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A Review of Classical Motivation Theories: Understanding the Value of Locus of Control in Higher Education

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ABSTRACT

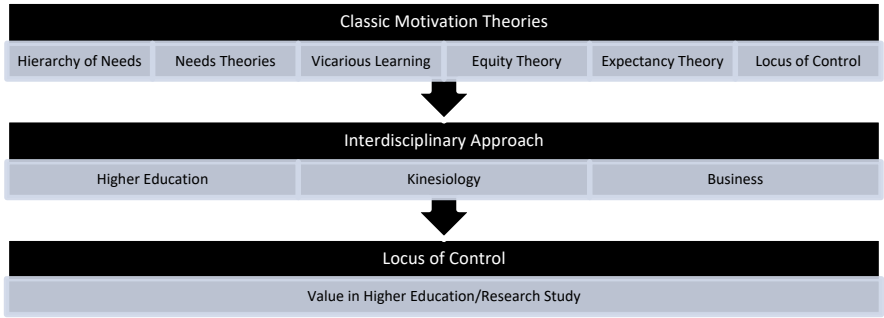
This manuscript demonstrates the value of understanding locus of control in higher education. Understanding this value provides educators with the ability to potentially predict academic outcomes and have the foresight to guide students to achievement. First, the manuscript identifies and explores the classic theories of motivation from the mid-1900s. Then, a study is conducted that hypothesizes a correlation between demographic variables (age, gender, graduate/undergraduate classification) and locus of control using Rotter's (1966) locus of control questionnaire. Finally, examples from four different disciplines are provided. This manuscript proposes suggestions for future research that will contribute to the findings of the overall construct of motivation, and more specifically, student locus of control in higher education.

Keywords: hierarchy of needs, higher education, locus of control, motivation, needs theories, vicarious learning

This paper defines motivation and provides an overview of classic motivation theories. In order to demonstrate the value of understanding a college student's locus of control, the underlying nature of the construct, motivation, is discussed. Motivation is analyzed and deconstructed into understanding a person's perception, or locus of control. The manuscript details locus of control (LOC) in higher education by providing specific

research studies to further exemplify the value of understanding the impact on a student's academic success. Finally, suggestions for future research are provided. The purpose of this paper is to demonstrate the value of understanding a college student's locus of control and include various examples not only in higher education but from an interdisciplinary component to gain a broader perspective. Figure 1 depicts the progression of this manuscript.

Figure 1



LITERATURE REVIEW

Motivation is a valuable construct in life that determines the degree of success in outcomes (i.e. students in school, professionals at work, potentially the well-being of personal and professional relationships, etc.) and is defined in a number of different ways. Jones and George (2017) defined motivation as a psychological force that directs behavior. Ormrod (2016) defined motivation as an internal state that stimulates an action and helps maintain focus towards an end goal. Wiegand and Geller (2005) proposed the idea that motivation was a push towards achievement, as well as a failure avoidance. Ryan and Deci (2000) defined motivation as moving towards doing something. Aarts, Gollwitzer, and Hassin (2004) cited motivation as the behavior that drove one towards an end state. Miller, Galanter, and Pribram (1960) presented the notion that motivation could be a model for thinking, and Locke and Latham (2002) presented a simplified definition of motivation as intentional mindful goal setting. Robbins and Judge (2017) defined motivation "as the processes that account for an individual's intensity, direction, and persistence of effort toward attaining a goal" (p. 209). The commonality among these definitions is that there is a starting point and an *intentional* ending point. Moreover, motivation has been linked to goals, mindset, and internalized motivation. In higher education, the concept of motivation impacts a multitude of opportunities for students, such as choosing whether or not to attend a college, admission into a particular university, earning a certain grade point average (GPA), acceptance into a specific academic program or specialized group, or holding a distinct position within

a university organization. Therefore, it is important to gain a historical perspective and understand the evolution of the classic motivation theories.

Classic Motivation Theories

Table 1 identifies and outlines the classic motivation theories of the mid-1900s that came before Julian Rotter's (1966) introduction to the idea of locus of control. Each of the prior theories contributed to the origination of the locus of control construct (identifying whether particular outcomes can be attributed to internal or external sources).

Table 1: Connecting Motivational Theories

Author	Theory	Summary
Maslow, A. (1943)	Hierarchy of Needs	There are five basic needs all people possess organized in a hierarchical fashion (beginning at the bottom). As each need is satisfied (at least partially), other needs arise. The structure is: physiological (lowest), safety, belongingness/love, esteem, and self-actualization (highest).
McClelland, D. (1961)	Need for Achievement	The need for an individual to perform well on challenging tasks and meet self-set standards of excellence.
McClelland, D. (1961)	Need for Affiliation	The need for an individual to maintain (good) relationships, feeling accepted and included among others.
McClelland, D. (1961)	Need for Power	The need for an individual to hold influence and/or control over others or an entity.
Bandura (1962)	Vicarious Learning	Also known as observational learning. When an individual (learner) is motivated to perform a task after watching another individual (model) perform the task and seeing positive outcome(s). The learner will also be motivated to avoid certain tasks when seeing negative outcomes.
Adams, J. (1963)	Equity Theory	People's perception that their effort (inputs) will fairly result in expected desired results (outcomes) as related to others' efforts. Meaning, the degree of effort I put forth will result in a particular outcome, which is the same for all other workers.
Vroom, V. (1964)	Expectancy Theory	Motivation is high when workers believe that if they put forth a high degree of effort, there will be a high degree of performance, leading to a highly desired outcome; it identifies three factors impacting one's motivation: 1) expectancy, 2) instrumentality, and 3) valance.
Rotter, J. (1966)	Locus of Control	The idea that individuals hold themselves accountable or place blame elsewhere as a result of certain outcomes.

Hierarchy of Needs

These motivation theories were exemplified across industries and span a number of disciplines in higher education including business, kinesiology, psychology, and sociology. Abraham Maslow (1943) constructed the infamous Hierarchy of Needs, which examined motivation on a basis of need fulfillment. In fact, Robbins and Judge (2017) argued that this is the best-known of all motivation theories. The premise was that there was a hierarchy of needs that served as motivational factors, and once a lower-tiered need was satisfied (fully or partially), the next need within the hierarchy

arose. As students entered university life, they progressed through this hierarchy. It began with filling physiological needs. Students were, for the first time, responsible for life's basic needs – they were now responsible for ensuring they ate healthy foods, stayed hydrated, stayed active, and kept good hygiene. Once that need was at least partially satisfied, the second need within the hierarchy arose - safety/security. This included becoming responsible for maintaining their daily schedule, locking their dorm room doors, paying more attention to their surroundings, checking in with others, and the like. Ultimately, it was feeling secure in their environment. According to Maslow (1943), children preferred to be in routine environments to feel secure; any disruption to an orderly, predictable setting would make them feel unsafe. The third need to arise was love/social-belongingness, which included maintaining various friendship groups on campus, actively participating in classroom group activities, and social events. Here, Maslow (1943) revealed that this cycle of needs repeated, but the sense of belonging remained the center. The fourth need in Maslow's hierarchy was esteem, which included everything from independence and self-respect (internal), to receiving attention from others, and social status (external) (Robbins & Judge, 2017). Maslow (1943) disclosed that fulfilling this need created a sense of purpose and usefulness to society. Finally, when the other four needs were at least partially met, if not fully met, students achieved self-actualization. This was a state of enacting our best self. Ormrod (2016) argued that "individuals striving toward self-actualization seek out new activities as a way of expanding their horizons and want to learn simply for the sake of learning" (p. 431). For university students, it meant proactively managing their calendar, sharing personal strengths, identifying weaknesses and creating a plan to turn those weaknesses into strengths.

While Maslow's hierarchy presented the progression of motivation for students in higher education in a need-based, practical manner, it did not demonstrate the value of locus of control. Determining a student's locus of control would provide an additional level of self-awareness, which would be advantageous in their life including their higher education journey. Students could be educated to hold themselves accountable, creating a better understanding and visibility to achieving their academic goals. If students held themselves accountable, they may be more likely to progress through this hierarchy in a more efficient, and still effective manner. Similar to Maslow's Hierarchy of Needs, David McClelland introduced his Needs Theories to the academy.

Needs Theories

David McClelland (1961) identified three needs theories that were motivationally-based, rather than Maslow's survival-based needs. These needs were 1) the need for achievement, 2) the need for affiliation, and 3) the need for power. The need for achievement (otherwise known as achievement motivation (Ormrod, 2016)) from a higher education perspective, was exemplified along a spectrum that spanned from students earning their degree,

to earning a particular GPA. Ormrod (2016) also indicated that "individuals with a stronger motive for success tend to seek and tackle moderately difficult tasks… without worrying about mistakes they make or stumbling blocks they might encounter" (p. 442). The need for affiliation was showcased in a number of ways. Jones and George (2017) described this need as the "extent to which an individual is concerned about establishing and maintaining good interpersonal relations, being liked, and having the people around him or her get along with each other" (p. 313). As an example, some students joined fraternities or sororities to feel a stronger sense of community and belonging. Other students took the lead in course group work, ensuring it operated at an optimal level and everyone enjoyed the experience; some students focused on developing working relationships with their instructors. The third need, the need for power, in higher education was similar to any other situation in life and can take place in the classroom, on a sports team, with an extracurricular group, or where there was another person who was willing to be influenced. Students possessed any of these needs at any point in their college career, but usually had a tendency to lean towards one or two. Meaning, the need for achievement was an internal motivator (Robbins & Judge, 2017), therefore, this drive was not universally shared. However, at various times, one may have experienced an internal drive for achievement.

Coupling the locus of control construct to each of these needs could bring a new, valuable dynamic to students. For example, it could be predicted which students had a high need for achievement by determining their locus of control (Valdes-Cuervo, Sanches Escobedo, & Valadez-Sierra (2015)). Additionally, students with a high need for power could translate into a higher need for control, and the same argument could hold true. Those with an internal locus of control often felt in control, or as though they had the power to be successful. Students with an external locus of control may not be as ambitious to hold power, as it would be outside of their control to obtain it. Lastly, it would be valuable to know a student's locus of control in regards to affiliation. Those with a high need for affiliation and maintained an internal locus of control may be more likely to take an initiative to become more involved socially (i.e. join organizations and student groups to increase social interaction to become a part of a group). Those with an external locus of control may be more likely to maintain a high need for affiliation but wait for an invitation to join a group, which could be problematic if that student was feeling lonely and detached socially. Thus, the value of knowing a student's locus of control could help to resolve these issues. Another benefit to affiliating with other students might be vicarious learning.

Vicarious Learning

A benefit to group work in higher education and a natural consequence of affiliation originated with Bandura (1962) identified as *vicarious learning*. Described as learning through observation, the idea was that the learner saw success through someone else and attempted to repeat the

behavior with the expectation of achieving a similar outcome. Likewise, if the learner was observing behavior that had a negative outcome, the learner may be less likely to repeat that behavior. Jones and George (2017) described vicarious learning as a situation when someone observed another and was motivated to replicate the behavior; they also explained its motivational nature when particular functions (as well as behaviors) were duplicated in order to gain a particular skill. An example was to demonstrate a task first. Hypothetically, if an instructor were teaching the a new function in Microsoft Excel to someone who has never performed this function previously, taking the learner/observer through each step within the process would allow the student to participate in the learning experience through observation. This experience would provide a level of confidence to complete the task independently in the future, of course, taking into consideration task complexity and learner capability. Moreover, a way to increase self-efficacy (confidence in one's ability to complete a particular task) was to watch another person successfully complete an activity, reinforcing the fact that it was possible to complete, and with similar skills could be completed by the observer.

Not only were there multiple manners in which to identify motivation, there were various techniques used across disciplines, from managers in corporate America (business context) to university professors in the classroom (education context). Khaldi (2012) argued that motivation-based teaching techniques could be implemented to improve student learning. These techniques included demonstrating commitment to student learning, expressing empathy when necessary, promoting a sense of urgency when called upon, showing patience, creating an enjoyable learning atmosphere, and expressing clear and fair classroom expectations.

Here, it is valuable to understand a higher education student's locus of control as related to vicarious learning. Students with an internal locus of control would be more likely to take the initiative to learn something from other students. Whereas a student in higher education with an external locus of control, who needed to learn something in particular for a course, would be less likely to take that opportunity and expect that opportunity to come to him/her, regardless of whether or not he or she felt the situation was equitable.

Equity Theory

The Equity theory, coined by J. Stacy Adams (1963), related motivation to perception. Jones and George (2017) defined the equity theory as "a theory of motivation that concentrated on people's perceptions of the fairness of their work outcomes relative to, or in proportion to, their work inputs" (p. 313). For example, people believed there was a direct relationship between inputs (effort) and that they were fairly represented through outputs (outcomes). This meant that students believed that if they worked hard, they would be successful. If they did not work hard, they would not be as successful as they would have been if they would put forth additional effort. Furthermore, they believed that those who do not complete assignments or

attend class would not be as successful as those who fulfilled course requirements because that would not be fair. Ultimately, the same inputs should be equated to the same outputs, without judgement, impartiality or any other factor that would cause inequity.

Understanding a student's locus of control could prove valuable here. When students believe the situation is equitable, they continue with their normal behavior. However, those individuals with an internal locus of control who believed the situation was not equitable might take it upon themselves to either make the situation equitable, or work around the inequity to become successful. Students with an external locus of control would place blame on the inequity for not succeeding. Similar to the Equity theory is the Expectancy theory.

Expectancy Theory

In his Expectancy theory, Victor Vroom (1964) correlated effort with performance and outcome as a factor of motivation. He believed that high effort would lead to a stronger performance and desired outcomes. Robbins and Judge (2017) defined it as "a theory that says that the strength of a tendency to act in a certain way depends on the strength of an expectation that the act will be followed by a given outcome and on the attractiveness that outcome to the individual" (p. 229). Neck, Houghton, Murray, and Lattimer (2017) described it as the likelihood one was motivated and executed thoroughly if they expected certain results. Jones and George (2017) detailed Vroom's three-part equation that influenced motivation (which included effort, performance, and outcomes) and added the psychological aspect: expectancy, instrumentality, and valence. Expectancy was the anticipation that one has to achieve a particular goal. Instrumentality was described as "a person's perception about the extent to which performance at a certain level will result in the attainment of outcomes, (and, valence was) how desirable each of the outcomes available from a job or organization is to a person" (p. 306). In education, the translation was as simple as: If a student wanted to earn an "A" in the course, he or she needed to attend class regularly, read, and study (effort), which should lead to earning points throughout the semester (performance), and ultimately an A (outcome).

The advantage in understanding students' locus of control as related to the Expectancy theory could also prove predictable. For example, when female students anticipated, or expected, the adjustment each would experience in college, they exhibited a higher adjustment rate when maintaining an internal locus of control (Mooney, Sherman, & Lo Presto (1991)). Therefore, those students with an external locus of control were more likely to have difficulty adjusting to life at the university because they were less able to understand what to expect during the transition.

While each of these classic theories in motivation have impacted decades of research, the addition of locus of control proved valuable, as illustrated in each scenario above and exemplified by students in higher

education. To advance the motivation construct from the mid-1900s to a current day research study that includes understanding students' locus of control.

Locus of Control in Higher Education

Locus of control is where an individual placed accountability for an outcome – positive or negative. When receiving praise or blame, did the individual reflect and analyze his or her own actions, or did the individual immediately look at external factors as the source that led to the outcome? Neck et al. (2017) described locus of control as a spectrum in which a person or group felt they had control over their circumstances. One manner to explain locus of control in education was for students to examine the source of earning their grades. Once a student completed a semester, grades were finalized and posted. A student with an internal locus of control believed the course grade was earned as a direct result of his or her honest effort, attending classes, taking notes, actively engaging, participating in activities and assignments, and truly focusing on the time committed to the course - reading and studying material. This was all in proportion to the earned grade. Continue to assume this student had an internal locus of control, he or she was not understanding the material, or was performing below the personal expectations. This student would believe it was his or her responsibility to proactively speak with the professor, seek a tutor or another form of additional assistance to be successful in the course.

A student with an external locus of control would have the perception that the grade received was based on other external factors, including relative performance of other students in the course (i.e. grading on a curve), other students' performance in group work, or extenuating circumstances during that semester (personal issues outside of this student's control). Other external factors could include poor instruction, (lack of) genetic intelligence, familial expectations for academic performance, the student's background (people from *my* background do not do well in school), and/or a person's luck.

Therefore, the studies selected within this manuscript were based on a number of criteria. First, a search was performed with keywords such as: locus of control, motivation, higher education, and academic locus of control. Second, scholarly databases searched included APAnet, Google Scholar, OhioLink, ERIC, and EBSCO. Next, the search only included databases with peer-reviewed articles. Third, additional guidance was sought from faculty members with prior published research within the power and locus of control (motivation) arena.

Studies excluded from the selection were based on the following measures. First, only English-language articles without a paid subscription were selected. Second, these English-language articles had to be published in peer-reviewed journals. Third, a *Find* search was performed to ensure locus of control was included in the study. Fourth, these studies were selected within the last 5+ years. There was one study selected from 1991 because it directly studied the impact of locus of control in higher education.

The intention of this section was to provide five studies contributing different arguments that demonstrate the value of learning a student's locus of control. These studies cover a vast number of locus of control constructs (e.g. academic locus of control, self-esteem, parental locus of control, academic procrastination, self-concept, and goal orientation). Table 2 highlights each of these studies, including authors, scope of the study, and key points of the study as related to locus of control as related to education.

Table 2: Various Locus of Control Studies

Authors	Participants/Scope	Key Points
Curtis, & Trice (2013)	322 college students assessing academic locus of control	Demonstrated statistical significance between internal locus of control and other measures (i.e. GPA, procrastination, and emotional state)
Mooney, Sherman, & Lo Presto (1991)	Explored multiple factors (i.e. academic locus of control, self-esteem, and distance from student's home) to determine whether or not they would predict adjustment to college	Female students with an internal locus of control and high self-esteem demonstrated most effective adjustment to college
Lloyd, & Hastings (2009)	Examined parental locus of control in mothers with disabled children	Concluded mothers with external locus of control did not hold themselves personally responsible for their child's disability
Rakes, Dunn, & Rakes (2013)	Analyzed graduate-level academic procrastination	Students with an external academic locus of control were more likely to procrastinate
Valdes-Cuervo, Sanches Escobedo, & Valadez-Sierra (2015)	Studied locus of control, self-concept, and goal orientation in high-achieving Mexican students	High-achieving students illustrated an internal locus of control, increased levels of goal motivation, and positive self-concepts as related to academics

Curtis and Trice (2013) conducted a study with 322 college students assessing academic locus of control. Corresponding with prior research, they established a statistical significance between an internal locus of control and other measures including "grade point average, number of absences, academic entitlement, procrastination, anxiety, and depression" (p. 827). Another study performed by Mooney, Sherman, and Lo Presto (1991) explored the relationship among academic locus of control, self-esteem, and the distance from the student's home (as perceived by the student) and applied those factors to determine whether or not they would be predictors of adjustment in college. The study discovered that the student's adjustment to college was not due to one variable in particular, but the culmination of multiple variables. As related to locus of control, the study results showed that "female students possessing an internal academic locus of control and a high level of self-esteem reported a more effective adjustment to college (academic, personal, social, and attachment) than female students possessing either an external locus of control or low self-esteem" (p. 447).

Therefore, it can be concluded that one's locus of control had a significant impact on their motivation and potential achievement – whether or not he or she thought they can be successful academically (or elsewhere in

life). For example, if a student thinks he or she is not capable of earning a 4.0 GPA, hold a particular position or earn a given amount of money because of various external factors outside of my control, how likely is that student to make an honest effort to achieve those goals? Lloyd and Hastings (2009) performed a study that examined parental locus of control as well as the psychological well-being in mothers who had children with a diagnosed intellectual disability. They found that mothers who had an external locus of control did not hold themselves personally responsible for the disability in their child but there was a significant association with both depression and stress. They concluded that "a mother who feels unable to control her child's behavior may develop learned helplessness," (p. 112) another potential result of having an external locus of control. Therefore, it can be interpreted that if those same mothers had an internal locus of control, they would be more likely to be proactive and motivated to improve their child's quality of life or what has an impact on their child's intellectual disability. The value this study brought to this manuscript was to showcase the importance of parental locus of control and the impact it has on student learning. Mothers possessing an internal locus of control who had disabled children often made an effort for their child's success, which can have a ripple effect on the child – motivating them to believe in their own academic success.

Rakes, Dunn, and Rakes (2013) examined academic procrastination, specifically in online graduate coursework. Results of the study validated prior research in locus of control behaviors. Students were more likely to procrastinate if they maintained an external locus of control (i.e. "external causes," p. 112). Similarly, and also in line with prior research, Valdes-Cuervo, Sanches Escobedo, and Valadez-Sierra (2015) studied locus of control, self-concept, and goal orientation in high-achieving Mexican students. Results revealed that these high-achieving students illustrated internal locus of control, increased levels of goal motivation, and positive self-concepts as related to academics. However, it should be noted that female participant "scores were significantly higher on academic self-concept and internal locus of control, than males" (p. 21).

If locus of control was identified in each student early in his or her respective academic career, by the time the student entered a university, he or she should be able to self-identify scenarios in which the previously identified external locus of control could potentially limit him or her from being successful in the future. Therefore, each student should work to create an environment leading to academic achievement. If unable, the student could seek additional assistance to develop a mindset where expectations are directly in line with respective academic goals. Future longitudinal research could be conducted in this manner.

Interdisciplinary Research

Locus of control, regardless of the context, impacts one's life perspective. There are four studies below that range between kinesiology (health) and business that investigated the impact on one's locus of control

and the outcomes of the situation. For example, Sargent-Cox and Anstey (2015) studied 739 adults across multiple generations to uncover whether or not there was a relationship between health locus of control and age-based stereotypes. The relationships were confirmed in that there is a link between these stereotypes and health locus of control, specifically with external locus of control and health expectancies – those who do not believe they impact their own longevity are less likely to live longer.

Moreover, Henninger, Whitson, Cohen, and Ariely (2012) developed a study which confirmed a direct correlation between external locus of control and the likelihood one had to engage in negative health behaviors, with results including morbidity. They further endorsed the notion that one's locus of control impacted an individual's health and can potentially be linked to disease.

Lastly from a kinesiology perspective, Hutcheson, Fleming, and Martin (2014) researched the impact on one's locus of control and their respective health. As demonstrated in previous research across multiple disciplines, those with internal locus of control feel as though they have more control and take initiative to maintain positive health. Meaning, those individuals with an external locus of control were more likely to be unhealthy, than individuals with an internal locus of control.

Aziz and Tariq (2013) investigated locus of control among business executives. Their conclusion was in-line with behaviors previously discussed and associated with internal and external locus of control. They discovered the following four positions:

1) There was no association between internal locus of control and decisional procrastination (rather than behavioral procrastination),
2) A substantial positive relationship was present between external locus of control and decisional procrastination, consistent with prior findings (Hampton, 2005; Milgram & Tenne, 2000),
3) A strong correlation was demonstrated between internal locus of control and executives with more job tenure, and
4) There was a substantial "difference in internal locus of control among public and private sector managers and non-managers… People who believe that locus of control resides in outside forces such as organizational context and job status are more likely to experience decisional procrastination" (p. 41)

Overall, results of this study found significant correlation between locus of control and decisional procrastination. Meaning, the nature of the position, experience within the position and/or the industry, as well as the individual's perception to control outcomes impacted the timeliness in making decisions.

Where an individual holds the source of success or failure of an outcome has a major impact on his or her life. The individual's life is impacted in various ways – their ability to control the situation, their mindset, their motivation, their successes and failures, their attitudes, their support system, and their health. Being able to recognize this early in one's life could

allow a new perspective, which may alter outcomes if acted upon in a patient and thoughtful manner, with positive intent.

RESEARCH METHOD

Study Participants

Participants within this study were enrolled in either undergraduate or graduate programs at a university and included both domestic and international students. Table 3 provides extensive details. The summarized demographics of the 101 participants are as follows:

- 64 were males (63%) and 37 were females (37%)
- The mean average age was 26.98, with the age range of 15 to 55 years old (SD=9.43)
- 50 were undergraduates and 51 were graduates
- 87 of the respondents shared their GPA (range: 2.3 to 4.0); the mean GPA was 3.51 (SD=0.437)
- 89% of the participants identified English as their first language
- 78% of the participants identified themselves as Caucasian, 12% identified themselves as African American, 8% as Chinese, and 2% as Hispanic
- 70% of the participants reported themselves as not married
- 32% rented, 31% owned their homes, and 38% did not own nor rent their home
- All but 1 participant identified themselves as motivated
- 92% of the participants said they enjoyed school, almost 7% said they did not enjoy school, and 1 participant did not answer this question

Study Design

This study was designed to determine whether a correlation existed between a student's locus of control and their age, gender, or classification (graduate versus undergraduate). The study itself was conducted over a two-week time period. The demographic questions were basic and straightforward, while the tool to measure locus of control was created by Julian Rotter (1966). Rotter's (1966) tool consisted of 29 binary response questions, i.e. either answer A or answer B. The hypotheses for this study were:

1. Age would not be a predictor of locus of control.
2. Gender would not be a predictor of locus of control.
3. Graduate students would demonstrate a higher internal locus of control (i.e. a lower score) than undergraduate students.

Data Collection Procedures

These paper questionnaires were individually distributed in person and conducted on a voluntary basis. Participants were recruited to participate from in various places across multiple campuses, including classrooms, study areas, and areas frequented by students. The questionnaire included a ten-

question demographics section and twenty-nine questions related to locus of control (Rotter, 1966). Upon completion, they were collected to record and analyze data. The questionnaire was scored according to Rotter's (1966) scoring methodology.

Table 3: Stastics Summarized

	Overall	Females	Males	Undergraduates	Graduates
Participant Count	**101**	37	64	50	51
GPA:					
Mean	**3.2**	3.6	3.4	3.2	3.8
Median	**3.1**	3.7	3.4	3.1	3.8
Mode	**3.0**	4.0	3.0	3.0	4.0
Age:					
Mean	**27**	29	26	21	33
Median	**23**	24	23	20	31
Mode	**18**	24	23	18	24
Undergraduate student	**50**	16	34	50	0
Graduate student	**51**	21	30	0	51
Enjoy school?					
Yes	**93**	35	58	43	49
No	**7**	1	6	6	2
No response	**1**	1	0	1	0
Race/ethnicity					
Caucasian	**79**	32	47	36	43
Chinese	**8**	1	7	7	1
African Am	**12**	4	8	7	5
Hispanic	**2**	0	2	0	2
English - 1st language					
Yes	**90**	35	55	41	49
No	**11**	2	9	9	2
Married?					
Yes	**30**	10	20	3	27
No	**71**	27	44	47	24
Living					
Rent	**32**	14	18	12	20
Own	**31**	11	20	2	29
N/A	**38**	12	26	36	2
Motivated?					
Yes	**100**	36	64	49	51
No	**1**	1	0	1	0

Instrumentation

Julian Rotter (1966) built his research upon his own social learning theoretical experience as well as that of the following scholars, in chronological order: Veblen (1899), Merton (1946), McClelland, Atkinson, Clark, and Lowell (1953), Goodnow and Postman (1955), Goodnow and Pettigrew (1955.), Wyckoff and Sidowsky (1955), Atkinson (1958), Seeman (1959), and Cohen (1960). These scholars contributed to existing literature

with research that included one's perception of power, or control, and their tolerance of luck, or chance. Rotter then created a systemic questionnaire that only permitted the respondent to select one of two answers for each question. Upon the scoring methodology, Rotter was able to determine whether the respondent believed that he or she had control over the situation or whether the outcome was attributed to external factors, such as chance or luck. He believed respondents scored along a continuum, ranging from internal to external locus of control. This score could be used as a predictor in future situations to determine where the respondent would place accountability based upon success or failure.

Analysis

The goal of this study was to determine whether locus of control would serve as a predictor upon specific demographics. A number of analyses conducted on the data were collected. Chi-square tests performed in SPSS were to determine statistical significance on nominal data, including further examination. Table 3 summarized each of the statistics within each demographic, and Table 4 dissected scoring instances between gender and undergraduate/graduate classifications. Tables 5 and 6 demonstrated P-Plots of age, while Tables 7 & 8 demonstrate Q-Plots of age. Table 9 analyzed the data via Bayesian Correlation, which includes the 95% credible interval for both age and GPA. Lastly, Table 10 showcased the Factor Analysis including communalities, total variance and component matrix.

Table 4: Rotter's Scores Counted

Score	Overall	Females	Males	Undergraduates	Graduates
2	**1**	1	0	0	1
3	**0**	0	0	0	0
4	**5**	1	4	2	3
5	**3**	1	2	1	2
6	**11**	5	6	5	6
7	**7**	3	4	4	3
8	**13**	3	10	9	2
9	**9**	3	6	4	5
10	**12**	5	7	7	5
11	**5**	1	4	3	2
12	**10**	5	5	4	6
13	**11**	4	7	6	5
14	**5**	1	4	2	3
15	**2**	0	2	2	0
16	**2**	1	1	0	2
17	**2**	1	1	0	2
18	**3**	2	1	1	2

Table 5: Normal P-P Plot of Age

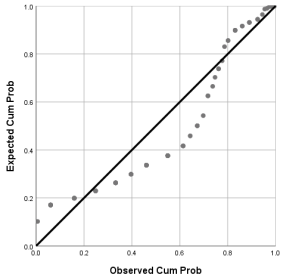


Table 6: Detrended Normal P-P Plot of Age

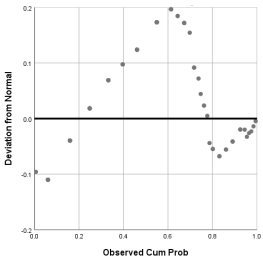


Table 7: Normal Q-Q Plot of Age

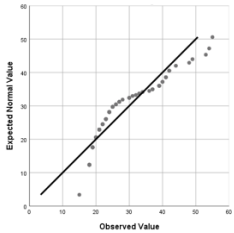


Table 8: Detrended Normal Q-Q Plot of Age

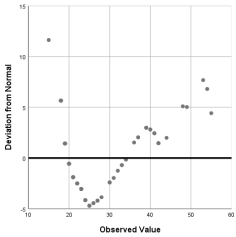


Table 9: Bayesian Correlation

Posterior Distribution Characterization for Pairwise Correlations[a]

			Age	GPA	V69
Age	Posterior	Mode		.548	-.047
		Mean		.534	-.045
		Variance		.006	.010
	95% Credible Interval	Lower Bound		.384	-.237
		Upper Bound		.679	.145
	N		101	87	101
GPA	Posterior	Mode	.548		-.012
		Mean	.534		-.011
		Variance	.006		.011
	95% Credible Interval	Lower Bound	.384		-.218
		Upper Bound	.679		.194
	N		87	87	87
V69	Posterior	Mode	-.047	-.012	
		Mean	-.045	-.011	
		Variance	.010	.011	
	95% Credible Interval	Lower Bound	-.237	-.218	
		Upper Bound	.145	.194	
	N		101	87	101

a. The analyses assume reference priors (c = 0).

Table 10: Factor Analysis

Communalities

	Initial	Extraction
Age	1.000	.778
GPA	1.000	.750
V69	1.000	.035

Extraction Method: Principal Component Analysis.

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.563	52.089	52.089	1.563	52.089	52.089
2	.996	33.187	85.276			
3	.442	14.724	100.000			

Extraction Method: Principal Component Analysis.

Component Matrix[a]

Age	.882
GPA	.866
V69	-.187

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

RESULTS

The 101-participant investigation concluded that scores on the 29-question scale ranged from 2 (internal locus of control) to 18 (external locus of control). There were 3 hypotheses within this study. The first hypothesis studied the correlation between age and locus of control, indicating age would not be a predictor in locus of control. This hypothesis was supported. Two groups (ages 15 – 26 and 27-77) were formed and analyzed. There was no significant finding between the two groups. Specifically, their averages were virtually the same (mean: 9.8 vs 10 (older), median: 9 vs 10 (older); mode: (8 versus 12 (older)).

The second hypothesis examined the correlation between gender and locus of control and suggested there would not be a correlation between gender and locus of control. This hypothesis was supported. Although a female held the lowest score (2), scores ranged as high as 18. Additionally, the mean score for females was 9.97, with a median score of 10, and a mode of 12. Male participants held an average mean score of 9.78, with a median score of 9.5, and a mode of 8. Their scores ranged from 4 to 18.

Lastly, graduate students' locus of control scores ranged from 2 to 18, with a mean average of 10.01, a median of 10, and a mode of 6. Ironically, undergraduate students' locus of control ranged from 4 to 18, however, their mean average locus of control score was 9.68, a median of 9.5, and a mode of 8. While a difference of both the average mean and median are marginally higher for graduate students, it was surprising. Therefore, it can be concluded

that while the mode average of higher scores appeared more often for undergraduate students, the third hypothesis was not supported.

RECOMMENDATIONS

From a higher education standpoint, future research is recommended to investigate teacher mindsets and the influence it has on classroom practices, student mindsets and whether or not mindsets can be changed (Gutshall, 2013). Taking this idea further, if the hypothesis held true, it could be examined across disciplines. Additionally, and similar to Pride's (2014) research, learning stories and mindsets should be examined at all educational levels. Future research should seek more cultural depth in education, Valdes-Cuervo et al. (2015) suggested that additional investigations of Mexican students identified as high achievers, as only three publications have occurred within the last decade. Rakes et al. (2013) propose an inquiry including self-efficacy in a similar study on procrastination and attributional beliefs. Additionally, they recommend using course online tracking tools to more accurately identifying procrastination which would include "structural equation modeling" (p. 115). Another area of further research also identified by Locke and Latham (2002) is examining the relationship between goal performance and learning. By providing such a complete perspective, it could be compared globally to determine if results are based on culture or are generalizable to working the human population. As mentioned above, longitudinal research measuring locus of control in students and making adjustments to improve environments could be impactful and additional research could be proven valuable.

From a business industry perspective, recommendations for further research include longitudinal studies of professionals in the actual setting, rather than simulated exercises with college students. For example, when researching behaviors in business, the research environments should include large corporations, small businesses, family businesses in existence for multiple generations, and entrepreneurial start-ups, and begin with young professionals and track their locus of control through each advancement, promotion or significant accomplishment through their career progression. Cultures should be included, along with both positive and negative outcomes, to be objectively correlated through anonymous surveys. The large number of participants should include a diverse population encompassing all levels of each organization, and an objective method of classifying participants (prior achievements, education levels, character/integrity, etc.). According to Battistelli et al. (2013), more research should be conducted on the function of motivation and the self-determination theory (SDT) in organizational citizenship behavior (OCB). This can then be generalized across disciplines and practiced.

From a kinesiology perspective, Sargent-Cox and Anstey's investigation (2015) concluded that having an external locus of control can result in shorter longevity. Examining those with an identified external locus of control and developing a technique to encourage the development of holding oneself accountable for their health to improve stereotype expectations and longevity could prove valuable to future research. Similarly, Henninger, Whitson, Cohen, and Ariely' research (2012) proved a correlation between weight and locus of control. Future research could include taking overweight subjects and use an intervening method to see if they could recognize the benefits of owning their weight and potentially losing it. Lastly, the study of Hutcheson, Fleming, and Martin (2014) demonstrated the relationship between locus of control and positive health. The same intervening methodology could also be used here for future research.

An interdisciplinary (specifically psychology, kinesiology, sociology, among others) approach would include Hutcheson et al. (2014), suggesting additional research between psychosis and locus of control. Matheson (2015) suggested future research could include the factors that impact self-regulatory efficacy and abilities. Advancing these concepts, future research to potentially train those with external locus of controls to hold themselves more accountable could improve many aspects of their life as the above research has demonstrated.

REFERENCES

Aarts, H., Gollwitzer, P., & Hassin, R. (2004). Goal contagion: Perceiving is for pursuing. *Journal of Personality and Social Psychology, 87,* 23-37.

Adams, J. (1963). Towards an understanding of inequity. *Journal of Abnormal and Social Psychology, 67*, 422-436.

Atkinson, J (1958). *Motives in fantasy action and society.* Princeton: D. Van Nostrand (Ed.).

Aziz, S., & Tariq, N. (2013). Role of organization type, job tenure, and job hierarchy in decisional procrastination and perceived locus of control among executives. *Pakistan Journal of Psychological Research 28*(1), 25-50.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory.* Englewood Cliffs, NJ: Prentice–Hall.

Battistelli, A., Galletta, M., & Vandenberghe, C. (2013). Mindsets of commitment and motivation: Interrelationships and contribution of work outcomes. *The Journal of Psychology 147*(1), 17-48.

Cohen, J. (1960). *Chance, skill and luck.* Baltimore: Penguin Books.

Curtis, N., & Trice, A. (2013). A revision of the academic locus of control scale for college students. *Perceptual & Motor Skills: Physical Development & Measurement, 116*(3), 817-829.

Curwin, R. (2010). *Meeting students where they live: Motivation in urban schools*. Alexandria, VA: Association for Supervision & Curriculum Development.

Dornyei, Z., & Csizer, K. (1998) Ten commandments for motivating language learners: Results of an empirical study. *Language Teaching Research, 2,* 203-229.

Dornyei, Z. & Ushioda, E. (2011). Teaching and researching motivation. London: Pearson.

Dweck, C. (2007). Boosting achievement with messages that motivate. *Education Canada*, 6-10.

Gangne, M., & Deci, E. (2005). Self-determination theory and work motivation. *Journal of Organizational Behavior, 26,* 331-362.

Gardner, H. (1991). *The Unschooled Mind: How Children Think and How Schools Should Teach.* New York: Basic Books Inc.
Gollwitzer, P. (1999). Implementation intentions. *American Psychologist, 54*(7), 493-503.
Goodnow, J., & Pettigrew T. (1955). Effects of prior patterns of experience upon strategies and learning sets. *Journal of Experimental Psychology, 49,* 381-389.
Goodnow, J., & Postman, L. (1955). Probability learning in a problem-solving situation. *Journal of Experimental Psychology, 49,* 1622.
Gutshall, C. (2013). Teachers' mindsets for students with and without disabilities. *Psychology in the Schools, 50*(10), 1073-1083.
Hampton, A. (2005). Locus of control and procrastination. *Epistimi,* 3-5. Retrieved from http: www.capital.edu/68/Arts-and-Sciences/23608/
Henninger, D., Whitson, H., Cohen, H, & Ariely, D. (2012). Higher medical morbidity burden is associated with external locus of control. *Journal of the American Geriatrics Society 60*(4), 751-755.
Herzberg, F. (2003). Comparison of satisfiers and dissatisfiers. An exhibit from One More Time: How do you motivate employees? *Harvard Business School Publishing Corporation.*
Hutcheson, C., Fleming, M, & Martin, C. (2014). An examination and appreciation of the dimensions of locus of control in psychosis: Issues and relationships between constructs and measurement. *Journal of Psychiatric and Mental Health Nursing, 21*, 906-916.
Jones, G., & George, J. (2017). *Essentials of Contemporary Management (*7th ed.). New York, NY: McGraw-Hill Education.
Khaldi, A. (2012). Motivation-based teaching practices. *The European Journal of Social & Behavioural Sciences,* 727-733.
Kovach, M. (2017). Motivational theories exemplified in School of Rock. *Journal of North American Management Society, 11*(1), 38-42.
Lee, J., & Shezeen, O. (2015). A comparison of the effects of incentive and penalty procedures of work performance: A simulation. *Journal of Organizational Behavior Management, 35,* 336-345.
Linnenbrink, E., & Pintrich, P. (2002). Motivation as an enabler for academic success. *School Psychology Review, 31*(3), 313+.
Locke, E., & Latham, G. (2002). Building a practically useful theory of goal setting and task motivation. *American Psychologist 57*(9), 705-717.
Lloyd, T., & Hastings, R. (2009). Parental locus of control and psychological well-being in mothers of children with intellectual disability. *Journal of Intellectual & Developmental Disability, 34*(2), 104-115.
Martin, A. (2015). Editorial. Growth approaches to academic development: Research into academic trajectories and growth assessment, goals, and mindsets. *British Journal of Educational Psychology 85*, 133-137.
Maslow, A. (1943). A theory of human motivation. *Psychological Review, 50*(4), 370-396.
Matheson, I. (2015). Self-regulatory efficacy and mindset of at-risk students: An exploratory study. *Exceptionality Education International 25,* 67-90.
McClelland, D. (1961). *The Achieving Society.* Princeton, NJ: D. Van Nostrand.
McClelland, D., Atkinson, J., Clark, R., & Lowell, E. (1953). The achievement motive. New York: Appleton-Century-Crofts.
Merton, R. (1946). Social structure and anomie. In *Social theory and social structure*. Glencoe, 111: Free Press, 125-149.
Meyer, J., Stanley, D., Herscovitcch, L., & Topolnytsky, L. (2002). Affective, continuance and normative commitment to the organization: A meta-analysis of antecedents, correlates and consequences. *Journal of Vocational Behavior, 61,* 20-52.
Milgram, N. & Tenne, R. (2000). Personality correlates of decisional and task avoidant procrastination. *European Journal of Personality, 14*, 141-156.
Miller, G., Galanter, E., & Pribram, K. (1960). *Plans and the Structure of Behavior*. United States: Holt, Rinehart, and Winston, Inc.

Mooney, S., Sherman, M., & Lo Presto, C. (1991). Academic locus of control, self-esteem, and perceived distance from home as predictors of college adjustment. *Journal of Counseling & Development 69,* 445-448.
Neck, C., Houghton, J., Murray, E., & Lattimer, C. (2017). *Management* (2nd ed.). Hoboken, NJ: John Wiley & Sons, Inc.
Ormrod, J. (2016). *Human Learning, 7th ed.* Boston, MA: Pearson.
Pride, L. (2014). Using learning stories to capture "gifted" and "hard worker" mindsets within a NYC specialized high school for the sciences. *Theory into Practice 53*, 41-47.
Rakes, G., Dunn, K., & Rakes, T. (2013). Attribution as a predictor of procrastination in online graduate students. *Journal of Interactive Online Learning, 12*(3), 103-121.
Robbins, S. & Judge, T. (2017). *Organizational Behavior* (17th ed.). Boston, MA: Pearson.
Rotter, J. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs, 80*(1), 1-28.
Ryan, R., & Deci, E. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology, 25*, 54-67.
Sargent- Cox, & Anstey, K. (2015). The relationship between age-stereotypes and health locus of control across adult age-groups. *Psychology & Health, 30*(6), 652-670.
Seeman, M. (1959). *On the meaning of alienation. American. Sociological Review, 24,* 782-791.
Wiegand, D., & Geller, E. (2005). Connecting positive psychology and organizational behavior management. *Journal of Organizational Behavior Management, 24, 3-25.*
Valdes-Cuervo, A., Sanches Escobedo, P., & Valadez-Sierra, M. (2015). Gender differences in self-concept, locus of control, and goal orientation in Mexican high-achieving students. *Gifted and Talented International 30*(1-2), 19-24.
Veblen, T. (1899). The theory of the leisure class. New York: MacMillan (Modern Librarv edition, 1934).
Vroom, V. (1964). *Work and motivation.* San Francisco, CA: Jossey-Bass.
Wyckoff, L. & Sidowsky, J. (1955). Probability discrimination in a motor task. *Journal of Experimental Psychology, 50,* 225-231.

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