

Personality, Major Choice, & Undergraduate Retention

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ABSTRACT

Holland (1959) developed scales to measure vocational paths based on students' personality traits. The current study looks further into how the big five personality traits (Koseoglu, 2016) impact vocational choices based on Holland's vocational scale (RIASEC). Intention to persist based on academic satisfaction and fit were also variables analyzed throughout this study. A survey was used to collect data on personality types among various majors at a single urban research institution in Northeast Ohio. The survey also included environmental fit measures regarding students' academic satisfaction and fit, and whether this predicted intention to persist. Results showed that some personality types were correlated with specific vocational interests. If a personality type was positively correlated with a vocational choice, it could be more likely a student would choose majors within that vocational path. If a personality type was negatively correlated with a vocational choice, that student may not be as likely to choose a major within that vocational path. It was also found that students were more likely to persist within their major if they felt satisfied both academically and environmentally within their major.

Keywords: The Big five personality types, OCEAN, Holland's RIASEC Model, Intention to Persist, Academic Satisfaction, Academic Fit, Environmental Fit, College major

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Introduction

One of the many reasons behind an undergraduate student's choice of academic major is one's desired career. Peers, parents, social class, culture, and physical environment can influence these vocational choices as well (Holland, 1959). Holland found that when it came to a career, people often sought one of six types of occupational environments rather than a specific occupation. These environments were motoric, intellectual, supportive, conforming, persuasive, and aesthetic. Motoric environments contain laborers. Intellectual environments are related to science, technology, engineering and math (STEM). Supportive environments have the teachers/counselors/therapists. Conforming environments are where secretarial or administrative workers can be found. Persuasive environments include those who work in business. Aesthetic environments typically deal with artistic occupations, such as art and writing.

Holland (1959) also found that there were six personality types, which he described as being congruent with these occupational environments. Realistic personalities are typically people with athletic or mechanical abilities. Investigative personalities are people with STEM-related interests. Social personalities enjoy helping people and human relationships. Conventional personality types are typically interested in clerical work. Enterprising personalities have leadership skills and favor politics and/or economics. Artistic people have artistic abilities and creative imaginations (Mendoza, 2009). These "personality" types are often referred to by their acronym, RIASEC.

Although Holland (1959) found those specific personality types matched with occupational environments, general personality and individual traits were found to be related to

academic performance (Koseoglu 2016). More specifically, personality traits have been studied and refined into the big five personality traits, or OCEAN. Koseoglu (2016) defines openness as a strong intellectual curiosity. Conscientiousness is being accomplishment oriented, organized, and disciplined. Extraversion is being social and assertive. Agreeableness is being helpful, cooperative, and sympathetic. Neuroticism is the degree of emotional stability, anxiety, and managing impulses.

Students often choose their majors with a general career in mind and many majors are built to equip students with the proper skills for a specific occupation. These occupational pathways and students' personalities have been thoroughly studied and personality plays a role in major choice (Pike, 2006). People want to be able to fit in with their vocational environments in order to have a satisfying experience. Previous research has not been clear on whether this is something that emerges over time.

Given that personality plays a role in major choice (Pike, 2006) and Holland (1959) found congruency to vocational pathways and personality traits, it would be beneficial to understand if these variables impact each other. Previous research has not provided results pertaining to students' feelings about the environment in their major and if this serves as evidence for intention to persist. This study focused on students' personality types defined by Koseoglu's (2016) big five personality traits (OCEAN) and Holland's (1959) RIASEC model for vocational choice, environmental fit, and intention to persist.

Individual-Level Predictors of Major Choice

Post Major Choice Expectations

Before deciding on a major, it is important to understand what individual differences, if any, may precede a college major selection. In 2012, Balsamo, Lauriola, and Saggino found that the most identified regret in life among Americans was the major chosen in college. It could be assumed that a good fit with a student's college major could lead to a better college experience. This could also mean that a poor fit could lead to a less than satisfying college experience. The question in this study looked at whether individual differences come before or follow the choice of college major.

The personality types extraversion and conscientiousness were the only types found to precede academic choice (Balsamo et al., 2012). These were the only two personality types that were found present within students before experience within a college major. These personality types persisted even after the participant had been exposed to a college academic experience. No other personality types were found to remain after exposure to a college climate. The researchers felt that this could mean these two personality types may not be the result of specific socialization processes, such as college enrollment. Being that some personality traits precede this academic choice, it could be beneficial to understand if they potentially impact choice of college major.

Personality and pre-college characteristics were found to influence effort, critical thinking, and performance (Bauer & Liang, 2003). Students who were neurotic did not put forth as much effort as those lower in neurotic traits. Neurotic students were actually found to put more effort into emotional stability and interpersonal relationships.

Self-Efficacy and College Major

One may be hesitant to pursue a particular task if he or she does not feel equipped with the necessary skill set. This may also be said for college majors. Porter and Umbach (2006) examined the factors that predict student major choice and what role personality played in college major choice. They stated that in previous research, self-efficacy was strongly correlated with major choice. If a student felt he or she had certain abilities to major in a specific subject, he or she would most likely choose that major. It was found that students with uncertainty toward a choice of major were more likely to choose an arts or social science major.

Milsom and Coughlin (2015) also reported that students often make major choices based on their self-efficacy beliefs. These beliefs were defined as the parameters in which students felt they could perform academically. Students felt that their interests, abilities, and values may impact their performance within their majors and often sought majors that reinforced them. They found previous research to highlight personal and environmental variables in the decision-making process for choosing a major. These variables were listed as family influence, whether the students would achieve desired reinforcement throughout their major and earning potential. A positive correlation was found between major satisfaction and career decision self-efficacy. This could also lead to confidence in other career-related decisions. The lack of research on the actual satisfaction of college majors left researchers asking, what exactly causes students to be satisfied or dissatisfied with their major?

Students were better able to determine if they liked their major or not when they were able to take new information learned and combine this with pre-existing knowledge (Milsom & Coughlin, 2015). This was said to help them have a better understanding of themselves and their

careers. An awareness of inner values came out the more the students got involved in their major courses. There were reports of students changing majors because they had taken classes that had been structured with material appealing to how students felt internally, rather than the promise of a higher income. Career exploration courses were found to have positive correlations with self-efficacy and decreased career indecisiveness. These exploration procedures were typically interactions with those familiar with the field. Self-reflection played a role in whether students felt satisfied or dissatisfied with their choice of major.

Personality

A student should be interested in the academic subject, but also be comfortable within the organizational culture provided by a major (Balsamo et al., 2012). Student personality types and characteristics of academic disciplines related to their expectations about college. These expectations were an important factor in college major choice. When deciding on a major, students also anticipate the types of people they will be surrounded by and the engagements they will experience. If they do not view these people as having similar qualities and interests as themselves, they will most likely not feel a sense of satisfaction within that field (Pike, 2006).

Examining one's personality aids in getting to know more about the qualities and interests of that individual. Kaufman, Pumacchua, and Holt (2013) examined the RIASEC model of six personality types (Holland, 1959). These personalities were thought to have been an influential factor in what they refer to as "vocational choice." This can be defined as the "hierarchy of habitual or preferred methods for dealing with environmental tasks" (Holland,

1959, p. 35). The present study combined the RIASEC model with OCEAN to better understand how students' interests related to personality traits.

Individual differences were examined in majors, excluding artistic and investigative majors, to see how they relate in personality (Kaufman, Pumacahua, & Holt, 2013). Those remaining majors were realistic, social, and enterprising. It was found that investigative majors scored higher on agreeableness than social majors, reinforcing the idea of social science majors wanting to help people. Artistic and enterprising majors were linked with openness, or those identifying with openness to experience. Enterprising majors were also linked with extraversion. This could indicate the importance of including personality when researching the similarities and differences in vocational choice. These studies have shown multiple reasons behind why students may choose their academic paths.

Personality traits seem to be linked with all categories, including academic success, motivation, and engagement. Looking more into individual traits, Porter and Umbach (2006), found that personality was a consistent predictor of major choice. Students with investigative personalities were less likely to major in a non-science field, while artist personalities were more likely to major in interdisciplinary or arts fields. Social personalities were more likely to major in a social science or interdisciplinary field. Enterprising personalities had a higher probability of choosing a non-science major. To conclude the study, personality was very predictive of college major choice, based on the RIASEC personality scale.

There is question, though, about what goes on beyond the choice of major. The intention of a college major is to set the individual on a path leading to a desirable, successful career aligned with their interests. Being that personality plays such a prominent role in their major

choice, perhaps their OCEAN personality traits affect their environmental fit within their college major culture.

Outcomes of Major Choice

Student Engagement and Personality Types

Personality may relate to students' engagement. Qureshi, Wall, and Balani (2016) further examined student engagement and defined this as “enthusiasm, inspiration from study, and a mental resilience when studying.” Engagement was found to predict outcomes such as grades and academic persistence. From the big five, conscientiousness was found to be an important factor of student engagement. It was found to be a predictor in all aspects of engagement except emotional engagement. Agreeableness was a predictor of general, cognitive, emotional, and behavioral engagement. This was thought to be so because agreeableness is relative to trust, and a student must trust and care for the educational process to feel compelled to engage.

Extraversion was not expected to correlate with engagement, but it had been linked to vigor, which researchers described as a core dimension of engagement (Quareshi, Wall, & Balani, 2016). This could mean that these students may be more likely to participate in work engagement. Agreeableness and conscientiousness were found to be important predictors of engagement. Results indicate that engagement activities should be tailored to the individual. Evidentially, personality has an impact on academic experience. So, if personality impacts their academic experience, it may also have an impact on one's vocational path.

Milsom and Coughlin (2015) found that students often engaged in opportunities to increase self and career awareness. These opportunities usually included interactions with

instructors, advisors, those already working in their desired field, and peers. Completing assignments, internships, and attending class were also listed as opportunities for self and career awareness. If students felt they were connecting with peers within their classes, they felt more satisfaction in their major. Dissatisfaction was reported when they could not establish a connection with their peers. Interacting with people familiar with the field and their peers seemed to increase awareness for both self and career.

Environmental Fit within Students' Major

There were three propositions found for student development during their college experience (Feldman, Ethington, & Smart, 2001): Self-selection, socialization, and congruence. Major departments were described as academic environments. The first proposition explains that students often look for and select academic environments that match their interests, abilities, and personalities. The second states that academic environments socialize these students and they acquire new abilities, interests, and values. The third proposition expresses that students' dominant personality traits are aligned with their academic environment and performance.

Feldman et al. (2001) cited findings from their own previous study (1999), which found students with dominant investigative, artistic, or enterprising personalities who entered congruent majors gained on these same interests. Those with the same personalities that did not enter congruent majors remained the same or declined in their abilities. After examining patterns of change and stability with students in environments that suited their personality traits, they found that academic environments are resources to maintain abilities and interests of students.

Cayirdag (2016) also looked at person-environment fit (PEF) within his study. He puts forth the idea that "correspondence or congruence between the person and environment leads to

greater outcomes” (p. 1383). College culture, or the environmental factors making up college experience, play an important role in the student fit or misfit. Regarding college administrators, students felt that being treated as individuals, encouraging independence, being a role model, and spending time with students one-on-one increased their creative development. Pro-environment misfit occurred when the college environment was found to be positive and supportive toward creative behaviors, but the actual student did not report traits of self-efficacy or creativity. Misfits were found when the student and their environment had no obvious similarities.

Cayirdag (2016) found that different parts of college culture, such as rewards, openness to change, peer relations, and support, were positively related to pro-environment misfit. Pro-environment misfit was negatively related to creative self-efficacy. Academic self-efficacy was directly related to environmental aspects. When combined, components of both person and environment had the greatest impact on environmental fit. Pro-environment misfit was also related to openness to change. This was important because it reflected the creative climate (freedom and flexibility) provided by the college experience.

To better understand how students feel about their majors, it is important to understand how they interact within these environments. Vahidi, Roslan, Abdullah, and Omar (2016) examined person-environment interaction within different majors at an academic institution and their academic outcomes. Person-environment fit was defined as, “compatibility between individuals and environments” (p. 91). The other two variables used throughout the study were perceived interest major fit and objective major fit.

Perceived interest major fit asked students which major their interests might “fit” with best, and objective interest major fit dealt with a dominant personality trait type of college

environment. Objective interest was more of a direct approach, while perceived interest focused on how students' felt. Perceived interest major fit was found to have a positive correlation with person-environment fit and academic achievement. Objective major fit was not found to have a positive relationship with person-environment fit or academic achievement. The present study highlighted the importance of taking other types of "fit" into consideration when looking at person-environment fit and the impact on academic outcome. Students' direct interests were positively correlated with major fit; however, there were no significant relationships between students' perception of their interests of major and academic performance. It may be helpful to understand other factors that contribute to academic motivation.

Academic Motivation and Personality Type

Looking further into correlations between personality traits and academic motivations, Jones and McMichael (2015) examined how personality traits may impact student motivations. The personality types were based on the big five (Koseoglu, 2016). Achievement goals were defined as three subtypes of goals. These were mastery, or wanting to academically outperform others, and avoid goals, or the desire to not appear academically inferior to peers. Mindset looked at a fixed or growth mindset and how this could possibly relate to levels of performance. Last, they looked at self-efficacy, which related directly to academic abilities.

Jones and McMichael (2015) examined how personality might correspond with achievement goals, efficacious beliefs, and mindset. They found that those with the openness personality trait had a growth mindset. Intrinsic motivation had a positive correlation with the personality traits agreeableness and openness. Neuroticism was linked to performance avoidance

goals. Mindset results indicated that conscientiousness correlated with intelligence, or a growth mindset. This growth mindset could exist when the student continues to believe that hard work will equate to better performance.

Academic Motivation and Outcome

Personality traits having an influence on an individual's motivation brings up questions about academic success. If a student is motivated, he or she may be more likely to succeed in their studies. This is certainly not the only factor of academic success, though. Jensen (2015) found in previous research that the big five (Koseoglu, 2016) personality traits made it easier to find correlations between personality traits and different abilities or behaviors. There were questions about whether this would also be applicable to one's academic ability. To better understand one's academic ability, the drive behind their performance must be understood. The previous study took motivation and broke it into two categories: intrinsic and extrinsic.

Intrinsic motivation was described as having internal curiosity for a particular topic (Jensen, 2015). Extrinsic motivation related to external influences, such as teachers or guardians. Surface motivation, deep motivation, and achievement motivation were three subcategories of motivation that could be classified as either extrinsic or intrinsic. Surface motivation, classified as extrinsic, was described as the student using memorization to learn material on an exam. Deep motivation, or intrinsic motivation, was a genuine interest for a specific topic. The achieving motivation, both intrinsic and extrinsic, was the desire to achieve the best results possible and willingness to take any extra steps (asking questions, reading material) that may be necessary.

Personality traits were related to motivation, goals, and strategy (Jenson, 2015).

Neuroticism, conscientiousness, and openness happened to be the most relevant when examining the motivation, goals, and strategy behind learning. Neuroticism was linked with surface motivation and approaches to learning. Openness was associated with deep motivation, or an intrinsic motivation to learn based on personal interest. Conscientiousness was linked to both intrinsic and extrinsic motivations, such as deep and achievement motivation. Students identifying with conscientiousness and openness as their dominant trait were more eager to learn about particular topics. It could be argued that because those traits are seen as ideal for learning, schools and other academic facilities are more equipped to support these traits. Those identifying with neuroticism got their motivation from having to meet specific requirements rather than personal interest. Their personality traits may not be as supported within academic facilities, which leaves a question of whether this could lead to potential obstacles not faced by people with other personalities.

Angelkoska, Stankovska, and Dimitrovski (2016) found that academic success comes from two perspectives. The first is external, which relates to the actual academics. The second is internal, which deals with an individual's inner assessment of academic performance and their personality traits. Personal characteristics had been defined as "a set of internal components which determine the success and the quality of the student" (p. 262). These traits were important components of intellectual functioning because they contained cognitive and motivational components. In previous research, these traits explained why students approached and processed academic material differently. This also explained why students received different results for the

same material. Conscientiousness was found to be one of the big five traits that correlated to academic success in all ages (Koseoglu, 2016).

Koseoglu (2016) set out to find the influence that personal characteristics had on a student's personality and the role in academic success. Results supported the claim that personal characteristics affect academic success. They state that based on personality traits, this will have an impact on how much the student will master curriculum material and how defined their motivation will be to learn. The highest scores for dominant traits among all students were extraversion, openness, agreeableness, and neuroticism. Higher scores in neuroticism could lead to lower results of learning. This is thought to be because of the anxiety or emotional instability within students dominant in neuroticism (Angelkoska et al., 2016).

Those dominant in extraversion were found to need an interactive approach to the oral transfer of learning (Angelkoska et al., 2016). Openness was found to have a great correlation to success in learning. The researchers conclude with highlighting that it is important to meet the personality traits of students in order to aid with academic success. It is clear that students must remain motivated to achieve academic success. It has also been found though that engagement can be just as important. As for abilities and interests, they will only continue to get better if these environments continue to reinforce and reward those abilities. Academic environments contribute to gain or growth within students (Feldman, Ethington, & Smart, 2001).

Resources for Perseverance

Ashraf, Godbey, Shrikhande, and Widman (2018) explained that poor performance may be caused by loss of interest in major. Their research claims that the “finish what you started”

mentality of colleges can be damaging for students. If a student should lose interest in their major, it could benefit them to receive support in finding out what caused the loss of interest. They suggested identifying major matches through comparing the skills and interests of students with a major curriculum in order to encourage major switching behavior.

Huang, Roche, Kennedy, and Brocato (2017) found graduation rates to be higher in communication majors, rather than STEM majors. Graduation rates were also higher for students that sought out help through learning resources. These resources included tutoring, supplemental instruction sessions, or any other quality academic support.

Understanding the impact personality traits have on the selection process of undergraduate major may give better insight to a students' preference of vocation. It is equally important to understand how students feel within the environment of their major and whether they intend to persist based on these feelings. The current study has set out to better understand how exactly personality impacts an undergraduate students' major choice, as well as their intention to persist based on their feelings of environmental fit.

Derivation of Hypothesis

Given that major choice is related to vocational choice, Holland's (1959) RIASEC model was further used to categorize six different vocational paths depending on personality. In previous literature, the big five personality types (Koseoglu, 2016) were referenced to describe different personalities within a college environment. Utilizing both Holland's (1959) vocational traits and the Big five personality types (Koseoglu 2016), Kaufman, Pumacahua, and Holt (2013) found significant links between personality and students' choice of college major. The

experiences reported by students were labeled as environmental fit (Cayirdag, 2016). Academics and stimulation from the organizational culture were found to be equally important according to Balsamo et al., (2012). Taking all the above variables into consideration, the following hypotheses have been derived:

H1: The big five personality types will predict students' vocational interests according to Holland's RIASEC model.

H2: Students' environmental fit within a college major will directly correlate with their intention to persist.

Methods

Sample

A purposive sample was used for this study. Purposive sampling is simply seeking out participants who are able to meet specific criteria to be recruited within a study (Acharya, Prakash, Saxena, & Nigam, 2013). Responses were received from students registered in undergraduate courses at an urban research university. The sample was also one of convenience, or participants convenient to the researcher (Wecht, 2017), due to the nature of how the survey was distributed. Fellow instructors agreed to distribute this survey to their students and other instructors they know.

Not all participants completed the full survey, so even though a total number of 278 participants were recorded, the actual number of participants varied throughout the survey. There were 264 responses recorded for the basic demographic questions. Male students made up

92 responses (33.1%) and female students made up 169 responses (60.8%). The other three responses (6.1%) were from participants identifying as transgender or who preferred not to answer. Most participants were between the ages of 18 to 20. Of the 264 participants, 55 (20.8%) answered that they were 18, 82 (31.1%) were 19, and 53 (20.1%) were 20 years of age. Research participants' ethnicity was largely white: 227 (81.7%) students were Caucasian, 16 (5.8%) students were African American, 6 (2.2%) students were Latino/a, 8 (2.9%) students were Asian, and 7 (2.5%) students identified as other. Of the 264 participants, 242 (87.1%) responded that they were single, 14 (5%) were married, and 8 (2.9%) chose not to answer. Basic demographic questions are provided in appendix G.

Procedure

The survey measured academic satisfaction ($N=271$), academic fit ($N=270$), intention to persist ($N=266$), vocational choice (RIASEC) ($N=263-258$), personality types (OCEAN) ($N=276-272$), and major type. These colleagues made their students aware of the survey and left the option open for them to participate with a chance of credit toward their grade. These incentives were entirely at the discretion of the instructor. The survey was also posted to Facebook with a brief description of the survey and encouragement to share or participate.

The first question of the survey was a required consent form. Students had to confirm consent before they could continue with the survey. The scales within the survey varied from three to 24 items. A five-point Likert scale was used for measuring academic satisfaction, academic fit, intention to persist, vocational choice, and personality types. The major type question had a dropbox and asked students to choose their major from a list. Multiple choice

questions were used to gather information for the participants' demographics. The survey stayed open for a span of about three weeks. Once the survey was closed, the data was exported in SPSS for analysis.

Instrumentation

To collect data on academic satisfaction, academic fit, intention to persist, vocational choice, and personality types, a five-point Likert scale was used. The responses ranged from Strongly Agree (5) to Strongly Disagree (1). A neutral point was provided as Not Sure (3). For a complete list of major departments and coding, reference appendix F.

Major Type

There are 37 academic majors within the northeastern Ohio research institution used in the current study. These majors are provided through the Provost's webpage on the university's website. Within the survey, all 37 majors were listed within a dropdown and participants were asked to select their current major from the list. The majors had been narrowed down into 9 different categories; business, social sciences, liberal arts, health, engineering/technology, natural science, arts, undeclared/other, and education. An analysis of variance was used to find the significance between major types and RIASEC vocational occupations.

Academic Satisfaction and Fit

Two separate scales were used to measure academic satisfaction and academic fit. Academic satisfaction can be found in appendix B and academic fit can be found in appendix C. The scale for academic satisfaction was taken from an existing scale used by Schmitt, Oswald, Friede, Imus, and Merritt, (2008). Some modifications were made to be specific to this study.

Academic satisfaction had five items with a strong reliability ($\alpha=.88$) and an average score of $M=4.24$, $SD=.68$.

Academic fit was also derived from the same study done by Schmitt et al., (2008).

Modifications were also made within the scale to make items specific to this study. Academic fit had six items with an acceptable reliability ($\alpha=.78$) with an average score of $M=4.02$, $SD=.63$.

Intention to Persist

A scale previously used by Ajzen (2006) was modified for this study. The scale contained three items, found in appendix D, which asked participants about their intentions to complete their current major. It had a strong reliability ($\alpha=.94$) with an average response of $M=4.56$, $SD=.79$.

Vocational Choice

There were six different dimensions to vocational choice based on Holland's (1959) research. These dimensions were described as realistic, investigative, artistic, social, enterprising, and conventional (RIASEC) vocations. A RIASEC scale previously developed by Armstrong, Allison and Rounds (2008), was used and modified for this study. The RIASEC scale can be found in appendix E.

Realistic vocations such as labor or mechanical had a high reliability ($\alpha=.92$) ($M=1.82$, $SD=.92$). Investigative vocations, or vocations relating to science, technology, math, and/or engineering (STEM), had a strong reliability ($\alpha=.85$) ($M=2.49$, $SD=1.10$). Artistic vocations were vocations with high creativity and artistic capabilities. They were found to have a strong reliability ($\alpha=.86$) ($M=2.30$, $SD=1.05$). Social vocational types, or those interested in human

relationships and caretaking, were found to have a strong reliability ($\alpha=.81$) ($M=2.72$, $SD=1.04$). Enterprising vocations were those categorizing under leadership roles, politics, or economics. They were found to have a solid reliability ($\alpha=.79$) ($M=2.80$, $SD=1.07$). Conventional vocations such as clerical positions were also found to have a strong reliability ($\alpha=.86$) ($M=2.51$, $SD=1.06$).

Personality Type

Rammstedt and John (2007) used a 10-item scale to measure the big five personality types, which was modified and used for this study. The items in the scale asked students to select the OCEAN personality traits which best described them. This scale can be referenced in appendix A.

Results

H1

The first hypothesis proposed that the big five personality types will directly predict students' vocational interests using Holland's RIASEC model. A Pearson correlation was used in order to find correlations and patterns between five different personality types and six vocational interests. These results may be referenced in Table 1. Although there were no strong correlations found between individual personality types and specific vocational interests, there were a few patterns within the results that supported H1. Understanding these relationships between personality types and vocational paths could be a predictor of which personality types may be positively or negatively linked with that vocational field.

Realistic vocations. Realistic vocations had negative correlations with all personality types except agreeableness. Realistic vocations were found to have the strongest positive correlation overall for the personality type agreeableness ($r=.10$), but this was not found to be statistically significant. The strongest, statistically significant negative correlations for realistic vocations were found with conscientious personality types ($r= -.16$) and neurotic personalities ($r= -.14$). Conscientious students were found to not be as likely to select realistic vocations. Students identifying as neurotic were also found to be less likely to select realistic vocations.

Investigative vocations. Investigative vocations were found to have statistically significant negative correlations with conscientiousness ($r= -.15$). If a student identifies with traits such as thorough and motivated behavior, the likeliness of selecting an investigative vocation may decrease.

Artistic vocations. Artistic vocational interests had only one positive and statistically significant correlation. This was found in openness ($r= .26$). Artistic vocations had the strongest correlation for openness. Identifying as open would serve as a significant predictor for their choice of artistic vocations.

Social vocations. Social vocational traits positively correlated with extraversion ($r=.13$). Participants closely identifying with traits of extraversion may be more likely to choose social vocational paths.

Enterprising vocations. There were no statistically significant correlations found for enterprising vocations, but the closest correlations were between extraversion ($r=.12$) and neuroticism ($r= -.16$).

Conventional vocations. Conventional vocations did not have any statistically significant correlations. The closest correlation was found with extroverted personality types ($r = -.10$).

Major Type. An analysis of variance was used to find statistically significant differences between majors at this university and the RIASEC vocational occupation traits. Evidence showed that there was statistical significance between major type and RIASEC occupations. The vocational interests were found to have the following statistical significance with major types: Realistic ($F=7.54, p=.00$), Investigative ($F=9.20, p=.00$), Artistic ($F=5.07, p=.00$), Social ($F=6.20, p=.00$), Enterprising ($F=6.20, p=.00$), Conventional ($F=6.12, p=.00$).

Those who categorized under realistic vocational traits were found to have the highest average response ($M= 2.92, SD= 1.06$) among majors in engineering/technology. Investigative occupational types had the highest average response ($M=3.33, SD= 1.46$) with majors in undecided/other. Participants identifying with artistic traits were found to have the highest response ($M=3.00, SD= 1.08$) with art majors. Those identifying with social occupations had the highest mean ($M= 3.75, SD=1.24$) with majors in liberal arts. Enterprising ($M= 3.64, SD= 1.08$) and Conventional ($M= 3.48, SD= 1.14$) shared their highest response with majors relating to business

Table 1

	Realistic	Investigative	Artistic	Social	Enterprising	Conventional	Open	Conscientious	Extroverted	Agreeable
Investigative	.28**									
Artistic	.15*	.25**								
Social	.15*	.27**	.26*							
Enterprise	.23**	.09	.44*	.30**						
Conventional	.46**	.27**	.22*	.16**	.46**					
Open	-.06	-.12	.26*	-.03	.01	-.02				
Conscientious	-.16**	-.15*	-.08	-.05	.03	-.04	.08			
Extrovert	-.11	-.10	-.01	.13*	.12*	-.10	.03	.24**		
Agreeable	.10	.06	.07	.04	.09	.07	-.03	.27	.10	
Neurotic	-.14*	.03	.02	.05	-.16**	-.07	-.02	-.14	-.25*	.06

Note: **. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed)

Supporting Evidence. H1 was not fully supported, but there was evidence to partially support the hypothesis. The Pearson Correlation did not reflect a large number of strong, significant correlations between vocational interests and personality types based off of the RIASEC and OCEAN models. However, there were patterns that may reflect a general idea of which vocational interests may or may not certain personality types. The ANOVA provided strong evidence that vocational interests showed statistical significance toward specific major types. The supporting factors in H1 came directly from the significant correlations found in the Pearson Correlation and the statistically significant links in the ANOVA.

H2

The hypothesis regarding environmental fit and intention to persist initially proposed that a student's environmental fit within a college major will directly correlate with their intention to persist. A regression analysis was used to find a predictive relationship between the independent variables, academic satisfaction and academic fit, and the dependent variable, intention to persist. A regression analysis was the most accurate way to determine if students' academic behaviors and attitudes predicted the outcome of persistence within their major.

Academic satisfaction and academic fit explained 32% of the variance in intention to persist ($R^2 = .32$, $F = 61.1$, $p = .00$). Academic satisfaction was found to be a statistically significant predictor of intention to persist, with a ($\beta = .18$, $p = .01$). Academic fit was also a statistically significant predictor of intention to persist, with ($\beta = .42$, $p = .00$).

Overall, many students felt satisfied within their major and indicated that they fit well within that environment.

This hypothesis was fully supported as both academic satisfaction and academic fit were both found to be statistically significant predictors in the intention to persist ($\beta=1.55, p=.00$). Overall, students had a statistically significant intention to persist within their major if they felt satisfied academically and environmentally within their major.

Discussion

Previous research has found that personality has an influence on effort, critical thinking, and performance in an academic setting (Bauer & Liang, 2003). These researchers also found that building social relationships, being able to adjust in a new environment, and physical comfort all played a role for a smooth transition into a college major. The current study looked at personality types, vocational choice, environmental fit, and a students' intention to persist within their major. The results reflected correlations between personality types and vocational interests. There are also statistically significant correlations between environmental fit and intention to persist within an undergraduate major.

H1, the big five personality types will predict a students' vocational choice using Holland's RIASEC model, was somewhat supported. There were patterns found to suggest that some vocational interests positively support some personality types. Those who are open to experiences may be more likely to select artistic vocations. Conscientiousness, or thorough and motivated behavior, negatively correlated with

realistic careers. However, the less a student identifies with neuroticism, the more likely they are to select a realistic career. Extroverted personalities, or those identifying as outgoing and sociable, were found to positively correlate with social vocations. These students may be more likely to select these vocations. With these correlations, it may be possible to predict which vocational paths students are more likely to choose based on their personality type. This could also predict how well a student may or may not perform within a vocation.

Although personality types were not found to directly differ among college majors, occupational traits or interests did. The correlations in Table 1 showed that OCEAN traits are related to RIASEC traits. These correlations may predict how well a student may or may not fit within that occupational field. The ANOVA results showed evidence that RIASEC traits differ among college majors. Depending on the occupation participants identified with the most, their average responses may predict which major best suits their traits. OCEAN personality traits may be indirectly related to college major choice because of the correlations found with the RIASEC occupational traits. RIASEC traits may directly predict which major is best suited for an undergraduate student.

H2 suggested that a student's environmental fit within a college major will directly correlate with their intention to persist and was fully supported. Previous research found that students make their major choices based on personal and environmental factors (Milsom & Coughlin, 2015). It was also found that students begin to perform poorly when they lose, or do not have, interest in their major (Ashraf, Godbey,

Shrikhande, & Widman, 2018). The results found within this study showed direct correlations between environmental fit and intention to persist within major. If students expressed academic satisfaction and fit within their major, they displayed a full intention to persist within that major.

Limitations

Convenience and purposive sampling was used when recruiting research participants. The convenience of the sample could have posed a limitation. Being that it was conducted within a single urban research institution, this could have limited the responses within the results. The participants were found to come from two main departments within the university, nursing and communication. It may be possible that students within these departments responded similarly, as they are enduring the same major requirements. This research institution is well known for their advocacy of a diversified student body and the survey was distributed to many different instructors across and within various departments. However, being able to reach students in various universities could have greatly diversified the results.

It would have also been beneficial to understand the types of majors in which research participants were enrolled. Previous research did not provide reliable measures that would serve as versatile among any research institute as major departments can vary greatly. Given the large number of departments throughout this institution, it proved difficult to record. With a more reliable measure for major type, there may have been possibilities to better understand and find correlations between specific personality types

and majors. Recognizing these limitations can only help improve and further research within this field.

Future Research

Previous research puts forth self-efficacy and personality as two common factors leading to students' choice of major. In one study, researchers found that interests, abilities, and values had strong correlations with students' major choices. These students sought majors that they felt would reinforce their abilities (Milsom & Coughlin, 2015). Personalities were also found to precede academic choices (Balsamo, Lauriola, & Saggino, 2012). The ideal outcome of an academic choice or undergraduate education is to excel within a specific field. Future research can use personality types to further investigate how they impact major choices and their major fit. It would be beneficial in the field of higher education to further investigate if it is possible to predict vocational interests based on personality types. There is evidence in these (ANOVA) results that personality aligns with RIASEC vocational interests and that those interests vary among majors. Testing this link could lead to higher retention rates and an increase of college graduates.

Future research could also benefit from reliable and easily accessible measures of major type. Possibly being able to correlate choice of major with a specific personality type could better predict intention to persist within that major. This information would aid in decreasing dropout and change of major rates. It would greatly benefit higher education to understand whether personality can be linked to choice of major, as majors

ideally lead to choice of vocation. Though personalities are only one of many factors leading to major choice, they could prove to be a crucial factor.

Conclusion

Personality types based on the big five were not found to significantly correlate with vocational interests. However, RIASEC traits were found to correlate with major type. These findings may help future researchers better understand the process of major selection based on undergraduate students' individual personality traits. More reliable measures for major type could better explain the impact of individual personality traits on vocational interests. These correlations can serve as a predictor for which personality types will be supported or not supported within specific vocational occupations. A students' environmental fit directly correlating with intention to persist could bring a lot of understanding to retention rates. Understanding the contributions toward a students' environmental fit and how this may impact their intention to persist could result in higher undergraduate student retention rates.

Looking at the results for both hypotheses, a few suggestions may be made for undergraduate administrative staff. Whether students are choosing a major for the first time, or looking to switch majors, there may be some components that are worth investigating before making a decision. Since occupational interests were found to have links with major type, it could be suggested that advisors provide self-assessments on their students, regarding their occupational interests, before suggesting a major. Taking a

student's occupational interests and matching them with a specific major, may strengthen the students' likeliness to perform well and persist in that major.

The current study also found that environmental fit directly correlated with the intention to persist within current major. Previous research has encouraged advisors to look into variables regarding student performance, dissatisfaction within current major, and student interests, in order to match them with an appropriate major (Ashraf et al., 2018). Motivational counseling and supplemental instruction (SI) were also few methods that came about in previous research (Ashraf et al., 2018). By providing personalized counseling and peer-assisted tutoring (SI), it may be found that retention rates increase as a result of this specialized counseling.

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Appendix A
IRB Approval Letter



One University Plaza, Youngstown, Ohio 44555
Office of Research
330.941.2377

February 18, 2019

Dr. Rebecca Curnalia, Principal Investigator
Ms. Allison Centofanti, Co-investigator
Department of Communication
UNIVERSITY

RE: HSRC PROTOCOL NUMBER: 130-2019
TITLE: Personality, Major, and Persistence in College

Dear Dr. Curnalia and Ms. Centofanti:

The Institutional Review Board has reviewed the abovementioned protocol and determined that it meets the criteria of DHHS 45 CFR 46.104(d)(2) and therefore it is exempt from full committee review.

Any changes in your research activity should be promptly reported to the Institutional Review Board and may not be initiated without IRB approval except where necessary to eliminate hazard to human subjects. Any unanticipated problems involving risks to subjects should also be promptly reported to the IRB.

The IRB would like to extend its best wishes to you in the conduct of this study.

Sincerely,

Dr. Greg Dixon
Interim Associate Vice President for Research
Authorized Institutional Official

GD:cc

c: Dr. Adam Earnhardt, Chair
Department of Communication

APPENDIX B

OCEAN Scale (Rammstedt & John, 2007).

Reversed items have been marked with an asterisk.

Please answer the following questions about yourself. Indicate the extent to which you agree with each statement on a scale of Strongly Agree (5) to Strongly Disagree (1)

I see myself as someone who:

Openness:

Has an active imagination

Has few artistic interests*

Conscientiousness:

Does a thorough job

Tends to be lazy*

Extraversion:

Is outgoing, sociable

Is reserved*

Agreeableness:

Is generally trusting

Tends to find fault in others*

Neuroticism:

Gets nervous easily

Is relaxed, handles stress well*

APPENDIX C

Environmental Fit Scale (Schmitt et al., 2008.)

Thinking about your current major, respond to the following items.

Next, we are interested in the environment within your major. Indicate the extent to which you agree with each statement on a scale of Strongly Agree (5) to Strongly Disagree (1).

Academic Satisfaction Scale

1. All in all, I am satisfied with the education I can get in my major
2. I am satisfied with the intelligence of my instructors in my major
3. I am satisfied with the extent to which my education will be useful for getting future employment
4. I am happy with the amount I learn in my classes
5. I am satisfied with the extent to which attending this school will have a positive effect on my future career

APPENDIX D

Environmental Fit Scale (Schmitt et al., 2008)

Reversed items have been marked with an asterisk.

These items ask about your major. Indicate the extent to which you agree with each statement on a scale of Strongly Agree (5) to Strongly Disagree (1).

Academic Fit Scale

1. The courses available in this major match my interests
2. I know other students in my major whose academic interests match my own
3. My current courses are not really what I would like to be doing*
4. All things considered, my current major suits me
5. I feel that my academic goals and needs are met by the instructors in this major
6. I am able to use my talents, skills, and competencies in my current major

APPENDIX E

Intention to Persist (Ajzen, 2006)

Indicate the extent to which you agree with each statement on a scale of Strongly Agree (5) to Strongly Disagree (1).

5. Indicate your response to the following statements.

1. I intend to finish within my current major.
2. I am confident about staying in my current major.
3. Finishing my current major would be ideal.

APPENDIX F

RIASEC Measure of vocation/major (Armstrong et al., 2008)

Next, we are interested about your vocational choice. Indicate the extent to which you agree with each statement on scale of Strongly Agree (5) to Strongly Disagree (1).

As an occupation, I have interest in:

Realistic:

1. Operating a machine on a production line
2. Setting up and operating machines to make products
3. Testing the quality of parts before shipment
4. Assembling electronic parts

Investigative:

1. Doing research on plants or animals
2. Studying ways to reduce water pollution
3. Developing a new medicine
4. Working in a biology lab

Artistic:

1. Designing artwork for magazines
2. Creating special effects for movies
3. Writing reviews of books or plays
4. Painting sets for plays

Social:

1. Giving career guidance to people

2. Helping people who have problems with drugs or alcohol
3. Teaching disabled people work and living skills
4. Working with juveniles on probation

Enterprising:

1. Managing a department within a large company
2. Marketing a new line of clothing
3. Negotiating contracts for professional athletes
4. Starting your own business

Conventional:

1. Keeping records of financial transactions for an organization
2. Entering information into a database
3. Maintaining employee records
4. Computing and recording statistical and other numerical data

APPENDIX G

Major Type (Provost's Website at Youngstown State University)

Majors have been narrowed down into nine categories. The categories include:

**1. Business; 2. Social Sciences; 3. Liberal Arts; 4. Health; 5. Engineering/Technology;
6. Natural Sciences; 7. Arts; 8. Undeclared/Other; 9. Education**

The number next to the major represents the category in which it has been placed.

Please select the department of your major:

Undeclared (8)

Accounting & Finance (1)

Art (7)

Biological Sciences (6)

Chemistry (6)

Civil/Environmental & Chemical Engineering (5)

Communication (7)

Computer Science & Information Systems (5)

Counseling, School Psychology, and Educational Leadership (9)

Criminal Justice & Forensic Sciences (3)

Economics (Not categorized, as there were no results for this major.)

Electrical & Computer Engineering (5)

Engineering Technology (5)

English (7)

Geography and Urban-Regional Studies (2)

Geological & Environmental Sciences (6)

Health Professions (4)

History (Not categorized, as there were no results for this major.)

Human Ecology (2)

Kinesiology & Sport Science (4)

Management (1)

Marketing (1)

Mathematics & Statistics (5)

Mechanical, Industrial, and Manufacturing Engineering (5)

Military Science (Not categorized, as there were no results for this major.)

Music (7)

Nursing (4)

Philosophy & Religious Studies (3)

Physical Therapy (4)

Physics & Astronomy (Not categorized, as there were no results for this major.)

Politics and International Relations (3)

Psychology (2)

Social Work (4)

Sociology, Anthropology, and Gerontology (2)

Teacher Education (9)

Theatre and Dance (7)

World Languages and Cultures (Not categorized, as there were no results for this major.)

APPENDIX H

Basic Demographics

Please answer the following basic demographic questions. Responses will remain anonymous.

8. Please identify your age
9. Please select your total household income for 2018
10. Please select the gender which you identify with
11. Select the answer that describes your current marital status
12. According to your current complete credits, please select your current level in college
13. Select your ethnicity