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**A 'Zoom'ed-In Perspective of Student Needs and Engagement in Undergraduate Online  
Zoom History Classes During the 2021 Pandemic**

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## ABSTRACT

At the start of the COVID-19 pandemic, schools throughout the United States switched to remote synchronous Zoom learning. Articles and literature emerged suggesting a gap in student engagement as a result of remote synchronous learning within the pandemic context. Previous literature has established a link between student needs satisfaction, outlined by the self-determination theory, and student engagement. This study seeks to determine how undergraduates describe their needs and engagement to understand this engagement gap and identify areas of focus for educators to improve student engagement within this context. To address this question, a survey was conducted at a central Pennsylvania university. Findings from this study support the relationship between the self-determination theory and student engagement in remote synchronous Zoom courses during the 2020 COVID-19 pandemic. Additionally, it was found that autonomy support and relatedness support may increase behavioral, emotional, and cognitive engagement in undergraduate students. Further research must be completed to determine best practices within this context.

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## Chapter 1: Introduction

According to current statistics in the United States, millions of students enroll in public and private universities across the United States of America, with over 14 million attending public universities and over 5 million attending private universities in 2018, a number which has been projected to remain constant for years to come (Duffin, 2020). Of this number, the National Center for Educational Statistics reported in 2018 that 16.6% of enrolled college students (undergraduate and graduate) took online courses exclusively, while 64.7% of students did not take any online courses (National Center for Educational Statistics, 2019).

After the start of the COVID-19 pandemic, 91% of public two-year and 93% of public four-year universities transitioned some or all of their classes to be conducted remotely, affecting millions of students nationwide and creating a series of new obstacles to navigate (Johnson, Seaman & Veletsianos, 2021). Postsecondary students accustomed to in-person classroom experiences, accounting for over half of college students in 2018, adjusted to remote learning with little to no prior experience with online courses (National Center for Educational Statistics, 2019). In addition, almost all colleges and universities assigned professors with no prior online teaching experience to teach some remote courses, creating another obstacle for effective learning in a different educational environment (Johnson, Seaman & Veletsianos, 2021).

According to Schmidt, Tschida, and Hodge (2016), training on how to teach online is essential for effective teaching and the promotion of learning in online courses. If a high percentage of educators are not adequately trained to teach in an online setting, it comes as no surprise that they would notice that students appear less engaged and do not display learning in

the same way. As a result of these obstacles, educators from all levels of education have invested in research on how to engage students in a remote classroom. Not only teacher training but student engagement emerges as key to successful online learning.

Student engagement is a concept of great interest in education, describing the involvement, participation, and investment of a student in the classroom (Groccia, 2018). This description of student engagement will be implied when further referring to student engagement. Many researchers classify student engagement into four dimensions: agentic, behavioral, emotional, and cognitive (Nuñez & Leon, 2019; Kahu, 2013). According to the literature, a combination of these types of student engagement has been found to produce observable benefits such as improved academic performance, deeper and more effective learning, and personal development for post-secondary students (Baragash & Al-Samraie, 2018, Kuh et al., 2007; Carini, Kuh & Klein, 2006). In addition, student engagement is considered a product within the learning process, influenced in varying degrees by factors such as needs satisfaction and motivation (Kahu, 2013; Ryan & Deci, 2020). Due to the influence of student needs and motivation, it is important to refer to the self-determination theory, which describes basic needs and the impact these needs have on motivation. This theory is supported heavily by research in all areas of education, from K-12 to post-secondary and across cultures (Niemic & Ryan, 2009; Ryan & Deci, 2020).

According to the self-determination theory, all humans have three basic needs: need for autonomy, competence, and relatedness (Ryan & Deci, 2020). According to Ryan and Deci (2020), the satisfaction of these needs is necessary to produce observable increases in intrinsic and extrinsic motivation. Motivation positively contributes to increases in academic performance, well-being, self-esteem, and most notably, student engagement (Niemic & Ryan,

2009; Ryan & Deci, 2020; Froiland & Worrell, 2016). Consequently, the satisfaction of basic human needs leads to increased motivation, which in turn facilitates stronger student engagement (Ryan & Deci, 2020; Froiland & Worrell, 2016; Niemic & Ryan, 2009). This relationship highlights the importance of both needs satisfaction and engagement on a post-secondary level.

When introduced to online formats of learning, additional factors must be considered regarding the relationship between student needs satisfaction and student engagement. Through a remote platform, the ways in which students can engage or interact with others is limited socially and academically (Dumford & Miller, 2018). Some studies have found that online learning promotes specific aspects of engagement; such as numeric thinking, and discourages collaborative and interactive forms of engagement (Dumford & Miller, 2018). Other studies, such as a study conducted by Bettinger and Loeb (2017), argue that online learning can negatively impact student engagement. Research regarding engagement in remote learning for postsecondary students is contradictory and limited (Dumford & Miller, 2018). No research focuses on student engagement and student needs satisfaction for online learning on platforms such as Zoom: which is a software utilized by over 90% of universities (Kim, 2017).

When considering the context of the COVID-19 pandemic, the effects of the pandemic on student needs satisfaction and engagement in this new, remote learning environment must be considered. It is evident that student engagement, defined by the interaction and interest of a student with the educational environment, has seen a considerable shift based on recent research conducted on engagement within the pandemic context. This shift can be observed through a general search on Google Scholar regarding impacts on student engagement in Zoom synchronous courses in post-secondary education, which displays research focusing on teaching and technological strategies to promote student engagement. The increase in research on how to

keep students engaged within these contexts suggests that students are not interacting with or showing interest in the lessons or are perceived by educators to have become disengaged. It is clear that educators sought to understand the cause of perceived disengagement and what they can do to encourage engagement in remote synchronous classrooms during COVID-19.

However, this research does not focus on *how* student needs satisfaction and engagement have changed within this context, if at all. This results in a gap in the literature that must be addressed.

### **1.1: Student Engagement in the Traditional Classroom Setting**

In the early 1930s, psychologists began the process of assessing components of student engagement such as the time and effort spent on tasks, and the relationship of these actions to the classroom setting (Groccia, 2018). The works of researchers such as Tyler, Pace, Astin, Chickering and Gamson, and others have directed educational psychology research towards a larger focus on student engagement and its definition. Student engagement is one of many terms that lacks a universal definition due to the complexity and variability of the construct, however, the literature suggests a general consensus that student engagement is a product of the active involvement, interest, and interaction of a student in their educational endeavors and learning process (Skinner & Belmont, 1993; Kuh, 2009; Groccia, 2018). Furthermore, student engagement can be divided into four interrelated categories, based on the perspectives various researchers have taken in approaching the concept: agentic, behavioral, emotional, and cognitive engagement (Nuñez & Leon, 2019; Kahu, 2013).

Agentic engagement is the level of involvement students have in the feedback loop of the classroom, shown by “asking questions, expressing preferences, and demanding what they need” (Núñez & León, 2019). Behavioral engagement is defined similarly to the general term of student engagement; it is the time, effort, and determination spent on tasks within the classroom setting (Nuñez & Leon, 2019). In addition, the behavioral approach to student engagement acknowledges the role that teaching styles, teaching practices, and collegiate institutional decisions play in promoting or discouraging student engagement (Kahu, 2013). This approach, in particular, has garnered numerous criticisms regarding the limitations it has in encompassing the emotional aspects and individual variables of student engagement (Kahu, 2013). On the other hand, this perspective has received commendation for its ability to provide a snapshot of the external influences of motivation, such as institutional support services and teaching styles (Kahu, 2013).

Emotional engagement is defined by the positive emotions, interest, or values a student place on an activity (Skinner et al, 2009), while cognitive engagement involves the exhibition of various levels of mental effort, strategy, processing of classroom material, and the ability to relate materials to prior knowledge and experiences (Groccia, 2018). These two approaches to understanding student engagement are used in varying manners; some researchers, such as Nuñez and Leon (2019) and Groccia (2018), look at these approaches separately, whereas Kahu (2013) views them through the psychological approach, which acknowledges emotion, cognition, and behavior as dimensions that work with each other to produce student engagement. In the latter perspective, emotional engagement includes the intensity of emotions and intrinsic motivation, rather than focusing solely on positive emotions related to tasks (Kahu, 2013).

Cognitive engagement, regarding the psychological perspective, includes internal characteristics including self-regulation, motivation, and personal intentions (Kahu, 2013).

These four categories of student engagement provide a snapshot on the complex, multidimensional construct of student engagement and how each form of engagement relates to the others. For example, the behavioral approach to student engagement includes observable forms of student participation in instructional activities, including self-regulation, which is a characteristic of cognitive engagement (Kahu, 2013). Additionally, motivation is a characteristic present in both emotional and cognitive engagement, describing an internal factor that influences overall student engagement (Kahu, 2013). Aspects of one form of engagement may be present in another, in turn, influencing how a student engages in the classroom (Kahu, 2013).

As research on student engagement continued to surge in the educational psychology field, discoveries were made linking increased student engagement to increased motivation (Froiland & Worrel, 2016; Niemiec & Ryan, 2009). Knowledge on this connection was expanded with the introduction of the idea of basic needs as a means to encourage motivation. In the 1980s, research conducted by Deci and Ryan (1985) furthered discoveries through the creation of a theoretical framework which outlined basic student needs and its relation to human motivation, known as the self-determination theory. The self-determination theory describes the needs for autonomy, competence, and relatedness in order to motivate an individual (Deci & Ryan, 1985). This framework has been used to inform later research on human needs, the relationship of needs satisfaction and motivation, as well as the relationship between motivation and engagement among students.

## **1.2: A Theoretical Framework: The Self-Determination Theory**

The self-determination theory is a theoretical framework that posits that all humans have three basic needs that influence human motivation: the need for autonomy, competence, and relatedness (Ryan & Deci, 2020). These three needs theoretically apply to all human populations worldwide; however, the population of which this study will focus on is undergraduate, post-secondary students and their needs. In education, the satisfaction of these three needs leads to the benefit of increased intrinsic and extrinsic motivation (Reeve, Deci & Ryan, 2004). As described by Reeve, Deci, and Ryan (2004), intrinsic motivation involves participating in behaviors that one finds “inherently satisfying,” whereas extrinsic motivation is any action motivated in whole or in part by external stimuli. For example, a student may be motivated by treats or grades. According to the literature, satisfaction of each individual need leads to an increase in intrinsic and/or extrinsic motivation, in addition to self-regulation. Niemic and Ryan (2009) found that the satisfaction of the needs for autonomy and competence increases intrinsic motivation and self-regulation. This finding coincides with results from a study by Deci, Koestner, and Ryan (2001), which received a similar result: that perceived autonomy and competence satisfaction leads to an increase in intrinsic motivation.

The final basic need, relatedness, has been found to increase extrinsic motivation, self-regulation, and the internalization of motivation: that is, the transition from more extrinsic forms of motivation to intrinsic motivation, as described by the continuum of relative autonomy (Niemic & Ryan, 2009). Reported rates of higher autonomous self-regulation have also been linked to the satisfaction of the need for competence as well (Black & Deci, 2000). Overall, the

satisfaction of student needs leads to the increase of intrinsic and/or extrinsic motivation and self-regulation in students (Ryan & Deci, 2000; Niemic & Ryan, 2009).

In the context of traditional and online education, numerous advancements in research have been made on effective strategies to support students' need for autonomy, competence, and relatedness. The need for autonomy can be supported through the creation of a classroom environment that supports students taking responsibility and accountability for their education (Lee, Pate, & Cozart, 2015; Yildirim, Dokmen, & Butler, 2021). Additionally, it can be supported through offering choices and the option to personalize assignments to fit the interests and values of the student (Lee, Pate, & Cozart, 2015).

The need for competence can be supported through appropriate classroom preparation and constructive feedback from the educator (Niemic & Ryan, 2009). Educators must utilize the zone of proximal development to develop activities that challenge the students but are able to be completed with guidance from the teacher (Niemic & Ryan; "Zone of Proximal Development", n.d.). In addition, students must be adequately prepared with the skills and tools necessary to be successful (Niemic & Ryan, 2009). Finally, feedback must be provided by the educator to promote student growth, further success, and by extension, promote feelings of competence (Niemic & Ryan, 2009).

The need for relatedness can be supported using a variety of research-based strategies such as relationship building, establishing a supportive environment, and providing peer mentorship. According to the literature, building positive student-teacher relationships is essential in promoting a sense of belonging in the classroom, supporting students' emotionally, and establishing open communication (Ibrahim & Zaatari, 2019). Additionally, establishing an environment that is caring and makes students feel cared for is important in promoting a sense of

belonging and relatedness (Baranik, Wright, & Reburn, 2017). The need for relatedness can be supported through peer mentor relationships, where peers are dedicated to supporting one another in learning material and developing important skills (Baranik, Wright, & Reburn, 2017).

### **1.3: The Relationship Between Student Needs and Engagement**

Ryan and Deci (2020) discovered that the satisfaction of the three basic needs leads to an increase in intrinsic and/or extrinsic motivation. Such needs can be met in a variety of ways in the traditional classroom; from autonomy support which satisfies the need for autonomy and competence, to positive student-teacher relationships which helps satisfy the need for relatedness through a sense of belonging (Reeve, Deci & Ryan, 2004; Roorda et al., 2011; Quin, 2017; Ibrahim & Zaatari, 2019). Overall this research notes that when these needs are met, student motivation is increased.

Increased student motivation has been found to have a positive association with increased student engagement (Froiland & Worrel, 2016). Other research has produced similar findings, with Niemiec & Ryan (2009) positing that an increase in student motivation leads to an increase in academic engagement in the classroom on a K-12 and post-secondary level. Further expanding on the relationship between student needs and engagement is the direct correlation found between higher perceived needs satisfaction and engagement (behavioral and emotional) in post-secondary students (Skinner et al., 2017). While this relationship between students' needs to be satisfied, motivation and engagement has been established in a traditional classroom setting, the

context of the COVID-19 pandemic should be considered as it caused drastic precautionary changes to be made in the educational environment.

#### **1.4: Effects of Student Needs Satisfaction and Engagement in the Classroom Setting**

Within the field of education, there is a common consensus that confirms needs satisfaction and increased student engagement provide a plethora of benefits within the classroom setting. Motivation, particularly when intrinsic in nature, has been found by numerous studies to have a positive correlation to higher academic achievement, improved grades, and deeper learning in higher education (Ryan & Deci, 2020; Niemic & Ryan, 2009; Froiland & Worrel, 2016). A study conducted by Froiland & Worrel (2016) also discovered a relationship between intrinsic motivation and intrinsic learning goals, which are credited to influence academic performance more than student motivation or engagement. In addition to motivation, needs satisfaction shows a strong correlation with improved intrinsic benefits, such as higher confidence and self-esteem (Ryan & Deci, 2020). These intrinsic benefits influence positive developments in an individual's mental health (Kasser & Ryan, 1996). Failure to satisfy the basic needs of autonomy, competence, and relatedness hinders improvements of motivation provided by the support of these needs, which may limit the benefits experienced by increased autonomous motivation (Ryan & Deci, 2020).

In addition to the aforementioned benefits, a major consequence of student needs satisfaction is the facilitation of student engagement through increased motivation and autonomous action (Ryan & Deci, 2020; Froiland & Worrell, 2016; Niemic & Ryan, 2009).

When a student displays increased engagement, they experience observable improvements in learning outcomes, dependent on the quality and type of engagement displayed (Lester, 2013). Other studies on student engagement have cited the influence of this product in increased academic performance and more effective learning (Baragash & Al-Samarraie, 2018; Groccia, 2018). These benefits are further supported by a study conducted by Kuh et al. (2007), which found a strong, positive relationship between student engagement and higher grades and overall academic performance. Moreover, a correlation between student engagement and persistence was discovered, although the type of engagement and its effect on persistence is inconsistent within the literature (Kuh et al., 2007; Hu, 2011). Lastly, increased student engagement is positively linked to improvements in skill and personal development. However, studies have found this connection to be weaker than originally expected (Carini, Kuh & Klein, 2006). Because student needs satisfaction is strongly correlated to student engagement, benefits of student engagement can indirectly be attributed as a benefit of need satisfaction and motivation.

### **1.5: The COVID-19 Educational Context**

At the start of the COVID-19 pandemic when cases began to surge, precautionary measures were taken by the Center for Disease Control (CDC) and each state's department of Health. As per the CDC's recommendations, Americans were instructed to follow certain precautions to help mitigate the spread of the virus, including social distancing (6 ft.), wearing masks and gloves, using hand sanitizer, cleaning and staying at home (Center for Disease Control, 2021). In addition, only a few months into the pandemic, the New York Times reported

that 30 states had issued state-wide or city-wide stay-at-home orders (Mervosh, Lu & Swales, 2020). For K-12 schools and universities, the present pandemic and stay-at-home orders mandated the need to transition quickly to remote instruction or close entirely. By the end of March 2020, all K-12 schools were closed and hundreds of universities transitioned to remote instruction (The Coronavirus Spring..., 2020; Foresman, 2020). As a result, millions of K-12 and college students had transitioned to remote-only instruction by the end of the 2019-2020 academic year (The Coronavirus Spring..., 2020; Foresman, 2020).

As the pandemic continued through the summer, schools and universities were tasked with creating back-to-school plans that accommodated safety measures recommended by each respective state's Department of Health and the Center for Disease Control to ensure a safe return to campus. This required universities to create plans that included precautions such as masks and social distancing, additional cleaning of facilities and COVID-19 testing requirements, and frequency of testing (Center for Disease Control, 2020). Additionally, universities had to have isolation and quarantine procedures, contact tracing, and accountability measures for those who did not follow the precautions required by each university (Center for Disease Control, 2020). For universities planning to go back to some level of in-person instruction, all of these items needed to be addressed to ensure the safety of the students, faculty, and staff.

By the fall of 2020, plans for the recommencement of learning saw 33% of public schools still operating remotely and 47% of schools operating with hybrid schedules (Diliberti & Kaufman, 2020). For post-secondary institutions, 10% remained online, 34% remained "primarily online" and 21% utilized hybrid models of instruction (Elias et al., 2020). While this change would have little impact on traditionally online students, the pandemic offered a unique

challenge to students accustomed to in-person, traditional classes, as well as their professors. Dumford and Miller (2018) cite that online courses bring forth challenges of technology difficulties, accessibility, adaptability, limited interaction, and changes in feedback collection. In online classes, technology difficulties can accompany accessibility, as some students may not have access to specific devices and programs or may rely on the use of a smartphone or other mobile device to complete coursework (Dumford & Miller, 2018). In addition, online courses require the adaptation of lessons and projects to work in an online format, which may result in difficulty distributing class content and increased limitations to classroom interactions (Dumford & Miller, 2018; Garratt-Reed, Roberts & Heritage, 2016). Finally, limited interactions in online courses can increase the difficulty of providing or collecting feedback for course improvements (Dumford & Miller, 2018).

As a result of this transition to remote learning, college students were required to adapt to the challenges of online learning while navigating obstacles and struggles related to the COVID-19 pandemic. Studies have found that the COVID-19 pandemic has led to an increase in mental health troubles, economic hardship, stress levels, and academic performance issues (Lenderer, Hoban & Lipson, 2020; Son et al., 2020). Increased mental health troubles, particularly related to depression, was commonly attributed to factors such as overall fear and anxiety, social isolation, and economic troubles, among other factors (Son et al., 2020). Food and housing insecurity rates among college students increased alongside unemployment (Lenderer, Hoban & Lipson, 2020). In the study conducted by Son et al. (2020), a majority of student participants indicated that they experienced concentration problems (89%), sleep pattern disruptions (86%), and concerns about their academic performance (82%), while 54% of respondents indicated a perceived increase in

workload. The combination of these factors has led to numerous additional challenges that students had to navigate as they pursued their degree and academic success.

### **1.6: Student Engagement and Student Needs in an Online Classroom Setting**

While student engagement and student needs, as well as their relationship, have been investigated in a traditional classroom setting, little research exists on student needs satisfaction and engagement in relation to online, Zoom (remote synchronous) courses, in the post-secondary context. Given the popularity of this platform in online Zoom classes (Kim, 2017), this requires additional research. The literature addresses the connection between specific types of engagement, defined by the Nation Survey on Student Engagement (NSSE), such as the discouragement of collaborative engagement in online classes, whilst “quantitative reasoning activities” such as numeric information analysis and conclusion making were encouraged (Dumford & Miller, 2018; Indiana State University, 2020). Other literature studying online classes in higher education suggests contradictory findings on the benefits or consequences of traditional face-to-face classes versus online classes, and how this relates to student performance (Driscoll et al., 2012; Bettinger, Loeb & Taylor, 2017; U.S. Department of Education, 2010).

While this offers some insight on the effects of an online classroom format on student engagement and performance, there are two things that are not addressed, especially in the context of the COVID-19 pandemic. One issue that remains unanswered is that student needs are not mentioned or a focus in current research in online classrooms, despite the existing relationship between student needs and engagement. Additionally, this has not been well

researched with a focus on online Zoom (remote synchronous) classes: a commonly utilized resource in universities (Kim, 2017). Consequently, it is unknown how student needs and engagement are impacted by this context; however, it is evident that there has been a shift regarding student engagement in these settings. This shift can be seen through a Google Scholar search for research regarding the topic of “Zoom classes in higher education impacting student engagement”, which displayed over 16,300 results between 2020 and 2021. When looking at the research, common themes arose regarding strategies for teaching and learning, as well as technology that can be utilized to promote student engagement in remote synchronous Zoom classes. However, this research does not consider the relationship between student needs satisfaction and engagement in remote synchronous Zoom classes, nor does it consider how the concepts are impacted by the 2020-2021 global pandemic.

This gap in the literature suggests the following question: How does an undergraduate student population attending classes on Zoom during the pandemic describe their needs and classroom engagement? This study seeks to address this question with the expectation to advance current knowledge for possible information on how to equip and train students and teachers in online classroom settings in the future.

## Chapter 2: Methods and Measures

### 2.1: Method

The purpose of this study is to determine the relationship between student needs and engagement in the context of remote synchronous learning during the 2020 global pandemic. To fulfill this purpose, a descriptive correlational method was employed to address the following questions: What needs are expressed by the undergraduate student population attending classes on Zoom during the 2020 global pandemic? How do undergraduate students describe their engagement within this classroom setting? What is the relationship between student needs and engagement within the context of the 2020 global pandemic?

### 2.2: Measures

To address the question of how undergraduate students describe their needs and engagement in a Zoom classroom setting during the 2020 global pandemic, two measures were used: the *Basic Psychological Needs Scale* (Deci & Ryan, 2000) and the *Classroom Engagement Questionnaire* (Jang & Kim, 2012). These scales were used to investigate how students perceived their needs satisfaction (as outlined by the self-determination theory) and engagement within the given classroom context. Demographic information was also included in the questionnaire.

The *Basic Psychological Needs Scale* (Deci & Ryan, 2000) is an instrument that is designed to measure an adults' perceptions of how satisfied they are in having their needs of self-determination met. These needs, informed by the self-determination theory, are identified as vital to their academic success (Ryan & Deci, 2020). Autonomy is defined as the need to be independent and take ownership over one's self and actions (Ryan & Deci, 2020). Competence is defined by Deci and Ryan (2020) as the need for self-efficacy and the belief that one can grow and experience mastery of a skill or subject. Relatedness is the need to belong in social settings and experience a feeling of connectedness (Deci & Ryan, 2020). All three of these needs have been identified to be important in promoting student motivation and student engagement (Ryan & Deci; Froiland & Worrel, 2016; Niemic & Ryan, 2009). This leads to benefits such as improved academic performance (Froiland & Worrel, 2016) and improved self-esteem (Ryan & Deci, 2020). This survey is composed of 21 items and uses a Likert type scale ranging from 1 (not true at all) to 7 (very true). This scale was chosen for its validity and reliability among university students across diverse populations (Ümme, 2015).

*The Classroom Engagement Questionnaire* (Jang & Kim, 2012) measures the level of classroom engagement an adult exhibits in four areas of engagement: agentic, behavioral, emotional, and cognitive. Agentic engagement is defined as the purposeful involvement and immersion of the student in their academic endeavors (Núñez & León, 2019). Behavioral engagement is often observable student actions that display engagement with material, including time spent on task and the quality of work produced (Núñez & León, 2019). Emotional engagement is how a student interacts and invests themselves emotionally within an activity (Skinner et al., 2009). Cognitive engagement includes the display of intrinsic motivation and interest in a subject (Núñez & León, 2019). The scale consists of 12 items using a Likert scale

with a range of 1 (strongly disagree) to 7 (strongly agree). Each subscale (agentic, behavioral, emotional, and cognitive engagement) consists of 3 items. This scale has been found to effectively measure student engagement in an undergraduate population (Núñez & León, 2019).

Scale reliability was determined on all subscale constructs resulting in Cronbach's Alpha with a score of .6 or higher and a 0.88 overall scale reliability. This is consistent with other literature that has validated the reliability of the *Basic Psychological Needs Scale* (Ümme, 2015) and the *Classroom Engagement Questionnaire* (Jang & Kim, 2012).

### **2.3: Participants**

After receiving approval from the Penn State Institutional Review Board, full-time undergraduate students enrolled in general humanities classes at a central Pennsylvania university were invited to participate in this research study. Consenting participants completed an online survey which included the *Basic Psychological Needs Scale* (Deci & Ryan, 2000), the *Classroom Engagement Questionnaire* (Jang & Kim, 2012), and pertinent demographic questions.

Forty-two undergraduate students representing various academic disciplines agreed to participate in the study (see Table 1). Of the forty-two participants, twenty-seven identified as male, fourteen identified as female, and one preferred not to specify. Participants were also asked for their class standing, which was defined by the number of semesters they have taken, including the semester they were in when responding to the survey. The first-year class was defined as any undergraduate in the first or second semester, sophomores in the third or fourth

semester, juniors in the fifth or sixth semester, seniors in the seventh or eighth semester, and other, which encompasses any class that does not fit within the aforementioned categories. In this study, ten participants identified as first year, eighteen identified as sophomores, seven identified as juniors, and seven identified as seniors.

Consenting participants completed a survey consisting of items from *The Basic Psychological Needs Scale* (Deci & Ryan, 2000) and *The Classroom Engagement Questionnaire* (Jang & Kim, 2012). In order to address the research questions, the first findings presented are of descriptive statistics including the mean, mode, and standard deviation of each scale and subscales. The next set of findings presented are the correlations that estimate the relationships between and among all subscales, as previous literature has established a relationship between student needs satisfaction and engagement which could provide insight for educators in the future.

### **Chapter 3: Findings**

Using the *Basic Psychological Needs Scale* and the *Classroom Engagement Questionnaire*, numerous findings were discovered that shed some light on how students

described their needs and engagement in the context of the pandemic. As previously noted, the *Basic Psychological Needs Scale* (Deci & Ryan, 2000) is divided into three subscales representing the work of Deci and Ryan's self-determination theory: autonomy, competence, and relatedness in the participating student sample. The scale includes twenty-one items total. Seven items included in the scale addressed the students' need for autonomy (see Table 2). The overall mean for the autonomy subscale was close to the middle of the scale at 4.565, indicating that participants did not strongly agree or disagree with the statements. When exploring the autonomy subscale items, the mean response ranged into both agreement and disagreement, between 2.952 and 5.285.

The next set of six items addressed each participant's need for competence (see Table 3). The overall mean response was 4.317, indicating no strong agreement or disagreement with the statements. The mean response per item had a smaller range between 3.976 and 4.905, but still included moderate agreement and no strong disagreement. The final set of items for the *Basic Psychological Needs Scale* addressed the need for relatedness (see Table 4). These items had an overall mean of 4.574, indicating participants did not strongly agree nor disagree with the statements. The mean per item ranged between 3.786 and 5.667, indicating a moderate agreement with the statements included regarding relatedness.

The *Classroom Engagement Questionnaire* measures varying degrees of engagement among participants and is divided into four categories of student engagement: agentic, behavioral, emotional, and cognitive. The first set of items addressed agentic engagement, with an overall mean of 3.786 (see Table 5). This indicates that participants did not strongly agree or disagree with the statements. The mean for each individual item ranged between 3.548 and 3.929, indicating a moderate disagreement or no strong agreement or disagreement with the

statements. The next set of items addressed behavioral engagement, which had an overall mean of 5.476, indicating that participants moderately agreed with the statements (see Table 6). Individual items averaged between 5.286 and 5.881, also indicating moderate agreement with the statements.

The third set of items addressed emotional engagement, which had an overall mean of 5.492, indicating moderate agreement with the statements (see Table 7). The mean for each individual item ranges between 5.119 and 5.926, which also indicates moderate agreement. The fourth set of items addressed cognitive engagement, which had an overall mean of 4.905, indicating that participants did not strongly agree or disagree with the statements (see Table 8). The mean for each individual item ranged between 4.179 and 5.214, which suggests moderate agreement or no strong agreement/disagreement.

### **3.2: Student Needs and Student Engagement**

In order to understand the relationship between student needs and student engagement, Pearson correlations were run between the scales and subscales of the *Basic Psychological Needs Scale* (Deci & Ryan, 2000) and the *Classroom Engagement Questionnaire* (Jang & Kim, 2012). Correlations are reported for the overall scales relationship with the subscales, and the relationships between each subscale.

The *Basic Psychological Needs Scale* showed moderate, positive and significant correlations between behavioral and emotional engagement. The correlation between behavioral and emotional engagement was  $r=0.40696$  ( $p=0.0075$ ) and the correlation with emotional

engagement was  $r=0.42048$  ( $p=0.0056$ ). The *Basic Psychological Needs Scale* showed weaker positive correlations of  $r=0.20389$  ( $p=0.1953$ ) with agentic engagement and  $r=0.35279$  ( $p=0.0219$ ) with cognitive engagement. The overall correlation between the *Basic Psychological Needs Scale* and the Classroom Engagement Questionnaire was  $r=0.45332$  ( $p=0.0026$ ).

Correlations between the *Classroom Engagement Questionnaire* (Jang & Kim, 2012) and the subscales of the *Basic Psychological Needs Scale* (Deci & Ryan, 2000) (see Table 8) were all positive with varying degrees of strength. The strongest correlation was seen between the Classroom Engagement Questionnaire and autonomy at  $r=0.57839$  ( $p<001$ ), which indicates a strong positive correlation. The *Classroom Engagement Questionnaire* had a moderate, positive correlation with competence at  $r=0.35603$  ( $p=0.0207$ ) and a weak positive correlation with relatedness at  $r=0.27508$  ( $p=0.0779$ ).

Correlations for the subscale of autonomy displayed the strongest correlations with three types of engagement: behavioral, cognitive, and emotional engagement (see Table 8). Autonomy and behavioral engagement showed a positive correlation of  $r=0.49979$  ( $p=0.0008$ ), while autonomy and emotional engagement showed a positive correlation of  $r=0.51184$  ( $p=0.0005$ ). Autonomy and cognitive engagement showed a positive correlation of  $r=0.50683$  ( $p=0.0006$ ). All of the aforementioned correlations are statistically significant. Autonomy and agentic engagement showed a weaker positive correlation of  $r=0.24760$  ( $p=0.1139$ ). Overall, autonomy showed a correlation of  $r=0.57839$  ( $p <0001$ ).

Competence showed strong positive correlations with behavioral and cognitive engagement (see Table 8). The correlation between competence and behavioral engagement was  $r=0.32912$  ( $p=0.0333$ ), whereas the correlation between competence and cognitive engagement was  $r=0.33928$  ( $p=0.0279$ ). There were significantly weaker relationships with agentic

engagement and emotional engagement, which had the correlations of  $r=0.20130$  ( $p=0.2011$ ) and  $r=0.20872$  ( $p=0.1847$ ) respectively. Overall, competence showed a positive correlation of  $r=0.35603$  ( $p=0.0207$ ) with the *Classroom Engagement Questionnaire*.

Relatedness showed weak positive correlations with all subscales of engagement and overall (see Table 8). Relatedness had a correlation of  $r=0.10128$  ( $p=0.5234$ ) with agentic engagement, a correlation of  $r=0.25343$  ( $p=0.1054$ ) with behavioral engagement, a correlation of  $r=0.36486$  ( $p=0.0175$ ) with emotional engagement, and a correlation of  $r=0.12681$  ( $p=0.4236$ ) with cognitive engagement. Overall, relatedness had a correlation of  $r=0.27508$  ( $p=0.0779$ ) with the *Classroom Engagement Questionnaire*.

## Chapter 4: Discussion

The purpose of this study was to address how undergraduate students described their needs and engagement in an online, remote synchronous Zoom context. This was addressed by surveying participants using the *Basic Psychological Needs Scale* (Deci & Ryan, 2000) and the *Classroom Engagement Questionnaire* (Jang & Kim, 2012). The mean, mode, and standard deviations were then calculated to determine how strongly students felt their needs were met and if they were engaged in the remote synchronous setting. Informed by the literature, knowing how students' needs were met or not met, how they engaged in class, and the connections between

those needs and engagement offer insight into what educators should focus on in teaching in such settings.

#### **4.1: Student Needs**

Student reports on the satisfaction of their basic for academic engagement as informed by the self-determination theory showed that students' needs were being met; however, certain aspects of these needs were not met as strongly or at all. When describing their need for autonomy, students indicated that they could decide for themselves how they would like to live their life and could be themselves in daily situations. Students also felt autonomy in being able to express their ideas and opinions and indicated that the need to have their feelings taken into consideration had been met. While the need for autonomy has been satisfied through freedom to make independent decisions, in addition to having their voice heard and valued, there were two contradictory results. Students described contradictory feelings when describing their perceived satisfaction for the need for autonomy. On one hand, students indicated that the need for autonomy was met regarding personal decisions and being themselves. On the other hand, students indicated that the need for having autonomy in their daily life.

The results on students' perceived needs satisfaction for competence indicates that this need was not met. All reverse statements included in the *Basic Psychological Needs Scale* showed moderate agreement, indicating that students may not have felt competent or capable. In addition, students indicated that they did not have the opportunity to show how capable they are,

The reported results for the need for relatedness, like the need for autonomy, showed contradictions. Despite indications that have been made by educators across the country that engagement in online, remote synchronous settings was in decline due to the pandemic (based on a general search on Google Scholar), the need for relatedness was indicated to have been met

more strongly than the need for autonomy or competence. Students reported strong, positive interactions with others and considered people they have the most contact with to be their friends. In addition, students reported very strongly that they felt cared for, supported, and that others interacted with them in positive, friendly ways. These strong, positive indications of the need for relatedness being met is important to note; however, two items on the relatedness scale contradict one another. Students reported that while people interacted with them in a friendly way (Item 18), they also reported feeling like those they interacted with frequently did not like them (Item 21).

The strong, positive reports of the need for relatedness being met also contradicts findings by Son et al. (2020), which found increased social isolation (58% of cases moderate to severe) among college students as a result of the pandemic. While it is possible that the population surveyed may not have experienced high levels of social isolation, it is interesting that the students reported this need for relatedness and a sense of belonging to be strongly met during a time in which classes were remote synchronous on Zoom. It has been suggested by many articles (seen through a general search) that this environment does not foster strong, positive relationships, especially if students do not turn their cameras on. It is uncertain why the data contradicts previous literature, but suggests that strong, positive relationships and the need for relatedness can be fostered through this setting within a pandemic context.

## 4.2: Student Engagement

On the *Classroom Engagement Questionnaire*, students recorded on how they engaged within the remote synchronous classroom in terms of agentic, behavioral, emotional, and cognitive engagement. The data collected for each form of engagement directly contradicts the literature relating to engagement in the COVID-19 pandemic setting. Agentic engagement, which involves students taking an active role in their academics (Núñez & Leon, 2019), had moderate agreement or disagreement to all three items: actively asking questions in class, expressing interests, and expressing preferences or opinions. This form of engagement was the only engagement in which students did not indicate high engagement levels.

Behavioral engagement includes observable actions that display involvement and actions (Núñez & Leon, 2019). Students indicated high levels of behavioral engagement on all three items. The item with the strongest agreement involved trying hard to do well in the course. Working hard and showing attentiveness were also strongly agreed with. This directly contradicts common themes that arise when searching about the impacts of remote learning (via Zoom) on student engagement. This search brings literature that suggests an engagement gap caused by the transition to remote learning due to the pandemic. However, the results suggest that students are still engaged on a behavioral level. This suggests that students may perceive their engagement differently than the educator or may show their engagement in a different way in this setting. This suggests that further research is needed,

Emotional engagement, or the emotions and interests of the student (Nuñez & Leon, 2019), had the strongest agreement of all four types of engagement. The students indicated that they were very emotionally engaged in class, with a high agreement rate to all three items in the

emotional engagement subscale. Students indicated a high interest in learning new material within the online classroom setting. In addition, students indicated feeling good and interested when working with the material presented in class. The display of positive emotions and interest in the material within this setting contradicts studies done by Son et al. (2020) and Lenderer, Hoban, and Lipson (2020), which found that the COVID-19 pandemic and subsequent transition to remote synchronous learning led to an increase in social isolation, mental health issues, difficulty concentrating, and more.

Cognitive engagement refers to the intrinsic characteristics such as motivation and self-regulation (Nuñez & Leon, 2019), which have been established through the literature as important aspects of overall engagement (Froiland & Worrel, 2016). Similarly, to behavioral and emotional engagement, students indicated agreement to being cognitively engaged for all three items. Students strongly agreed that they would determine the best way to accomplish work prior to starting the assignment. There was agreement, albeit less strongly, that students focus on understanding the material and determining ways to better understand the material when experiencing difficulty.

#### **4.3: Relationship Between Needs and Engagement**

Previous literature has consistently supported the relationship between the needs outlined by the self-determination theory and student engagement (Ryan & Deci, 2020; Froiland & Worrel, 2016; Niemic & Ryan, 2009). The findings of this study support this relationship

regarding the connection between student needs and engagement, while also highlighting some important considerations.

Overall, a strong relationship was present between the subscales of the *Basic Psychological Needs Scale* (Deci & Ryan, 2000) and the *Classroom Engagement Questionnaire* (Jang & Kim). This suggests that increased levels of student engagement will follow if the needs for autonomy, competence, and relatedness are supported in the classroom. These needs can be supported in a variety of ways. The need for autonomy can be supported through the implementation of many of the research-based strategies that exist. For example, autonomy is found to be supported in environments where the educator supports the interests and values of the student and actively works to provide students with a sense of ownership or responsibility for their education (Lee, Pate, & Cozart, 2015; Yildirim, Dokmen, & Butler, 2021). Additionally, providing choices, explaining the rationale behind required assignments, and assigning activities that allow students the opportunity to display their personality and interests through the assignments (Lee, Pate, & Cozart, 2015). Finally, the need for autonomy is supported through the establishment of a classroom dynamic that promotes student accountability and relatedness (Yildirim, Dokmen, & Butler, 2021). A combination of research-based strategies to support autonomy should be utilized and tested to find what works best for each individual class.

While there is little research on how to support the need for competency, current research posits that educators can utilize strategies such as providing scaffolding of important skills and providing constructive feedback to satisfy this need (Niemic & Ryan, 2009). It is necessary to scaffold important skills and provide the tools students will need to be successful in educational activities and in the workplace (Niemic & Ryan, 2009). In addition, providing constructive and

positive feedback throughout the educational process promotes feelings of competency and success in students (Niemic & Ryan, 2009).

The need for relatedness, like the need for autonomy, has a plethora of research-based strategies that can be utilized to support the need and establish a sense of belonging among students. Throughout the literature, the importance of establishing positive student-teacher relationships is stressed for supporting the students' need for relatedness or sense of belonging. According to Ibrahim and Zaatari (2019), establishing positive student-teacher relationships requires three components: "positive affect, balanced power, and complete reciprocity." In other words, teachers must establish positive emotional support for their students, establish a more equal power dynamic within the classroom (achievable by supporting autonomy), and communicate as well as collaborate effectively with students (Ibrahim & Zaatari, 2019). While not tied directly to the self-determination theory, other literature supports the importance of positive student-teacher relationships in promoting a sense of belonging, student motivation, and engagement in traditional (Roorda et al., 2011; Quin, 2017) and online classrooms (Murray et al., 2020). In addition to building positive student-teacher relationships, another way in which the need for relatedness can be supported is through the establishment of an environment centered on care (Murray et al., 2017). An environment centered on care, in addition to building positive student-teacher relationships, is foundational in supporting the need for relatedness. Another strategy that can be used to support the need for relatedness is the use of peer mentors (Baranik, Wright, & Reburn, 2017). Peer mentors promote a student's understanding of material, fosters a sense of connectedness, and is made easy through asynchronous and synchronous communication methods (Baranik, Wright, & Reburn, 2017).

It is well supported by the self-determination theory that autonomy support within traditional and online higher education classroom settings are significant in promoting needs satisfaction for autonomy which in turn promotes motivation and engagement (Reeve, Deci, & Ryan, 2004; Lozano-Jiménez, Huéscar, & Moreno-Murcia, 2021). The strong correlation between autonomy and behavioral, emotional, and cognitive engagement shows a strong, positive relationship. This suggests that the need for autonomy may need to be a focus in research-based strategies such as encouraging students to take responsibility and accountability for their own education (Yildirim, Dokmen, & Butler, 2021), providing choices, and allowing for students to customize their assignments (Lee, Pate, & Cozart, 2015). Accordingly, if the need for autonomy is supported, then it is likely to see an increase in student motivation and overall student engagement. This supports the assertion by Reeve, Deci, and Ryan (2004) that autonomy support is very important in promoting student motivation and engagement. Further, it supports this assertion in the context of remote synchronous Zoom learning, suggesting that autonomy support should be a focus for all classroom contexts and will be beneficial for the students.

While the literature establishes the importance of autonomy support in promoting student motivation and engagement, it does not explain the results regarding the relationship between autonomy and agentic engagement, which in many ways is observable autonomous behaviors such as providing feedback and expressing individual interests and preferences (Núñez & León, 2019). The relationship between autonomy and agentic engagement was not found to be statistically significant. In fact, the lowest correlations presented involved agentic engagement. Thus, the relationship between autonomy and agentic engagement should be further researched to understand the presence of this weak relationship.

#### **4.4: Limitations**

While this study has provided guidance on how students describe their needs and engagement in the online setting, one major limitation exists. The study was conducted with a small sample of participants from a central Pennsylvania university and may not account for the differing cultures and backgrounds of the students. Thus, the sample may not be representative of the needs and engagement described by undergraduate students from other universities and cultural backgrounds in this unprecedented pandemic. Students have responded to the changes in the academic context brought about by the pandemic in different ways, which is influenced by their backgrounds. Additionally, despite the presence of multiple classifications of people (gender, race, ethnicity, year standing), the small sample size prevents accurate conclusions on how minority populations described their needs and engagement. Only general conclusions can be made about the undergraduate student population, of which such conclusions are already limited due to the small sample size.

## **Chapter 5: Conclusion**

The data collected throughout this study supports two important conclusions. It supports the relationship established within the literature between the basic needs of autonomy, competence, and relatedness with the four aspects of student engagement (agentic, behavioral, emotional, and cognitive). Further, it supports this relationship in the context of online, remote synchronous classes during the 2020 COVID-19 pandemic, suggesting that this relationship and the needs of the students do not change when moved abruptly to a new, online environment. Moreover, the establishment of the strong relationship between student needs and student engagement provides an outline of important topics for educators to focus on when teaching in remote synchronous environments. Most notably, it is necessary to focus on educational pedagogy that is supportive of the students' needs for autonomy, competence, and relatedness, in order to promote student motivation and engagement.

### **5.1: Future Research**

The COVID-19 pandemic introduced new obstacles in the world of higher education, prompting the abrupt transition to remote synchronous forms of learning. Through this transition, it has been made clear that further research should be done on promoting student needs satisfaction, motivation, and engagement in remote synchronous settings. It is essential that strategies for promoting autonomy, competence, and relatedness in the remote synchronous classroom setting be further researched to gain an understanding of what strategies are most

effective, especially when educating students who have experienced collective trauma. Further research on these strategies is imperative in ensuring educators are trained and equipped with the tools necessary to foster a supportive educational learning environment for their students in remote synchronous classroom settings.

**Appendix A: Scales***Basic Psychological Needs Scale*

<b>Item</b>	<b>Subscale</b>
1. I feel like I am free to decide for myself how to live my life	Autonomy
3. I really like the people I interact with	Relatedness
4. Often, I do not feel very competent (R)	Competence
5. I feel pressured in my life (R)	Autonomy
6. People I know tell me I am good at what I do	Competence
7. I get along with people I come into contact with	Relatedness
8. I pretty much keep to myself and don't have a lot of social contacts (R)	Relatedness
9. I generally feel free to express my ideas and opinions	Autonomy
10. I consider the people I regularly interact with to be my friends	Relatedness
11. I have been able to learn interesting new skills recently	Competence
12. In my daily life, I frequently have to do what I am told (R)	Autonomy
13. People in my life care about me	Relatedness
14. Most days I feel a sense of accomplishment from what I do	Competence
15. People I interact with on a daily basis tend to take my feelings into consideration	Relatedness
16. In my life I do not get much of a chance to show how capable I am (R)	Competence
17. There are not many people that I am close to (R)	Relatedness
18. I feel like I can pretty much be myself in my daily situations	Autonomy
19. The people I interact with regularly do not seem to like me much (R)	Relatedness
20. I often do not feel very capable (R)	Competence
21. There is not much opportunity for me to decide how to do things in my daily life (R).	Autonomy
22. People are generally pretty friendly towards me.	Relatedness

*Classroom Engagement Questionnaire*

<b>Item</b>	<b>Subscale</b>
1. During the class, I ask questions to help me learn.	Agentic Engagement
2. I let the teacher know what I am interested in.	Agentic Engagement
3. During this class, I express my preferences and opinions.	Agentic Engagement
4. I try hard to do well in this class	Behavioral Engagement

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5. In this class, I work as hard as I can.	Behavioral Engagement
6. I pay attention in class	Behavioral Engagement
7. When I am in this class, I feel good	Emotional Engagement
8. When we work on something in this class, I feel interested	Emotional Engagement
9. I enjoy learning new things in this class	Emotional Engagement
10. Before starting an assignment for this class, I try to figure out the best way to do it.	Cognitive Engagement
11. In this class, I keep track of how much I understand the work, not just if I am getting the right answers	Cognitive Engagement
12. If what I am working on in this class is difficult for me to understand, I figure out how to change the way I learn the material.	Cognitive Engagement

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### *Demographic Questions*

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#### **Demographic Questions**

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- Q1** Are you an undergraduate student attending (central Pennsylvania university)?
- Yes
  - No
- Q2** Please indicate your semester standing.
- First-year (Semester 1 or 2)
  - Sophomore (Semester 3 or 4)
  - Junior (Semester 5 or 6)
  - Senior (Semester 7 or 8)
  - Other, please specify
- Q2** Please indicate the number of remote synchronous (Zoom CR) courses you have taken since September 2020
- Q3** What gender do you identify with?
- Male
  - Female
  - Non-binary
  - Other, please specify
  - Prefer not to say
- Q4** Which of the following best describes your racial or ethnic background?
- American Indian or Alaskan Native
  - Asian
  - Black or African American
  - Hispanic or Latinx
  - Native Hawaiian or Other Pacific Islander
  - White
  - Other, please specify
-

## Appendix B: Tables

*Table 1: Participant Demographics*

Characteristic	N	Percent
Gender		
Male	27	64.2
Female	14	33.3
Non-Binary	0	0
Other	0	0
Prefer not to specify	1	2.3
Race & Ethnicity		
American Indian or Alaskan Native	0	0
Asian	6	14.2
Black or African American	4	9.5
Hispanic or Latinx	4	9.5
White	27	64.2
Other	1	2.3

*Table 2: Basic Psychological Needs Scale: Autonomy*

Statement	Mean	Mode	SD
I feel like I am free to decide for myself how to live my life	5.286	5	1.384
I feel pressured in my life (R)*	2.952	3	1.447
I generally feel free to express my ideas and opinions	4.952	7	1.667
In my daily life, I frequently have to do what I am told (R)	3.833	3	1.464
People I interact with on a daily basis tend to take my feelings into consideration	4.5	4	1.33
I feel like I can pretty much be myself in my daily situations	4.786	6	1.76
There is not much opportunity for me to decide for myself how to do things in my daily life (R)	4.762	6	1.694

\*R = reverse scored

*Table 3: Basic Psychological Needs Scale: Competence*

Statement	Mean	Mode	SD
Often, I do not feel very competent (R)*	4.048	6	1.724
People I know tell me I am good at what I do	4.905	4	1.411
I have been able to learn interesting new skills recently	4.119	4	1.742
Most days I feel a sense of accomplishment from what I do	3.976	5	1.66
In my life I do not get much of a chance to show how capable I am (R)	4.5	3	1.469
I often do not feel very capable (R)	4.357	6	1.87

\*R = reverse scored

*Table 4: Basic Psychological Needs Scale: Relatedness*

Statement	Mean	Mode	SD
I really like the people I interact with	5.238	6	1.411
I get along with people I come into contact with	5.381	6	1.229
I pretty much keep to myself and don't have a lot of social contacts (R)*	3.786	4	1.828
I consider the people I regularly interact with to be my friends	4.738	6	1.901
People in my life care about me	5.976	7	1.297
There are not many people I am close to (R)	3.738	4	1.914
The people I interact with regularly do not seem to like me much (R)	5.667	6	1.3
People are generally pretty friendly towards me	5.405	6	1.231

\*R = reverse scored

*Table 5: Classroom Engagement Questionnaire: Agentic Engagement*

Statement	Mean	Mode	SD
During this class, I ask questions to help me learn	3.929	4	1.84
I let the teacher know what I am interested in	3.881	6	1.966
During this class, I express my preferences and opinions	3.548	1	1.966

*Table 6: Classroom Engagement Questionnaire: Behavioral Engagement*

Statement	Mean	Mode	SD
I try hard to do well in this class	5.881	7	1.501
In this class, I work as hard as I can	5.262	7	1.809
I pay attention in class	5.286	5	1.566

*Table 7: Classroom Engagement Questionnaire: Emotional Engagement*

Statement	Mean	Mode	SD
When I am in this class, I feel good	5.429	7	1.625
When we work on something in class, I feel interested	5.119	6	1.485
I enjoy learning new things in this class	5.926	7	1.421

*Table 8: Classroom Engagement Questionnaire: Cognitive Engagement*

Statement	Mean	Mode	SD
Before starting an assignment for this class, I try to figure out the best way to do it	5.214	7	1.76
In this class, I keep track of how much I understand the work, not just getting the right answers	4.714	4	1.757
If what I am working on in this class is difficult for me to understand, I figure out how to change the way I learn material	4.179	5	1.66

Table 9: Pearson Correlations

	Autonomy	Competence	Relatedness	Basic Psychological Needs Scale
Agentic Engagement	.24760	.24760	.10128	.20389
Behavioral Engagement	.49979*	.32912	.25343	.40696
Emotional Engagement	.51184*	.20872	.36486	.42048
Cognitive Engagement	.50683*	.33928	.12681	.35279
Classroom Engagement Questionnaire	.57839**	.35603	.27508	.45332

\*\*Correlation is significant at the 0.0001 level

\*Correlation is significant at the 0.001 level

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## ACADEMIC VITA

### EDUCATION

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<b>Pennsylvania State University</b>	<b>Harrisburg, PA</b>
<i>Bachelor of Science in Secondary Education Social Studies</i>	<i>Spring 2022</i>
<ul style="list-style-type: none"> <li>• Minor in Human Development and Family Studies</li> <li>• Schreyer Honors Scholar</li> <li>• Capital College Honors Scholar</li> </ul>	

### RESEARCH

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<b>Independent Research</b>	<b>Harrisburg, PA</b>
<i>Schreyer Honors College Thesis Research</i>	<i>Spring 2021-2022</i>
<ul style="list-style-type: none"> <li>• Worked with Dr. Martha Strickland to investigate the perceived gap in student engagement in remote synchronous Zoom classes as a result of the 2020 COVID-19 pandemic</li> <li>• Conducted outreach to faculty at a central Pennsylvania university to share information about the research opportunity</li> <li>• Constructed a survey using validated scales and demographic questions to address research questions</li> </ul>	

### HONORS AND AWARDS

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<b>Pennsylvania State University</b>	<b>Harrisburg, PA</b>
<i>Phi Kappa Phi Honor Society Member</i>	<i>2021-Present</i>
<ul style="list-style-type: none"> <li>• Inducts students that classify within the top 10% of their academic class</li> </ul>	
<i>National Society for Leadership and Success Member</i>	<i>2020-Present</i>
<ul style="list-style-type: none"> <li>• Inducts members who display high academic performance and showcase strong leadership potential</li> </ul>	
<i>Schreyer Honors Scholar</i>	<i>2020-Present</i>
<ul style="list-style-type: none"> <li>• Selects students based on strong academic performance and volunteer work</li> </ul>	
<i>Capital College Honors Program</i>	<i>2020-Present</i>
<ul style="list-style-type: none"> <li>• Students selected for achieving and maintaining a GPA of 3.2 or higher</li> </ul>	
<i>Delta Mu Sigma Honor Society Member</i>	<i>2019-Present</i>
<ul style="list-style-type: none"> <li>• Inducts members based on academic achievement</li> </ul>	
<i>Penn State DuBois Honors Program</i>	<i>2019-2020</i>
<i>Dean's List</i>	<i>2018-Present</i>
<i>Excellence in Secondary Education Award</i>	<i>Spring 2022</i>
<ul style="list-style-type: none"> <li>• Presented to a graduating senior for showcasing commitment to education, ethics, professionalism, and academic performance</li> </ul>	

*John and Veda Black's Student Leadership Award* *Spring 2021*

- Recognizes a student serving in a key leadership position and remains in good academic standing

*Eric A. and Josephine Walker Award* *Spring 2020*

- Given to one student at each Commonwealth campus that exhibits outstanding qualities of character, scholarship, leadership, and citizenship. In addition, the student must have contributed positively to their peers and to the prestige and well-being of the campus

*Leopard Family Eclipse Award* *Spring 2020*

- Recognizes a student for making valuable contributions of service and volunteerism in the Penn State and surrounding communities

**UNIVERSITY SERVICE AND ACTIVITIES**

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**Penn State Harrisburg Benefiting THON** **2021-Present***Finance Chair* *2021-Present*

- Organized over 30 fundraisers to raise money for children battling pediatric cancer
- Raised \$31,514 as an organization for the Four Diamonds organization
- Submitted paperwork to obtain permission to organize fundraisers and events on and off campus
- Conducted outreach to the campus and local community to collaborate on fundraising events
- Worked closely with team members to plan, organize, and carry out successful fundraising events such as cornhole tournaments, the annual THON Gala, a hair auction, and more
- Ensured fundraiser money was safely deposited and recorded
- Completed a funding request form to fund a student trip to the Bryce Jordan Center for THON weekend

*THON 2022 Dancer* *2022*

- Stood and stayed awake for 46 hours straight to raise awareness about the challenges of pediatric cancer and to raise money for the kids

**Capital Chapter for the Alumni Association** **2021-Present***Student Representative* *2021-2022*

- Served as a voice for the student body at Penn State Harrisburg in matters relating to the Alumni Association
- Worked alongside the Capital Chapter to establish a relationship between the chapter and the campus THON organization
- Volunteered at two food drives organized to benefit the Penn State Harrisburg We Care Food Pantry

**Programming and Activities Committee** **2020-Present**

*Vice President*

2021-2022

- Completed and submitted event related paperwork and facilitated other event planning duties as necessary
- Assisted with numerous on-campus events including jeopardy night, paint night, bingo night, fall festival, and more
- Conducted outreach to various clubs and organizations to organize collaborative events such as card events for THON and Earth Day celebration events
- Aided in helping plan events such as late-night game nights, fall and spring festivals, paint nights, and more

*Game Nights Co-Chair*

- Organized and planned virtual game nights to provide entertainment for students during the pandemic
- Ran or co-hosted numerous events including jeopardy nights, trivia nights, and bingo nights
- Assisted at movie nights, novelty events, major events such as fall festival or spring luau, and more
- Organized collaborative events for the celebration of Earth Day

**Coalition for Christian Outreach****2020-Present***Member*

- Attended numerous Christian leadership events to develop ethical leadership skills in traits
- Attended Jubilee Conference 2021

**Intervarsity Christian Fellowship****2020-Present***Member*

- Attended numerous Christian leadership events to develop ethical leadership skills in traits
- Attended Fall Conference 2020

**Student Government Association****2018-2022***Senator for the College of Behavioral Science and Education*

2020-2022

- Advocated for the needs of students at the Penn State Harrisburg campus and university wide on topics such as food insecurity, diversity and inclusion, cultural representation, mental health, and more
- Served as the Governmental Affairs (2020-2021) and Sustainable Development Liaison (2021) for the Penn State Harrisburg Student Government Association
- Served on the Diversity, Equity, and Inclusion Committee, the Sustainable Development Committee, the Governmental Affairs Committee, the Student Affairs Committee, the Community Outreach Committee, and the Academic Affairs Committee

- Advocated for the installation of permeable pavement to provide a sustainable solution to a water drainage problem
- Advocated for the increase in cultural representation through artwork around campus
- Advocated for the installation of a Nittany Lion bench on campus
- Advocated for the installation of a centralized resource center on the Penn State Harrisburg campus
- Advocated for interactive education software programs to be made available to all professors at Penn State
- Mentored new Student Government members in how to write legislation
- Provided advice and feedback on various bills written within the Student Government

*President (Penn State DuBois)*

*2019-2020*

- Served as a representative for the Penn State DuBois campus on committees and at the Council of Commonwealth Student Governments
- Maintained consistent communication with the Chancellor to ensure student voices remain heard and to boost existing positive relationships between faculty, staff, and students
- Served as a representative for the Penn State DuBois chapter of the Alumni Association, the DuBois Education Foundation, the Partnership for Prevention, and the Strategic Planning Committee
- Aided in planning informational and supportive events such as the Penn State DuBois Breakfast with Santa, the Student Leadership Banquet, the Veteran's Day celebration, SGA game nights, and the annual Student Government retreat
- Volunteered at Student Government events including the Penn State DuBois Breakfast with Santa and the Student Leadership Banquet
- Led executive board meetings, created meeting agendas, and maintained accurate records of presidential meetings
- Served as the Governmental Affairs Liaison for the Penn State DuBois Student Government Association
- Served as the Co-chair for the Student Activities Board and Student Facilities Board
- Served as an at-large representative to the Commonwealth Fee Board of Penn State
- Presented speeches at the New Student Orientation and the Veteran's Day celebration

*First-year Senator*

*2018-2019*

- Served as an advocate for my peers and a voice for my campus
- Served as the Student Affairs Liaison for the Penn State DuBois Student Government Association
- Aided in planning the annual Student Leadership Banquet
- Assisted in other senatorial duties as necessary

**Council of Commonwealth Student Governments**

**2018-2022**

*Sustainable Development Liaison* 2021

- Served as an interim liaison for the Sustainable Development Committee for the Council of Commonwealth Student Governments
- Advocated for the university to support of PA Senate Bill 1272, which would increase the support and protection needed by the Chesapeake Bay and reduce Pennsylvania's pollution of streams that run into the Chesapeake Bay
- Sponsored numerous bills advocating for the reduction of plastics and waste across the university

*Governmental Affairs Liaison*

- Advocated for university support of bills such as H.R. 4308, H.R. 1470, and other bills that would support college students experiencing homelessness and/or food insecurity
- Advocated for the establishment of an anonymous academic reporting system to allow students to express academic concerns without fear of potential bias
- Advocated for the establishment of a centralized location for housing and food insecurity resources on the Penn State website
- Contacted Pennsylvania representatives to advocate for bills passed that support state legislation

*Student Affairs*

- Served as a representative for the Penn State DuBois campus regarding matters of student affairs
- Advocated for increased sexual assault awareness and resource awareness

**Penn State Search Committee** 2021*Student Representative* 2021

- Aided in the search for a qualified candidate for the position of Equity Specialist/Sexual Misconduct Resource Person at Penn State Harrisburg
- Reviewed applicants' resumes and provided feedback to help narrow down the pool of candidates
- Interviewed candidates in both interview rounds and led the student interview for final candidates
- Provided feedback to help the committee make a final decision on which candidate to hire

**Penn State DuBois Benefiting THON** 2018-2021*THON 2020 Dancer* 2020

- Stood and stayed awake for 46 hours straight to raise awareness about the challenges of pediatric cancer and to raise money for the kids

*General Member* 2018-2021

- Raised money to benefit children battling pediatric cancer at Hershey Medical Center

- Helped the organization to raise record-breaking amounts (campus records) for the kids and raising more than \$60,000 over the course of three years as
- Volunteered at fundraising events including bingo nights, Concert for a Cure, haunted houses, and more
- Hosted several events including bingo nights to raise money for THON

**Chancellor's Leadership Access Program****2020***Fall 2020 Cohort*

- Attended numerous leadership and professional development trainings to enhance skills in leadership, cultural competency, inclusive leadership practices, and more
- Participated actively as a leader in the Penn State Harrisburg community
- Awarded second place in leadership points (points obtained for leadership activity on campus or in the community)

**Summer Leadership Experience****2020***Attendee*

- Attended leadership development workshops and training on being an inclusive leader, promoting representation, and supporting your peers
- Networked with colleagues and established positive connections with peers
- Established meaningful connections with peers

**Service Above Self Club****2018-2020***Member*

- Aided in planning and organizing service-oriented events such as Service Above Self bingo, Fall Family Fun Night games, and blood drives
- Volunteered as organization events such as bingo nights, Fall Family Fun Night, blood drives, and highway clean up events

**Human Development and Family Studies Club****2018-2020***Member*

- Volunteered at organization events such as the local Suicide Awareness Walk, Walk a Mile in Her Shoes, and helped to create military care packages

**Campus Activities Board****2018-2020***Member*

- Aided in the planning and carrying out of campus events including involvement fairs, musical and comedic activities, Winter Ball, craft and novelty events, and more
- Volunteered at Campus Activities Board events
- Created and distributed event flyers

**Blue & White Society****2018-2020****Summer Leadership Conference****2019**

## VOLUNTEER WORK

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- We Care Food Pantry Volunteer** **2020-2022**  
*Student Volunteer* *2020-2022*
- Filled student orders for the pantry during the pandemic
  - Stocked and fronted shelves
  - Maintained accurate records of the pantry inventory and aided in ordering out of stock items
  - Maintained a clean and organized pantry
- Alternative Spring Break** **2019, 2020**  
*Navajo Nation* *2020*
- Studied and experienced the culture and history of the Navajo Native Americans in Arizona
  - Volunteered at the community farm in preparation for the upcoming growing season
- Washington D.C.* *2019*
- Researched the topics of poverty, homelessness, food insecurity, and the reality of similar societal issues
  - Volunteered at various places throughout Washington D.C., including a soup kitchen, a homeless shelter, and numerous food pantries
- Martin Luther King Day of Service** **2019, 2020**  
*Penn State Greater Allegheny*
- Volunteered at the on-campus free store, organizing clothing and food items throughout the store
- Penn State DuBois*
- Volunteered as a bingo caller for the DuBois Nursing Home
- Delta Mu Sigma Haunted House** **2018, 2019**  
*Volunteer*
- Helped construct the haunted house set
  - Participated as a tour guide and scarer
  - Raise money for THON
- Fall Family Fun Night** **2018, 2019**  
*Volunteer*
- Created and hosted games for young attendees to play and win candy

**FIELD EXPERIENCE**

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**Student Teaching, Crossroad Middle School** **2022***Lewisberry, Pennsylvania*

- Established and maintained positive student-teacher relationships and supported students' academic journeys
- Created and carried out educational and engaging lessons relating to content
- Managed classes between 25 and 30 students
- Observed classroom and teaching strategies under a mentor teacher
- Participated in professional development

**Observations, Mechanicsburg Area Senior High School** **2020***Mechanicsburg, Pennsylvania*

- Observed classroom functions and teaching strategies under a mentor teacher
- Created and co-taught activities and lessons for the students