

# The Impostor Phenomenon and Implicit Theories of Intelligence

Sydney Vian

Faculty Sponsor: Dr. Grace Deason, Psychology

## ABSTRACT

The impostor phenomenon is the tendency of high achieving individuals to feel as though their success was not earned and instead is a result of luck or a mistake. Impostors often feel anxiety at the thought of failure or being discovered as a fraud (Clance & O'Toole, 1987). Impostorism can act as a barrier for underrepresented groups when career planning and seeking out leadership positions. The current study explores whether the prominence of the impostor phenomenon is tied to the belief that intelligence is fixed and unchangeable, rather than fluid or changeable--two implicit theories of intelligence presented by Dweck and Leggett (1988). Graduate student participants were randomly assigned to read a description of intelligence as either fluid or fixed and then completed the Clance Impostor Phenomenon Scale, as well as the neuroticism and conscientiousness subscales of the Big Five Inventory. Based on previous research that showed a correlation between a belief in fixed intelligence and feelings of impostorism in women (Kumar & Jagacinski, 2005), we hypothesized that the group given the description of intelligence as fluid would report lower feelings of impostorism on the Clance IP scale, relative to the group given the fixed description. We also hypothesized that participants with higher levels of neuroticism and conscientiousness would report higher on the Clance IP scale. Results showed no significant difference between the entity and incremental groups on impostor score. Additionally, higher levels of neuroticism were positively correlated with impostor scores, whereas conscientiousness was negatively correlated.

## INTRODUCTION

In 2015 Natalie Portman stood in front of Harvard's graduating class and spoke about her own experiences as a Harvard student. Instead of a rousing speech on success and talent, Portman's speech highlighted her self-doubt and fear of being found out. In particular, she reminisced about feeling as if there had been a mistake, or as if she had only gotten in because of her fame. These thoughts and fears are characteristics of a much larger group of people who struggle with the impostor phenomenon.

Coined by Clance and Imes in 1978, the impostor phenomenon describes the tendency of qualified and successful individuals to feel as though they are impostors. Impostorism can be experienced no matter what the individual's abilities or achievements are. In fact, Bravata (2020) found that up to 82% of people would experience some kind of feelings of impostorism in their life. Rather than crediting their success to their own effort or talent, individuals with the impostor phenomenon tend to attribute their success to luck or a mistake. As a result, they feel anxiety at being exposed as a fraud. Clance described impostors as having very high standards for themselves that would result in them going to great lengths to avoid any failures or mistakes. Henning, Ey and Shaw (1998), who found strong associations between perfectionism and impostor feelings, studied this perfectionism. Another study by Ulu and Tezer (2010) examined the relationship between the Big Five personality traits and maladaptive perfectionism. They found that high levels of both neuroticism and conscientiousness predicted maladaptive perfectionism.

Clance's observations of the impostor phenomenon were originally made specifically in relation to women, under the assumption that women had internalized negative stereotypes about their own and other women's

competence. Despite the initial focus on professional and educated women, research on gender and its relationship with the impostor phenomenon has been contradictory. Some studies have found the symptoms of the impostor phenomenon affect women more severely (Patzak, Kollmayer & Schober, 2017; King & Cooley, 1995; and McGregor et al., 2008), whereas others have found male impostors suffer more from impostor phenomenon symptoms than women (Badawy, Gazdag, Bentley & Brouer, 2018). Other studies have found no gender differences in symptoms of the impostor phenomenon (Cowman & Ferrari, 2002, Thompson et al., 1998). Comparatively, there is largely agreement in the literature that the impostor phenomenon is common in students from ethnic minority groups, with impostor feelings correlating positively with depression and anxiety, and correlating negatively with psychological well-being (Bravata, 2020). Given the often contradictory results from the literature, there is a need for more research to explore relations among gender, race, and ethnicity and the impostor phenomenon, and the underlying mechanisms of these associations.

One avenue for investigation comes from the literature on beliefs about intelligence. Many of the qualities and beliefs associated with the impostor phenomenon described by Clance and O'Toole (1987) align with qualities and beliefs of an individual with an entity theory of intelligence. An entity theory of intelligence is the implicit belief that intelligence is a fixed and unchangeable trait, and was described by Dweck and Leggett (1988) as a part of their implicit theory of intelligence. Their theory also described an alternate view of intelligence, an incremental theory, as a fluid and malleable trait. The distinction between these two views of intelligence is important because of the very different lasting effects they have on thoughts and behaviors. Dweck and Leggett (1988) observed that participants who held an incremental theory tended to have learning goals; goals that focus on increasing competence and ability, and show positive behavior patterns such as challenge seeking, effort/strategy focus, positive feelings, and high persistence in the face of difficulty. In contrast, participants who held an entity theory tended to adopt performance goals; goals that focus on achieving recognition for ability. When faced with difficulty, people with performance goals show signs of harmful behavioral patterns such as helplessness, negative thoughts and feelings, challenge avoidance, and low persistence. These types of thoughts and behaviors can have immediate, seemingly inconsequential impacts on an individual's daily life, such as choosing to skip a difficult problem on the homework assignment. But these behaviors can also have lasting effects on their education and career, such as not applying for leadership positions for fear of rejection.

Based on these two theories, I argue that the maladaptive behavior observed in someone with an entity theory of intelligence could easily warp into the maladaptive behaviors of someone with impostor phenomenon. An individual who endorses the incremental theory may make an assessment about their own abilities and intelligence, but also believe that they are able to improve their intelligence. Therefore, when they achieve in their academic or professional careers, they can reassess their abilities. In contrast, someone who believes that their intelligence cannot change is likely to make a determination of their own capabilities and then fail to change that assessment even when presented with success. As an individual with an entity theory grows and changes throughout their academic and professional careers, their assessment of their intelligence is less likely to also change at the same rate, if at all. The gap between their abilities and their assessment of their abilities then needs to be rationalized by the individual. That rationalization may take the form of the impostor phenomenon.

Previous research examined the impostor phenomenon and its relationship with theories of intelligence. Consistent with the notion that endorsement of an entity theory may produce thoughts and feelings associated with impostorism in women, Kumar and Jagacinski (2005) found that in women, but not in men, support of the entity theory was significantly related to impostor fears, despite the fact that women were no more likely to support an entity theory than men were. However, Kumar and Jagacinski's findings were only correlational and further study is needed to examine the causal relationship between these two variables.

The present research set out to provide a causal test of the relationship between an entity theory of intelligence and impostor phenomenon in an experiment conducted among graduate students, a group for which feelings of impostorism are expected to be relatively high. Based on the existing literature, we developed three hypotheses. First, we hypothesized that participants primed towards an entity theory of intelligence would report higher scores on the Clance impostor phenomenon scale compared to participants primed towards an incremental theory of intelligence. Second, we examined the relationship between neuroticism and conscientiousness on feelings of impostorism and predicted that higher levels of both traits would positively predict impostorism. Third, we hypothesized that non-white participants would report higher feelings of impostorism than men or White participants.

## METHODS

### *Participants*

Participants were recruited through the snowball method. We began contacting potential participants through social media, by emailing our own contacts, and asking participants to share the survey with their peers. Participants were recruited from any institution and program as long as they were currently attending graduate school. Data were collected from 48 graduate students (70.8% female, 29.2% male) from various institutions between the ages of 21 and 50 ( $M = 25.69$ ,  $SD = 4.93$ ). The majority of participants were White (81.8%) and the rest identified as Asian (5.6%), Hispanic/Latino (3.77%), African American (1.88%) or other (3.77%).

### *Measures and Materials*

**GRE Questions** Several GRE questions were taken from a sample GRE test to prompt participants to reflect on their own achievements and intelligence. Question types included both verbal and quantitative questions. Participants were not scored on their correct answers. Instead, they were asked to rate how well they believed they performed on the questions after completing them.

**Priming Articles** Based on successful priming methods used by Nussbaum and Dweck (2008), participants were primed towards a specific theory of intelligence with stimuli written in the style of a short *Psychology Today* scientific magazine article summarizing research. The articles are about one page in length and identical except in the language used to describe intelligence. The entity theory is invoked using statements such as, “current research shows that almost all of a person’s intelligence is either inherited or determined at a very young age”. In contrast, the incremental theory is invoked using statements such as, “current research shows that intelligence can be increased substantially.” The articles are edited to look as though they were taken directly from the Psychology Today website (See Figure 1 and 2)

**Clance’s Impostor Phenomenon Scale (Clance IP Scale)** Clance’s Impostor Phenomenon Scale (Clance IP Scale) is a self-report questionnaire comprising 20 questions ( $\alpha = .906$ ) measured on a five point scale from “Not at all true” to “Very true”. The scale is designed to measure typical feelings of imposters (Clance & O’Toole, 1987). Sample questions include: “Sometimes I’m afraid others will discover how much knowledge or ability I really lack.” and “I feel bad or discouraged if I’m not ‘the best’ or at least ‘very special’ in situations that involve achievement”. After translating the reverse-coded questions, responses were added together to create a total score ranging from 20 to 100. The final total could be categorized based on Clance and O’Toole’s (1987) guidelines as few impostor feelings (40 or less), moderate impostor feelings (41 to 60), frequent impostor feelings (61 to 80), or intense impostor feelings (80 or more).

**The Big Five Inventory** The Big Five Inventory is a personality inventory that scores participants on five personality traits: openness, conscientiousness, neuroticism, extroversion, and agreeableness. Participants rate how well the items describe themselves on a scale of 1 (Disagree Strongly) to 5 (Agree Strongly). Two subscales of the Big Five Inventory were used. The neuroticism subscale is composed of 8 items ( $\alpha = .794$ ) and includes statements such as, “Can be tense.” and “Can be moody”. The conscientiousness subscale includes 9 items ( $\alpha = .866$ ) that include statements like, “Is a reliable worker.” and “Does things efficiently.”

### *Design and Procedure*

The experimental portion of the study was a between-participants design with two conditions. The independent variable was theory of intelligence (entity/incremental), and the dependent variable was Clance impostor scores.

Participants received an email invitation to complete a study on Individual Differences in Response to Success and Failure administered through the Qualtrics online survey program. After granting their informed consent, participants completed the GRE questions. Participants then rated how well they had done on the previous questions. Next, participants completed the conscientiousness and neuroticism subscales of the Big Five Inventory. Participants were then randomly assigned to read the article describing intelligence as fluid and changeable or the article describing intelligence as a fixed trait. As a manipulation check, participants responded to a few short questions about the main idea of the article and their reaction to the article. After the experimental manipulation, participants completed the Clance Impostor Phenomenon Scale. Finally, participants shared demographic information, were thanked for their participation, debriefed on the true purpose of the study, and paid for their time with a small gift card.

## RESULTS

Out of 55 participants, 47 participants completed the entire survey and passed the manipulation check. Scores for the neuroticism subscale ranged from 15 to 39, with a mean score of 25.16 and a standard deviation of 5.82. The conscientiousness subscale ranged from 21 to 45, with a mean of 34.02 and a standard deviation of 6.64. The impostor scores ranged from 37 to 93, with a mean of 64.96 and a standard deviation of 14.24. Based on Clance guidelines, two participants reported few impostor feelings (40 or less), 19 reported moderate impostor feelings (41 to 60), 18 reported frequent impostor feelings (61 to 80), and eight reported intense impostor feelings (80 or more).

To test *Hypothesis One*, an independent samples *t*-test (with equal variances) was used to compare the mean impostor scores of the two experimental groups. *Hypothesis One* predicted that participants in the entity theory group would report higher feelings of impostorism compared to the incremental theory group. The results failed to show a statistically significant relationship between priming group (entity or incremental) and feelings of impostorism,  $t = -0.517, p = 0.608$ . (See Figure 3) Participants in the incremental priming group ( $M = 63.92, SD = 15.56$ ) were just as likely to report feelings of impostorism as participants in the entity priming group ( $M = 65.92, SD = 12.36$ ).

*Hypothesis Two* predicted that higher levels of conscientiousness and neuroticism would predict higher levels of impostor feelings. Consistent with *Hypothesis Two*, there was a significant positive correlation between neuroticism scores and feelings of impostorism,  $r(50) = 0.61, p < 0.005$ . Graduate students with higher levels of neuroticism tend to report higher feelings of impostorism (see Figure 4). Additionally, there was a significant negative correlation between conscientiousness scores and feelings of impostorism,  $r(50) = -0.68, p < 0.005$ . Graduate students with lower levels of conscientiousness tended to report higher levels of impostorism (see Figure 5).

*Hypothesis Three* predicted that higher feelings of impostorism would be reported by non-white participants compared to White participants. However, this hypothesis was unable to be tested due to the small number of participants who identified as part of an underrepresented group ( $n = 8$ ). Running a test on the very small sample size would have decreased the statistical power and increased the chances of getting a statistically significant result when there is not an actual effect (a type two error).

## DISCUSSION

The purpose of this study was to examine the causal relationship between theories of intelligence and the impostor phenomenon. The results of the experiment found no evidence to support our first hypothesis that an entity theory of intelligence leads to greater feelings of impostorism in graduate students. Instead, both the entity theory and incremental theory groups had similar mean impostor scores. These results are contradictory to previous findings by Kumar and Jagacinski (2005) that found a positive correlation between an entity theory and impostor feelings in women.

One possible explanation for the lack of significant results was the unusually high levels of impostorism

found in the sample of graduate students. Graduate students were originally selected as the population of interest because we believed they would be expected to have a certain level of expertise in their field as well as a high level of achievement. Both the entity and incremental groups' mean impostor scores fell within the "frequent impostor feelings" category. The unusually high levels of impostorism may have led to a possible ceiling effect, resulting in the lack of difference between the entity and incremental groups. It may be useful to continue studying the effects of implicit theories of intelligence on the impostor phenomenon in a broader population that does not experience such high rates of evaluation on their abilities.

Another purpose of the study was to examine the relationship between neuroticism, conscientiousness and the impostor phenomenon. *Hypothesis 2* was partially supported. Higher scores on the neuroticism subscale were associated with higher impostor feelings. This prediction was based on previous research that has shown correlations between depression and trait anxiety (Chrisman et al., 1995; Topping, 1983).

Contrary to prediction, however, higher conscientiousness scores were associated with lower feelings of impostorism. The negative relationship of the impostor phenomenon with conscientiousness contrasts with the perfectionism shown to be related to impostor feelings. However, these finding may be explained by another trait described by Clance and O'Toole (1987). Clance describes the impostor cycle, in which an individual is presented with a situation that they will be evaluated on, which leads to either over preparation or procrastination. Finally, they dismiss their success to either their over preparation or luck instead of intelligence or ability. An individual with the impostor phenomenon who tends to over-prepare may score high on the conscientious subscale, which measures goal-directed behavior and the ability to complete tasks. Or an impostor may tend to procrastinate, which would likely lead to lower scores on the conscientious subscale. Given the strong negative relationship found, it may be that the participants were overwhelmingly the type of impostor that procrastinates rather than over prepares.

Looking at the relationship between theories of intelligence and the impostor phenomenon becomes more important when considering the larger implications of these theories. The impostor phenomenon creates real barriers in the life of those affected by it. Beyond its connection with anxiety and depression, people with impostor fears may be more likely to turn down opportunities such as taking up leadership positions. Since people with impostor fears often attribute their success to outside sources, they may feel uncertain in their ability to continue succeeding and avoid the additional expectations of taking on leadership roles (Sakulku & Alexander, 2011).

### *Limitations and Future Directions*

This study planned to explore the relationship of impostor feelings and underrepresented groups (*Hypothesis 3*), but was unable to do so because of the lack of diversity in the sample. One possible limitation of the study is the effectiveness of the distribution method used. By using the snowball method, we depended on the participants sharing the survey with their peers. This may have contributed to the lack of diversity within our sample and the inability to test the third hypothesis. Further research should continue to examine the causal relationship between theories of intelligence and the impostor phenomenon in a broader and more diverse population.

Additionally, the unusually high levels of the impostor phenomenon in graduate students should be investigated. It is worth considering why this population has such high levels of impostor feelings. Do graduate program environments, which often include frequent evaluation and intense competition, cultivate impostor feelings? Or do these programs draw in individuals that may already have these impostor fears?

Finally, researchers should consider the possibility that the two types of impostors Clance and O'Toole(1987) describe may differ on the conscientiousness subscale of the big five inventory. Efforts should be taken to determine how many impostors over prepare or procrastinate.

## **ACKNOWLEDGEMENTS**

Thank you to Dr. Deason for mentoring me through this entire project. Thank you also to the Undergraduate

Creativity and Research Committee, Dr. O'Brien, and Jane Fredrick.

## REFERENCES

- Badawy, R. L., Gazdag, B. A., Bentley, J. R., & Brouer, R. L. (2018). Are all impostors created equal? Exploring gender differences in the impostor phenomenon-performance link. *Personality and Individual Differences*, 131, 156–163. <https://doi.org/10.1016/j.paid.2018.04.044>
- Bernard, N. S., Dollinger, S. J., & Ramaniah, N. V. (2002). Applying the big five personality factors to the impostor phenomenon. *Journal of Personality Assessment*, 78(2), 221–233.
- Bravata, D. M., Watts, S. A., Keefer, A. L., Madhusudhan, D. K., Taylor, K. T., Clark, D. M., Nelson, R. S., Cokley, K. O., & Hagg, H. K. (2020). Prevalence, Predictors, and Treatment of Impostor Syndrome: a Systematic Review. *Journal of General Internal Medicine*, 35(4), 1252–1275. <https://doi.org/10.1007/s11606-019-05364-1>
- Chrisman, S. M., Pieper, W. A., Clance, P. R., Holland, C. L., & Glickauf-Hughes, C. (1995). Validation of the Clance Impostor Phenomenon Scale. *Journal of Personality Assessment*, 65(3), 456–467.
- Clance Impostor Phenomenon Scale (CIPS). From *The Impostor Phenomenon: When Success Makes You Feel Like A Fake* (pp. 20–22), by P.R. Clance, 1985, Toronto: Bantam Books. Copyright 1985 by Pauline Rose Clance, Ph.D., ABPP. Use by permission of Dr. Pauline Rose Clance. Do not reproduce/copy/distribute without permission from Pauline Rose Clance, drpaulinerose@comcast.net, www.paulineroseclance.com.
- Clance, P. R., & Imes, S. A. (1978). The imposter phenomenon in high achieving women: Dynamics and therapeutic intervention. *Psychotherapy: Theory, Research & Practice*, 15(3), 241–247. <https://doi.org/10.1037/h0086006>
- Clance, P. R., & O'Toole, M. A. (1987). The Imposter Phenomenon: An internal barrier to empowerment and achievement. *Women & Therapy*, 6(3), 51–64. [https://doi.org/10.1300/J015V06N03\\_05](https://doi.org/10.1300/J015V06N03_05)
- Cowman, S. E., & Ferrari, J. R. (2002). “Am I for real?” Predicting imposter tendencies from self-handicapping and affective components. *Social Behavior and Personality: An International Journal*, 30(2), 119–126. <https://doi.org/10.2224/sbp.2002.30.2.119>
- Dweck, C. S., & Leggett, E. L. (1988). A social-cognitive approach to motivation and personality. *Psychological Review*, 95(2), 256–273. <https://doi.org/10.1037/0033-295X.95.2.256>
- Dweck, C. S. (1999). Self-theories: Their role in motivation, personality, and development. Psychology Press. 10
- Henning, K., Ey, S., & Shaw, D. (1998). Perfectionism, the imposter phenomenon and psychological adjustment in medical, dental, nursing and pharmacy students. *Medical Education*, 32(5), 456–464.
- John, O. P., Donahue, E. M., & Kentle, R. L. (1991). The Big Five Inventory--Versions 4a and 54. Berkeley, CA: University of California, Berkeley, Institute of Personality and Social Research.
- John, O. P., Naumann, L. P., & Soto, C. J. (2008). Paradigm shift to the integrative Big Five trait taxonomy: History, measurement, and conceptual issues. In O. P. John, R. W. Robins, & L. A. Pervin (Eds.), *Handbook of personality: Theory and research* (pp. 114–158). New York, NY: Guilford Press.
- King, J. E., & Cooley, E. L. (1995). Achievement orientation and the impostor phenomenon among college students. *Contemporary Educational Psychology*, 20(3), 304–312. <https://doi.org/10.1006/ceps.1995.1019>
- Kumar, S., & Jagacinski, C. M. (2006). Imposters have goals too: The impostor phenomenon and its relationship to achievement goal theory. *Personality and Individual Differences*, 40(1), 147–157. <https://doi.org/10.1016/j.paid.2005.05.014>
- McGregor, L. N., Gee, D. E., & Posey, K. E. (2008). I feel like a fraud and it depresses me: The relation between the imposter phenomenon and depression. *Social Behavior and Personality: An International Journal*, 36(1), 43–48. <https://doi.org/10.2224/sbp.2008.36.1.43>
- Nussbaum, A. D., & Dweck, C. S. (2008). Defensiveness versus remediation: Self-theories and modes of self-esteem maintenance. *Personality and Social Psychology Bulletin*, 34(5), 599–612. <https://doi.org/10.1177/0146167207312960>
- Patzak, A., Kollmayer, M., & Schober, B. (2017). Buffering impostor feelings with kindness: The mediating role of self-compassion between gender-role orientation and the impostor phenomenon. *Frontiers in Psychology*, 8. <https://doi.org/10.3389/fpsyg.2017.01289>
- Portman, N. (2015, May). Harvard Commencement Speech. Harvard Commencement Speech. Cambridge. Retrieved from <https://singjupost.com/full-transcript-natalie-portman-harvard-commencement-speech-2015/>
- Sakulku, J., & Alexander, J. (2011). The Impostor Phenomenon. *International Journal of Behavioral Science*, 6(1), 75–97. doi: <https://doi.org/10.14456/ijbs.2011.6.11>

Thompson, T., Davis, H., & Davidson, J. (1998). Attributional and affective responses of impostors to academic success and failure outcomes. *Personality and Individual Differences*, 25(2), 381–396. doi: 10.1016/s0191-8869(98)00065-8

Topping, M., E. (1983). The impostor phenomenon: A study of its construct and incidence in university faculty members. (Doctoral dissertation, University of South Florida). *Dissertation Abstracts International*, 44, 1948B-1949B.

Ulu, I. P., & Tezer, E. (2010). Adaptive and maladaptive perfectionism, adult attachment, and Big Five personality traits. *The Journal of Psychology: Interdisciplinary and Applied*, 144(4), 327–340.

The screenshot displays the Psychology Today website interface. At the top, there is a blue navigation bar with the Psychology Today logo and menu items: Find a Therapist, Get Help, Magazine, and Today. A search bar is located on the right side of the navigation bar. Below the navigation bar, there is a search bar with the text "Find a Therapist (City or Zip)".

The main content area features an article titled "Intelligence" with a sub-header "IQ, Giftedness". The article includes a brain scan image and social media sharing icons for Facebook, Twitter, Email, and a comment icon with the number "2".

The article text is as follows:

### What Is Intelligence And How Is It Measured?

IQ tests compare a person's performance on the test with the performance of other people of the same age, often referred to as a normative sample. In children, the score reflects the difference between a child's mental and chronological age.

IQ—or intelligence quotient—is the score most widely used to assess general intelligence or "g," and typically measures a variety of skills from verbal to spatial. Any person from any walk of life can be highly intelligent and scoring high on one aspect of intelligence tends to correlate with high scores in other aspects.

IQ is the most robust psychological trait measured and strongly correlates with positive life outcomes, including health and longevity, job performance, and adult income. It is also neuro-protective in ways that are not fully understood; People with high IQs are at an advantage in coping with traumatic events (they are less likely to develop full-blown PTSD and more capable of overcoming it when they do) and may experience less rapid decline in the course of Alzheimer's Disease.

### Can Intelligence Be Improved?

Current research shows that almost all of a person's intelligence is either inherited or determined at a very young age. Very few aspects of intelligence can be improved and even those are under great debate.

First, one critical prerequisite for understanding intelligence is understanding that intelligence is fixed. Second, the aspects of intelligence that cannot be improved include processing speed, problem-solving, and memory improvement. There is a very low probability of improving overall IQ test performance or working memory capacity (a major correlate of intelligence).

The skills practiced in brain training apps are not readily transferable to either IQ test performance or to solving unique environmental challenges, and therefore have not demonstrable impact on IQ.

We would all like to believe that any genetically determined attribute like intelligence can be modified based on tender loving care, but the benefits of "nurturing" are limited. Nurturing is necessary, but not sufficient to promote the genetic evolution of skills and abilities. Regardless of ability type, 50 to 70 percent of your talent potential is based solely on genetics.

Recent confluent findings (Kan et al., 2013; Nesbitt et al., 2012) indicated that genetic influences on cognition are maximized in more advantageous socioeconomic contexts (Tucker-Drob et al., 2013). When examining the genes/environment interaction closely we find that children who live in poverty are at a distinct genetic disadvantage even with the most supportive and nurturing caregivers.

On the right side of the article, there is a sidebar with the following sections:

- Intelligence Resources**
- Get Help**: Find a therapist near me. Includes a search bar for "City or Zip".
- Connected Topics**: Creativity, Wisdom, Cognition, Aging, Emotional Intelligence, Nootropics, Neurodiversity.
- Most Popular**: A list of five articles with small thumbnail images:
  - 5 Qualities to Look for in a Life Partner
  - 3 Ways to Get in Touch with Important Unfelt Feelings
  - Why BPD Causes Lashing Out at Family and Friends
  - Key Traits of Master Manipulators
  - Show Deep Affection for Someone

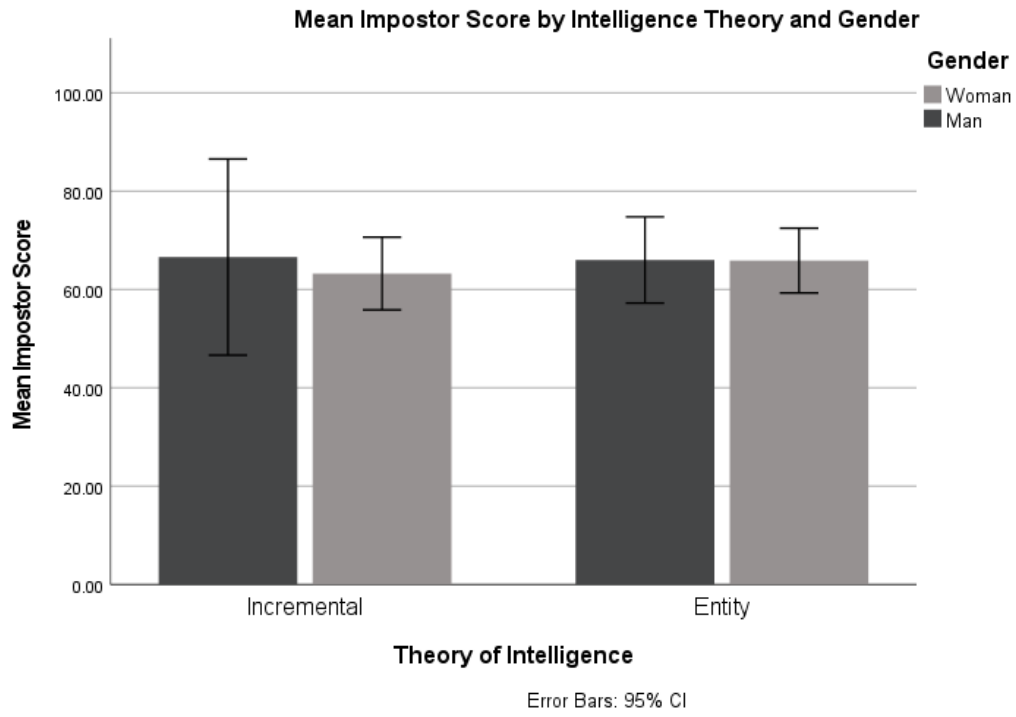
At the bottom of the page, there is a blue footer bar with the Psychology Today logo and social media icons for Facebook, Twitter, and Instagram. Below this, there is a "Recent Issues" section displaying six magazine covers with titles: "love", "GRIEF", "FACE TO FACE", "Coincidence", "Intuition", and "THE POWER OF BOUNDARIES". A "Subscribe Today" button is located to the right of the magazine covers. At the very bottom, there are links for "About", "Privacy", "Terms", and "Accessibility", along with a "United States" flag icon. The footer also contains the copyright notice: "Psychology Today © 2020 Sussex Publishers, LLC".

Figure 1. Priming article for the entity theory.



The screenshot displays the Psychology Today website interface. At the top, there is a blue navigation bar with the site logo and menu items: 'Find a Therapist', 'Get Help', 'Magazine', and 'Today'. A search bar is located on the right side of the navigation bar. Below the navigation bar, a secondary search bar prompts the user to 'Find a Therapist (City or Zip)'. The main content area features an article titled 'Intelligence' with a sub-header 'IQ, Giftedness'. The article includes a brain scan image and social media sharing icons. The text discusses the definition of intelligence, how it is measured (IQ), and its correlation with life outcomes. A section titled 'Can Intelligence Be Improved?' includes an image of a classroom and discusses research on environmental factors and brain training. To the right of the article, there are sections for 'Intelligence Resources', 'Get Help' (with a therapist search bar), 'Connected Topics' (listing Creativity, Wisdom, Cognition, Aging, Emotional Intelligence, Nootropics, and Neurodiversity), and 'Most Popular' (listing five related articles). At the bottom of the page, there is a 'Recent Issues' section with six magazine covers: 'Love', 'GRIEF', 'FACE TO FACE', 'Coincidence', 'Intuition', and 'THE POWER OF BOUNDARIES'. A 'Subscribe Today' button is positioned to the right of the covers. The footer contains links for 'About', 'Privacy', 'Terms', and 'Accessibility', along with a 'United States' location indicator and a copyright notice for Psychology Today © 2020 Sussex Publishers, LLC.

Figure 2. Priming article for the incremental theory.



**Figure 3.** Impostor score by priming group and gender.

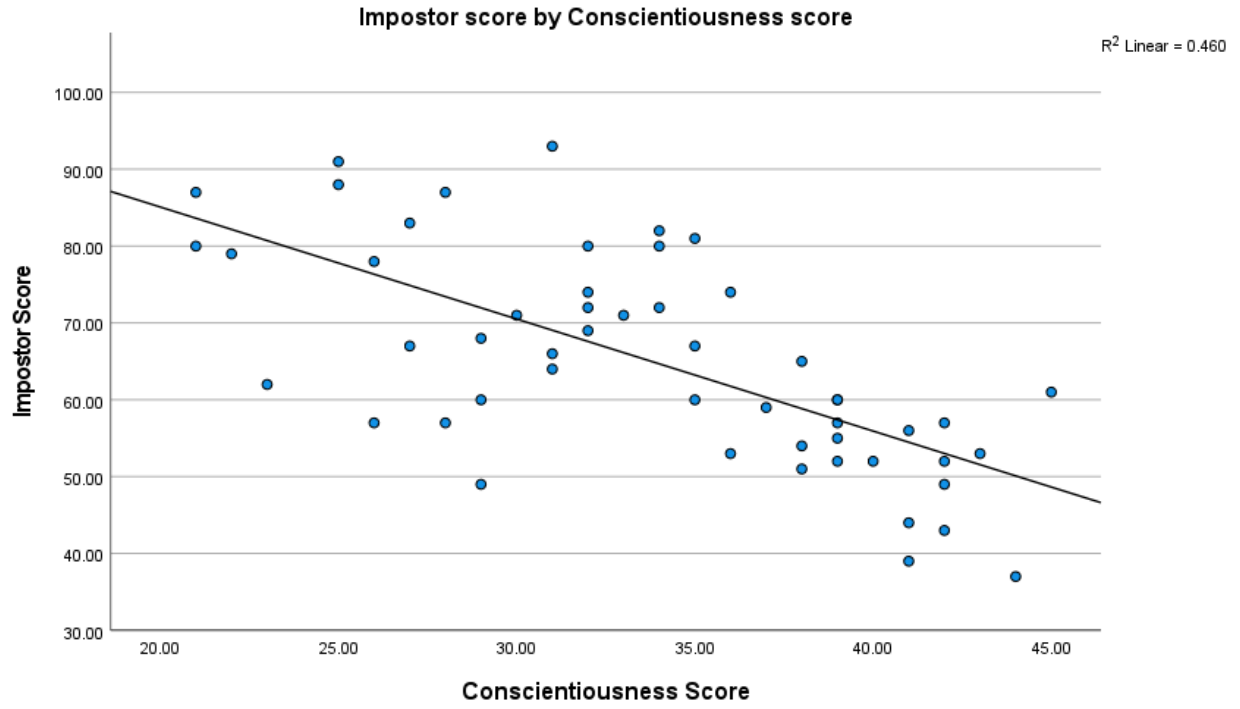


Figure 4. Conscientiousness score by Impostor Score.

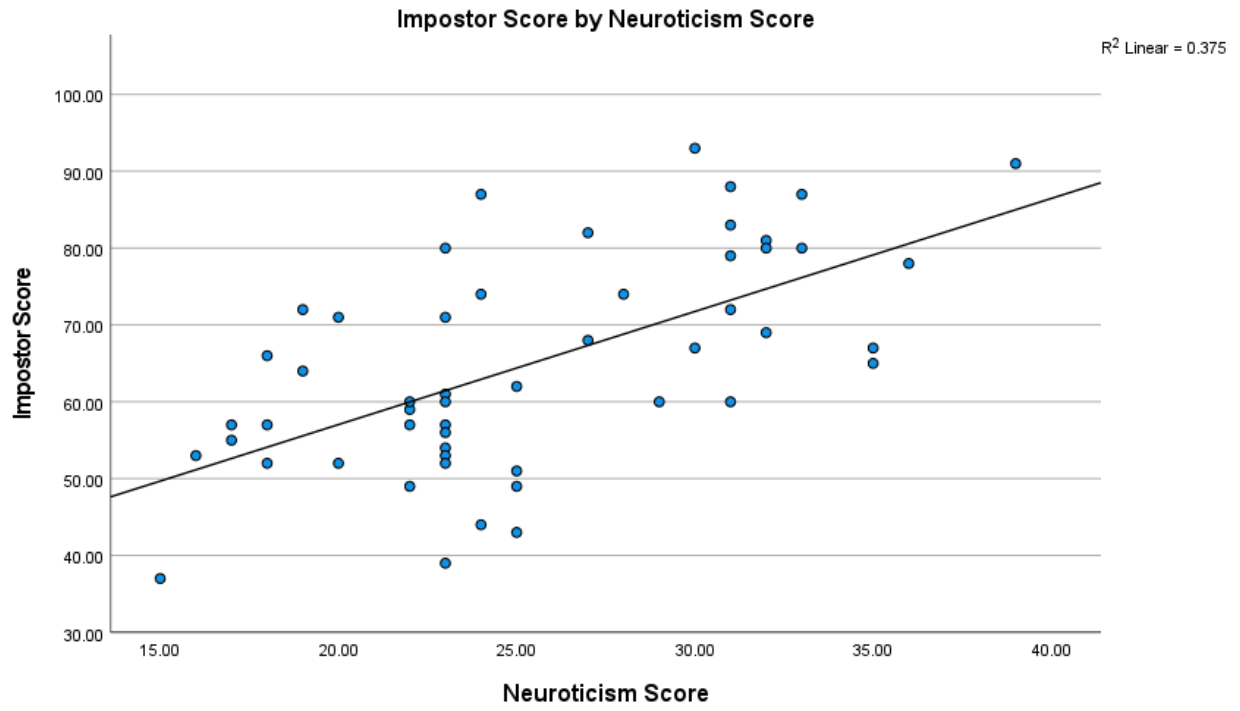


Figure 5. Neuroticism score by Impostor Score.