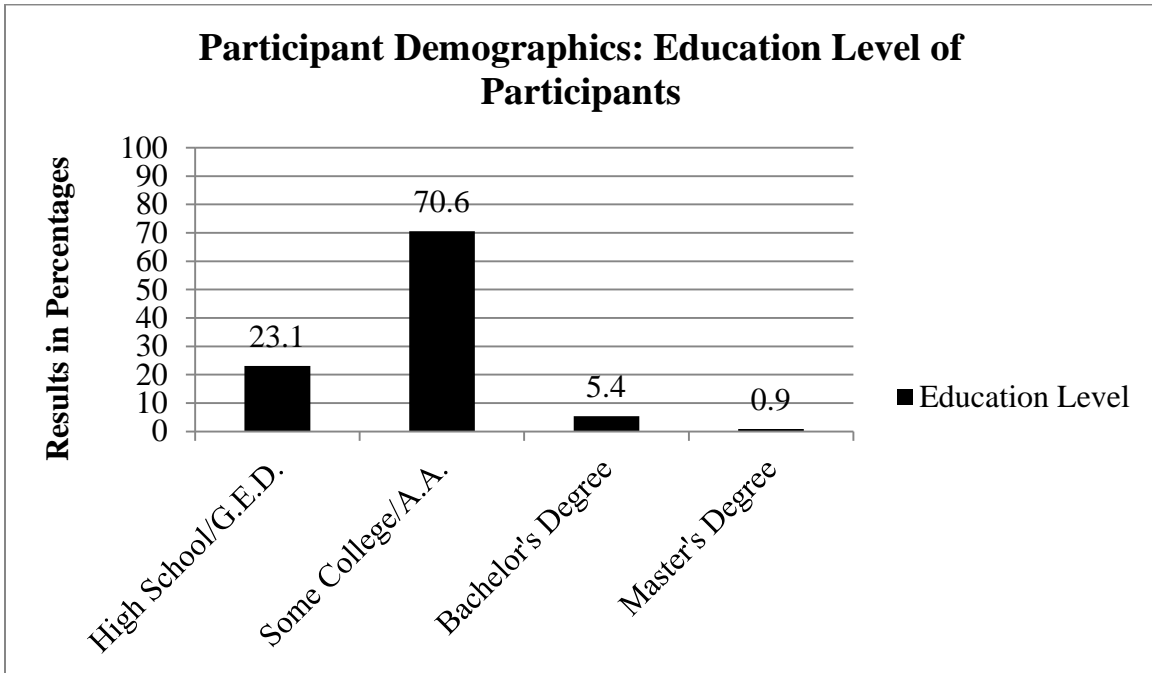
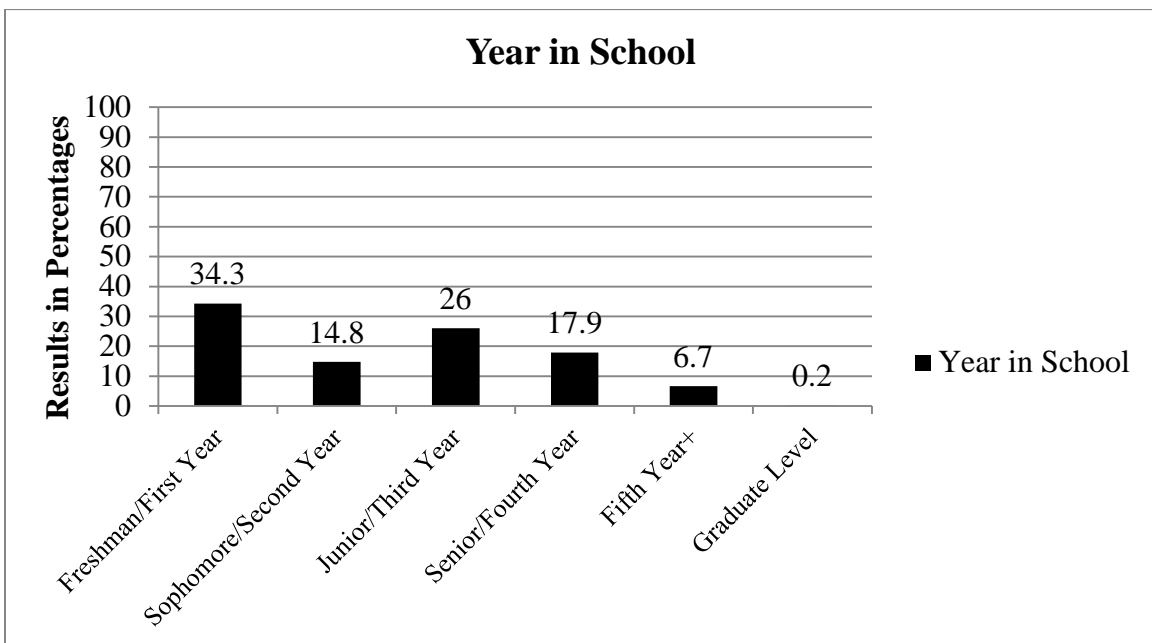


Figure F10. Year in School as Reported by Participants



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