Instructor-Student Rapport and the Impact on Undergraduate Aviation Student Empowerment

by

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Abstract

This study investigated the relationship between undergraduate aviation student perception of instructor-student rapport and perceived student empowerment, as measured by the constructs of impact, meaningfulness, and competence. A survey comprised of the 6-item Professor-Student Rapport Scale- Brief (PSRS-B) (Wilson & Ryan, 2013) and the 35-item learner empowerment measure (Frymier et al., 1996) was disseminated to undergraduate students in Aviation Management and Professional Flight in the School of Aviation. The survey data were analyzed using linear regression and the results indicated there was a statistically significant relationship between instructor-student rapport and undergraduate aviation student feelings of empowerment. Further, a statistically significant relationship was found between instructor-student rapport and student feelings of impact, meaningfulness, and competence. Specifically, the measures of empowerment and meaningfulness were found to be more strongly associated with rapport than impact and competence. If there is a relationship between instructor-student rapport and student feelings of empowerment, it is incumbent on instructors to create classroom environments promoting rapport with students to support their empowerment. In turn, empowered students may be able to take this empowerment into their communities to increase critical consciousness.

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I would like to dedicate this dissertation to my family… and frozen pizza. I never could have done this without either one. I would also like to thank my committee and University Reader: Dr. Jim Witte, Dr. Maria Witte, Dr. Hank Murrah, Dr. Sheena Stewart, and Dr. James Birdsong. Dr. Maria Witte, your inputs and support were invaluable, and I appreciate your guidance. To my husband Brandon, who I already really liked before this process, I adore you even more now. You always remind me how proud you are of me, even when I can't feel it for myself. I love you. To my daughters, Taegan and Kaiya, I want to show you that strength comes through the struggle- the more you challenge yourself and risk failure, the more invincible you will be. I love you. You all ate a well above average (statistically speaking) amount of frozen pizza, and I appreciate you and love you more than you will ever know!

Table of Contents

List of Tables

List of Figures

List of Abbreviations

ISR	Instructor-Student Relationship
UN	United Nations
SDG	Sustainable Development Goal
US	United States
PPC	Person, Process, and Context Model
PSRS	Professor-Student Rapport Scale
PSRS-B	Professor-Student Rapport Scale- Brief
MANOVA	Multivariate Analysis of Variance
SDT	Self-Determination Theory
SDL	Self-Directed Learning
SRL	Self-Regulated Learning

Definitions

The following definitions were used in this study:

Competence	The degree to which an individual can perform task activities skillfully when they try (Thomas & Velthouse, 1990).
Critical Consciousness	Individuals learning to perceive social, political, and economic contradictions, and taking action against the oppressive elements of reality (Freire, 2000).
Empowerment	Providing tasks and an environment to create intrinsic task motivation, which increases one's feeling of self-efficacy and energy (Conger & Kanungo, 1988; Thomas & Velthouse, 1990).
Immediacy	Teacher verbal and nonverbal behaviors reducing psychological and/or physical distance between themselves and students (Christophel & Gorham, 1995).
Impact	The degree an individual feels their behavior is making a difference toward accomplishing the purpose of a task, or producing the intended effects in their environment (Thomas & Velthouse, 1990).
Meaningfulness	The value of the task goal, or purpose, in relation to an individual's own ideas or standards, defined as their intrinsic caring about a task (Thomas & Velthouse, 1990).
Motivation	The process of instigating and sustaining goal-directed behavior (Schunk et al., 2008).

Self-Directed Learning (SDL)

A process in which individuals take the initiative, with or without help from others, in diagnosing their learning needs, formulating goals, identifying human and material resources, choosing and implementing appropriate learning strategies, and evaluating learning outcomes (Knowles, 1975, p. 18).

Self-Efficacy — People's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives-determining how they feel, think, self-motivate, and behave (Bandura, 1994)

Self-Regulated Learning (SRL)

Using an individuals' self-generated cognitions, affects, and behaviors that are systematically oriented toward attainment of their goals; being behaviorally, cognitively, metacognitively, and motivationally active in one's learning and performance (Schunk, 2012).

State Motivation — Motivation requiring an inherent interest and pleasure in the task at hand in order to engage and persist in an activity (Tremblay et al., 1995; Unsworth & McMillan, 2013).

Trait Motivation — Motivation that is stable and enduring, affected by individual characteristics such as personality (Tremblay et al., 1995; Unsworth & McMillan, 2013).

CHAPTER 1: INTRODUCTION

Introduction

Empowerment and critical consciousness are distinct but related frameworks necessary for individual and community development. By creating intentional relationships with students through rapport, and studying how rapport impacts student empowerment, instructors can provide an environment to not only give information to students, but to empower their learning. In turn, empowered learners can contribute to the community around them and create significant change through critical consciousness.

Researchers have studied how to best educate students in learning communities, and instructor-student relationships (ISRs) have been identified as one way to impact student learning outcomes (Frisby & Martin, 2010; Tinto, 1993), accelerate academic achievement (Battistich et al., 1997; Eccles, 2004; Teven 2001), and increase feelings of confidence and self-directedness (Ames, 1992; Midgley et al., 1989; Pintrich et al., 1994; Ryan et al., 1998).

Specifically, the construct of rapport has been studied as an essential component of successful instructor-student relationships (Catt et al., 2007; Demir et al., 2019; Faranda & Clark, 2004; Frisby & Martin, 2010; Robinson et al., 2019; Smith & Robertson, 2021). Frisby and Martin (2010) defined rapport as "an overall feeling between two people encompassing a mutual, trusting, and prosocial bond" (p. 147). Based on student input, instructor-student rapport is established when students perceive an instructor is accessible, approachable, fair, interesting, and elicits feelings of mutual trust, respect, and care (Benson et al., 2005; Faranda & Clarke, 2004).

According to Houser and Frymier (2009), empowered learners are more motivated to perform classroom tasks, feel more competent in the classroom, find the required tasks more meaningful, and feel they have an impact on their learning process. While there is some debate

on achievement motivation, research has identified that empowerment is primarily influenced by teacher behavior (Houser & Frymier, 2009).

Freire's (1973) critical consciousness is an understanding of the forces that shape one's life space, and becoming an active agent in constructing a different, more just reality (Merriam et al., 2007). This process takes the individual through personal change, often from passive to active, so they may take action to change the inequities and oppression of the sociocultural world (Freire, 1970). Christens et al. (2016) pointed out the overlap between empowerment and critical consciousness, stating "critical consciousness and empowerment are two of the most prominent conceptual frameworks for understanding civic development and engagement among youth involved in change efforts" (p. 24). Further, both frameworks increase the capacity to critically analyze social issues, identify unjust situations, and take action to support social justice (Christens et al., 2016).

This study examines the relationship between the rapport college aviation students feel with their academic instructor and any sense of empowerment they feel. By looking at the dimensions of student-perceived impact, meaningfulness, and competence, instructors can assess student feelings of empowerment and make changes to the classroom environment, potentially through rapport, to support their goals.

Statement of the Problem

It is important to consider the purpose of education when trying to improve learning outcomes. One of the United Nation's (UN) Sustainable Development Goals (SDGs) (2022) is education, focusing on ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for everyone. As well, SDGs seek to ensure all learners acquire the knowledge and skill, through education, to promote human rights, gender equality, promotion of

a culture of peace, and an appreciation of cultural diversity. According to Serafini et al. (2022), "institutions can be configured as important allies for social, economic, and environmental transformations" (p. 2), but need to be encouraged to align their actions with SDGs.

The purpose of education in the United States (US), aligns with the mission of the Department of Education (DOE) (2021), which is "to promote student achievement and preparation for global competitiveness by fostering educational excellence and ensuring equal access" (p. 1). Equal access requires an end to marginalization, where critical consciousness provides the "awareness, motivation, and agency to identify, navigate, and challenge social and structural constraints" (Diemer et al., 2016, p. 6). Further, critical consciousness may be a developmental asset not only for marginalized youth, but also their communities (Diemer et al., 2016). Empowerment is one connection between classrooms and the development of critical consciousness, or the ability to recognize and analyze systems of inequality and the commitment to take action against these systems (El-Amin et al., 2017).

Empowerment has been defined as the development of intrinsic task motivation by creating an environment and tasks which increase one's feeling of self-efficacy and energy (Conger & Kanugo, 1988; Thomas & Velthouse, 1990), where self-efficacy refers to an individual's belief in his or her capacity to execute behaviors necessary to produce specific performance attainments (Bandura, 1977a/1986b/1997). Thomas and Velthouse (1990) defined intrinsic task motivation as involving "positively valued experiences that individuals derive directly from a task" (p. 668). Empower can also mean to energize (Thomas & Velthouse, 1990), and educators may be able to develop intrinsic task motivation in students by creating classroom environments where students feel motivated and energized. Educators are always looking for ways to increase student learning outcomes, and if empowered learners feel a greater

sense of impact, meaningfulness, and competence as a result of instructor-student rapport, then instructors would benefit by creating classroom environments supporting rapport, and educational institutions would benefit by providing resources to instructors to facilitate student empowerment.

In foundational or lecture-based higher education courses, it can be challenging for instructors to create personally interactive experiences for students. If instructors teach a full course load, with classrooms operating at full capacity, it can be difficult to cultivate one on one relationships with students. As such, instructors must find a way to not only motivate students to learn, but to empower students to carry their learning into the community and make meaningful and positive changes. Instructors should understand the variables within their power to do more than just inform students. If instructors cultivate classroom environments where students feel a strong sense of rapport with them, this could go beyond students retaining information and translate into empowered learners who can make significant changes in their community.

While there is research related to undergraduate instructor-student rapport (Catt et al., 2007; Demir et al., 2019; Faranda & Clark, 2004; Frisby & Martin, 2010; Robinson et al., 2019; Smith & Robinson, 2021) and student empowerment (Conger & Kanugo, 1988; Thomas & Velthouse, 1990), there are few studies examining the relationship between these two factors, and even fewer studies analyzing how it pertains to undergraduate aviation students.

The idea of student motivation has driven considerable educational research, and while the definition of motivation has been reformed over the years, Tolman (1932) initially defined it as goal directed behavior. Eccles et al. (1998) used the expectancy-value lens of motivation by suggesting task value is more closely related to student choice of activities, such as enrolling in a course, but once enrolled, efficacy beliefs become a better predictor of student performance than

value. While motivation is an important component in understanding student learning, an updated framework is needed to understand how instructor-student rapport impacts student empowerment. Frymier et al. (1996) expanded on traditional views of motivation and found empowered learners feel more competent in the classroom, find tasks more meaningful, and feel like they have an impact on their learning process. Frymier et al. (1996) went on to show student empowerment was primarily influenced by teacher behavior.

Block (1987) first discussed empowerment in the context of the workplace. Empowerment was later defined by Conger and Kanungo (1988) and Thomas and Velthouse (1990) as providing tasks and an environment to create intrinsic task motivation, which increases one's feeling of self-efficacy and energy. While Shulman et al. (1993) were one of the first to study empowerment in the classroom, Frymier et al. (1996) expanded on Shulman et al.'s (1993) work by developing the learner empowerment dimensions of meaningfulness, competence, and impact in their learner empowerment measure. Multiple studies further examined student interest and empowerment in relation to classroom instruction (Weber, 2003/2004; Weber et al., 2003; Weber et al., 2005; Weber et al., 2001; Weber & Patterson, 2000).

While Gremler and Gwinner (2000) initially studied rapport in corporate service relationships, Frisby and Myers (2008) used the survey in an educational setting to study rapport and its effects on student learning outcomes. Wilson et al. (2010) used student input to create a new survey measure specifically relating to a classroom environment, which helped account for unique student perspectives. Wilson and Ryan (2013) then found that a more succinct version of their survey was able to carry near-full explanatory power similar to the full measure (Ryan & Wilson, 2014).

While two separate survey measures exist to study instructor-student rapport (Wilson & Ryan, 2013) and student empowerment (Frymier et al., 1996), there are little to no correlational studies using both surveys together. If educators want to move students from passively receiving information to feeling actively empowered by their learning, it is incumbent on learning institutions to look at every factor within the control of educators to potentially increase this desired outcome. By studying undergraduate aviation students, and examining how they feel empowered, educators can use this information to improve the way they cultivate their classrooms.

Purpose of the Study

The purpose of this quantitative correlational study was to examine how intentional instructor-student rapport correlates to undergraduate aviation student empowerment levels, as measured by impact, meaningfulness, and competence. Studies have analyzed K-12 student-teacher relationships, as well as undergraduate instructor-student relationships, but there is a paucity of research discussing instructor-student rapport in undergraduate aviation students. As well, few studies examine the relationship between instructor-student rapport and student empowerment.

Research Questions

The central question for this study is "What is the relationship between instructor-student rapport and undergraduate aviation student empowerment?" In order to answer this question, the following research questions were used:

RQ1: Is there a relationship between instructor-undergraduate aviation student rapport and student perception of impact?

RQ2: Is there a relationship between instructor-undergraduate aviation student rapport and student perception of meaningfulness?

RQ3: Is there a relationship between instructor-undergraduate aviation student rapport and student perception of competence?

Theoretical and Conceptual Framework

If the goal of higher education institutions is to produce empowered social thinkers who contribute to their local and global community (UN, 2022; DOE, 2021), Freire's (1970/1973) critical consciousness theory, Mezirow's (1991/2000) transformative learning theory, and Bandura's (1986a/1997/2001a) social cognitive theory, are some theories laying the framework to understand the dynamic nature of higher learning in a relational and social environment.

Andragogy

According to Knowles (1980/1984), pedagogy's foundation is teacher-directed learning, assuming a delayed application of knowledge, and is problem-centered; whereas, andragogy implies an immediacy of application and remains subject-centered. While pedagogy may be the building block of learning, higher education is evolving based on andragogical principles, where the learner is self-directed. When teaching higher education students, it is imperative they see the practical application of knowledge in the near-term in order to be motivated and self-directed. Once there is buy-in from a learner, the social context is essential not only for learning, but for application. Higher education learners use experience to process new information, assign meaning to it, and apply it to the environment around them.

Whether defined by age, social roles and responsibilities (Havighurst, 1948; Merriam & Brockett, 2007), or self-perception (Erickson, 1963), defining the adult learner is a complex process with many influencing factors. Adult learners generally choose to pursue their

educational goals, and must balance considerations such as a family, job, or community responsibilities a younger student may not have. While undergraduate aviation students do not fit all definitions of an adult learner, they generally participate in andragogical learning (Brady et al., 2001), favor specific learning styles different than traditional undergraduate students (Kanske & Brewster, 2001), and tend toward a dominant conscientiousness personality scale (Gao & Kong, 2016).

While Knowles (1980/1984) initially applied the principles of andragogy to adults in their learning process, he later applied them to younger students as well. One of Knowles' (1980) integral andragogical assumptions for students is self-directed learning, where part of maturing involves the development of intrinsic motivation to learn. Motivation, or readiness to learn, is not always higher in every adult learner, but social responsibilities can offer opportunities for learning (Merriam et al., 2007). Houle (1961) identified three main motivators why adults seek out learning opportunities as goal-oriented, activity-oriented, and learning-oriented. While the basis of Houle's work remains relevant, research suggests adult learners present mixed and layered motives that may evolve over time (Ross-Gordon et al., 2017). Houle's (1972) learning orientations marked an end to the narrow definitions of adult education by focusing on the process of improvement adults experience, whether guided by institutions, groups, or individuals.

Motivation

Wlodkowski's (2008) integrated levels of motivation require every instructional plan to be a motivational plan. Not every subject is exciting to every student; therefore, it is the way the instructor makes students feel that can have an effect on their excitement about class. Wlodkowski (2008) continued by indicating instructors who succeed in motivating students

exhibit expertise, enthusiasm, clarity, and cultural responsiveness. Further, educators should attend to the following conditions: establishing inclusion, developing attitude, enhancing meaning, and engendering confidence (Wlodkowski, 2008).

According to Schunk (2012), processes possibly affecting motivation are goals, self-efficacy, needs, values, and perceptions of control. Schunk (2012) also discussed motivational states, which are complex neural connections including emotions, cognitions, and behaviors which are based on internal and external events. In network theory, emotional reactions consist of four overlapping stages: orienting complex, emotional event integration, response selection, and sustained emotional context, where each stage is linked with specific neural areas (Schunk, 2012). Emotions can help direct attention, which is necessary for learning, and trigger epinephrine and norepinephrine to help with memory (Schunk, 2012). The idea of using emotions to direct attention supports Lowman's (1984) research which discussed the instructor as a performer and motivator in the classroom. Brain research has shown educational practices facilitating learning were simulations and role playing, problem-based learning, active discussions, graphics, and positive climate (Schunk, 2012). Arguably, a positive climate can be strongly influenced by a college instructor.

Hiemstra and Brockett (2012) offered the person, process, and context model (PPC) to update their earlier findings using a more robust sector of sociopolitical context. They proposed when a person, process, and context are in balance, the optimal situation for self-directed learning is most effective. Unlike their previous model, this approach focused on the dynamic of the three components instead of the individual. The cyclical nature of learning was used to show the interaction between the individual and their environment.

While many relevant educational principles were developed with children as subjects, educators must be attentive to the unique characteristics of college students- whether in formal, informal, or non-formal learning environments (Coombs & Ahmed, 1974). Cooms and Ahmed (1974) described formal education as highly institutionalized and structured, nonformal education as organized education activity carried on outside the framework of the formal system, and informal education as accumulating knowledge from the environment and daily experiences. La Belle (1982) questioned Cooms and Ahmed's (1974) discrete model by suggesting each could exist simultaneously, citing a classroom containing not only the curriculum, but its organization, rules, and knowledge between students. Instructor-student rapport can encompass both formal and informal learning processes.

Transformational Learning

Mezirow (1978) postulated adults and children may go through the same learning process, but children's education is substantially formational and adults are capable of transformational change. As mature learners update their perspectives to accommodate new information, they are increasing the collective consciousness of their environment, which is essential for the growth of any community. While one difference between a traditional adult learner and a college student is life experience, undergraduate college students can be capable of transformational learning. According to Slavich and Zimbardo (2012), "transformational teaching involves creating dynamic relationships between teachers, students, and a shared body of knowledge to promote student learning and personal growth" (p. 569). Mackay (2020) found that emotional preparation influences clinical supervisors' ability to create healthful relationships, enabling person-centered transformational learning. Being intentional about creating rapport with students could be one way to prepare for transformational learning.

Mature learners receive new information, draw on their experiential base, critically analyze where new information fits in, and then apply their new perspective to future experiences. This process is transformational in nature, and Mezirow (2000) suggested this personal transformation can lead to social action, where the individual rejects the past perspective and seeks to incorporate the new perspective into a "broader and more inclusive life world" (Ross-Gordon et al., 2017).

Figure 1 is a proposed model depicting the relationship between instructor-student rapport, student empowerment, and critical consciousness. This study investigated the relationship between instructor-student rapport and student empowerment. Freire (1970) believed the process of transformation requires the simultaneous and reciprocating processes of identifying and acting, where one cannot truly understand the depth of the problem without some form of action confronting the problem (Corcoran et al., 2015; Freire, 1970). Simply reflecting on realities without intervening will not lead to transformation (Jemal, 2017).

> There is no such thing as a neutral educational process. Education either functions as an instrument that is used to facilitate the integration of the younger generation into the logic of the present system and bring about conformity to it, or it becomes "the practice of freedom," the means by which men and women deal critically and creatively with reality and discover how to participate in the transformation of their world. (Freire, 2000, p. 34)

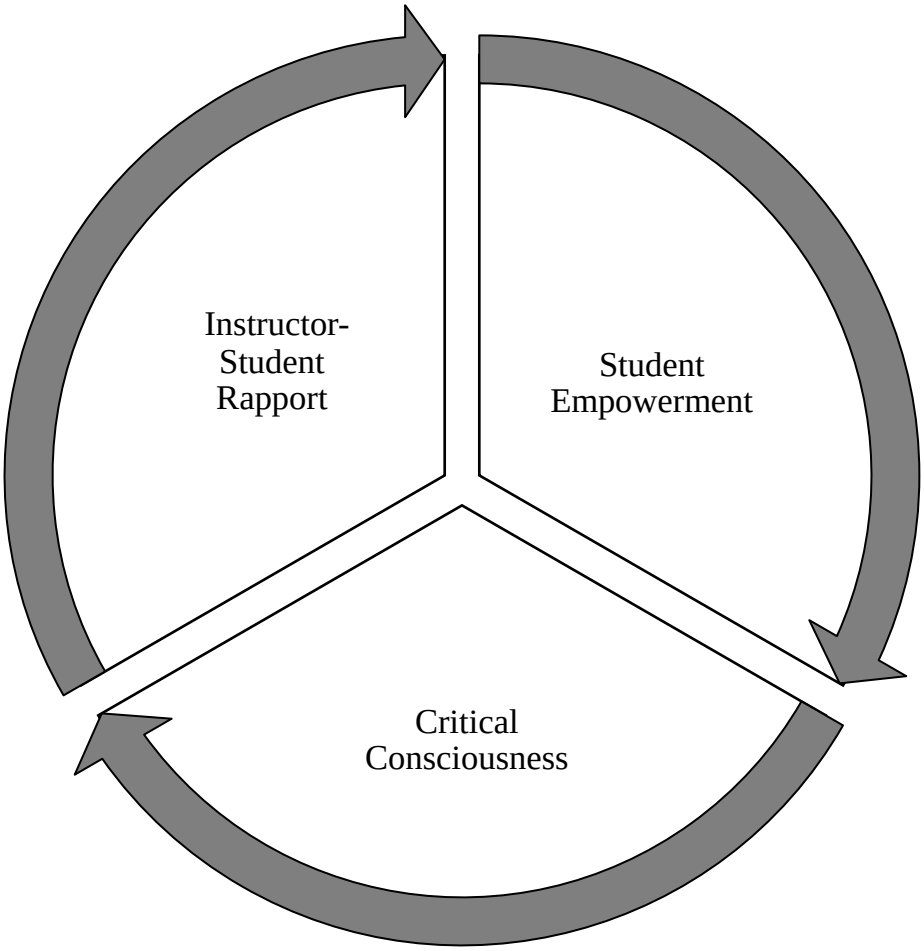
Social Cognitive Theory

Bandura's (1986a/1997/2001a) social cognitive theory stresses that much of human learning occurs in a social environment, where individuals learn useful and appropriate behaviors from seeing them modeled, and then act in accordance with beliefs about their capabilities and expected outcomes of their actions. Bandura (1982/1986a/2001a) used a triadic reciprocality

framework to explain the relationship between the person's cognitions, environment, and behavior.

Figure 1

Instructor-Student Rapport, Student Empowerment, and Critical Consciousness



One of Bandura's (1986a) factors affecting observational learning and performance was value, where an observer is more likely to attend to models displaying behavior the observer believes is important and finds self-satisfying. As well, value is the perceived importance or usefulness of learning, where individuals' actions reflect their value preferences. According to

Schunk (2012), an integral part of an instructors' job is to determine students' value preferences, especially if any of these preferences reflect stereotypes or cultural differences.

Self-efficacy

Another factor is self-efficacy, or a person's beliefs concerning their ability to organize and implement the necessary actions to learn or perform behaviors at desired levels (Bandura 1977a/1977b/1982/1986b/1993/1997). Self-efficacy is crucial to promoting a sense of agency in an individual that they can influence their lives (Bandura, 1997/2001a), and was found to be a significant predictor of learning and achievement (Schunk, 1981/1982). According to Bandura (2001b), efficacy beliefs are the foundation of human agency, and one has little incentive to act or to persevere in the face of difficulties unless they believe they can produce desired results by their actions. Central to the idea of personal agency is one's belief in their capability to exercise control over their own functioning and over environmental events (Bandura, 1997). According to Bandura (2001a):

> Personal agency operates within a broad network of socio-structural influences. In these agentic transactions, people are producers as well as products of social systems. Social Cognitive Theory distinguishes among three modes of agency: direct personal agency, proxy agency that relies on others to act on one's behest to secure desired outcomes, and collective agency exercised through socially coordinative and interdependent effort. Growing transnational embeddedness and interdependence are placing a premium on collective efficacy to exercise control over personal destinies and national life. (p. 1)

One perspective Merriam and Bierema (2014) used to view transformative learning theories was Social Change, or Socio-Emancipatory, where individuals use their own personal growth to change the sociocultural world by moving from passive acceptance to empowerment

through critical consciousness. Horton and Freire (1990) focused on critical reflection, building on Freire's (1973) collaborative critical analysis of experience and critical consciousness, or conscientization. Freire (1973) proposed a cycle to develop critical consciousness which involves gaining knowledge about the systems and structures creating and sustaining inequity (critical analysis), developing a sense of power or capability (sense of agency), and committing to take action against oppressive conditions (critical action).

Critical Consciousness

Research supports that critical consciousness not only increases young people's commitment to challenging pervasive injustice (Ginwright, 2010; Watts et al., 2011) but also improves academic achievement and engagement (Carter, 2008; O'Connor, 1997). Additionally, programming designed to foster critical consciousness has been shown to increase academic engagement and achievement (Cabrera et al., 2014; Cammarota, 2007; Dee & Penner, 2016) and enrollment in higher education (Rogers & Terriquez, 2013). In the absence of designated curriculum supporting this goal, instructor-student rapport could potentially support the same purpose.

Instructor motivation is equally important while educating any learner. Brookfield (2000) considered that adult educators do their work because they believe, through their practice, they can help themselves and others lead more authentic and compassionate lives in a world organized according to ideals of fairness and social justice. If this is the motivation behind creating intentional instructor-student rapport, outcomes can be directed toward empowered learners who believe their actions carry impact, and carry this feeling into their community.

Dewey (1934) submitted that education continues from the participation of the individual in the social consciousness of the race, where social situations influence a sense of self,

beginning in childhood. These principles reinforce the idea of sharing environmental and relational resources with students in an ever-evolving interaction. From childhood through adulthood, learners are participating in their environment and bringing this awareness into their learning process.

Dewey (1934) further suggested that the educational process has two sides, psychological and sociological which are organically related. The individual to be educated is identified as social, and society is made up of an organic union of individuals. The school is a social institution, representing a simplified form of community and life, where the teacher's place is to assist the student in responding to these influences, not imposing ideas or habits (Dewey, 1934). Dewey (1934) believed instructors must cultivate student interests because the community has a moral duty to education.

Dewey's (1934) approach emphasized organism-environment transactions, or cycles, where organism and environment are partners in an act, giving a more active view of learning. Dewey (1934) also emphasized engaged problem solving, attentive to the practical meaning of events. Mead (1934) took this further, specifying that reflective intelligence is learned through responding to the reflected meaning of one's own behavior, or the conversation of gestures, and is a learned form of social interaction rather than a thing. Two major implications of functional psychology are interaction, or organism-environment transactions, and continuity. A democratic society is suggested, fostering the development of the unique abilities of all its members. When discussing education, it is imperative to emphasize the importance of environmental interaction, otherwise, we have a society of educated individuals who are unable to share their educational growth with their environment.

"Experience is not the best teacher; evaluated experience is the best teacher. Reflective thinking is needed to turn experience into insight." (Maxwell, 2011, p. 1). Empowering students through the learning process is essential for a successful program. Students can use transformative learning to make sense of new information to update their patterns of thinking, and then share this new perspective with their community.

Significance of the Study

In universities, larger class sizes or rigorous curriculum can make it difficult for instructors to cultivate personal relationships with students. If instructors are able to create intentional classroom environments where students feel rapport, then it is incumbent on universities to emphasis this skill and provide resources to instructors. As well, instructors could include time or activities to build relationships with their students. As a learning outcome, students who feel empowerment through impact, meaningfulness, or competence are better able to contribute to the environment around them. If students feel their actions have impact, what they are learning is meaningful, or they are competent in their field of study, this empowerment could potentially manifest as better grades, persistent enrollment, improved self-efficacy, higher self-esteem, or increasing the collective critical consciousness around them. If undergraduate students value different aspects of the relationship with their instructor, and their feeling of empowerment is affected by this relationship, then it might be incumbent on instructors to be aware or create intentional rapport to meet these needs.

Study Design

A quantitative study was performed using a 41-question survey. The first method for data collection in this study included the six-question abbreviated version of the Professor-Student Rapport Scale (PSRS-B) (Wilson & Ryan, 2013) using a Likert-type rating scale from 1

(Very Little) to 5 (A Great Deal) to measure rapport. The second method for data collection included the 35-question learner empowerment measure by Frymier et al. (1996), using a Likert-type rating scale from 0 (Never) to 4 (Very Often) to measure student empowerment. For consistency of comparison, the learner empowerment measure (Frymier et al., 1996) was changed to use a rating scale from 1 (Never) to 5 (Very Often) to correlate to the PSRS-B (Wilson & Ryan, 2013).

The combined 41-question survey was administered through Qualtrics, with a link distributed electronically through email or a QR code. Convenience sampling was used in the targeted student population. The sample population for the survey included undergraduate students from the School of Aviation in the College of Liberal Arts at Auburn University. The sample included male and female students of varying ages (ages 18 and older) from introductory level aviation courses to higher level courses within the program.

Data analysis was conducted using linear regression to analyze the relationship between instructor-student rapport and student empowerment. Rapport was described using an independent continuous measurement of rapport. Student empowerment was described using three dependent continuous measurements of student perceived impact, meaningfulness, and competence. Linear regression was used to examine the relationship between rapport and each dependent factor of impact, meaningfulness, and competence. As well, the assumptions for linear regression were assessed. More details about the specific design of the study are provided in Chapter 3.

Assumptions and Limitations

Assumptions made prior to this study:

1. Some undergraduate students may not fit the traditional definition of an adult learner, but for discussion purposes, adult education concepts will be applied to this population of college aviation students.
2. State motivation will be analyzed separately from trait motivation, though both are interrelated and impact student empowerment.
3. Rapport includes the climate, or overall feeling, an instructor creates in the classroom.

Limitations of this study:

1. The data were collected from a single university in the southeast United States. This could impact generalizability due to aviation college students at other universities having different experiences which may contribute to significantly different responses.
2. The targeted survey data were collected from a single school within a college at a university. Student experience may differ between colleges within a university. This could impact generalizability to other populations.
3. The sample size could affect generalizability and reduces the power of the findings.

Organization of the Study

This study is organized into five chapters. Chapter 1 introduces the study, the problem, purpose, research questions, theoretical and conceptual framework, significance, design, assumptions and limitations, definition of terms, and organization of the study. Chapter 2 is a review of literature providing relevant data and perspectives for this study. These sources range from scholarly journals, other dissertations and theses, and relevant and credible professional publications. Chapter 3 addresses the procedures, data collection, and data analysis of the research. It includes the study design, research questions, reliability, validity, population sample, data collection, and data analysis. Chapter 4 presents the data collected, and the findings of the

study as they relate to instructor-student rapport and undergraduate and graduate student empowerment. Chapter 5 concludes the dissertation with the summary, conclusions, and recommendations for further research.

Summary

This study sought to understand the relationship between instructor-student rapport in college aviation students and student-perceived empowerment. It examined how rapport relates to empowerment's constructs of impact, meaningfulness, and competence. Understanding the relationship between instructor-student rapport and college aviation student feelings of empowerment can help influence the classroom environment created by an instructor to achieve desired outcomes.

CHAPTER 2: LITERATURE REVIEW

Introduction

If educators want to empower learners, it is necessary to understand the methods needed to develop this learning outcome. By using immediacy behaviors and promoting an environment where students feel a sense of instructor-student rapport, instructors may be able to strengthen student self-efficacy beliefs and motivation. With a knowledge of power dynamics, and an understanding how to engage students, instructors may be able to increase student feelings of impact, meaningfulness, and competence. Students who are motivated and empowered in the classroom may then take these feelings into their community to enact positive change. The theoretical and conceptual frameworks of social cognitive theory (Bandura, 1986a), self-directed learning (Knowles, 1980/1984), self-regulated learning (Schunk, 1999), transformative learning theory (Mezirow, 1978), and social consciousness theory (Freire, 1973/2005) help to understand the personal and social aspects of the learning process.

Purpose of the Study

The purpose of this quantitative correlational study was to examine how intentional instructor-student rapport correlates to undergraduate aviation student empowerment levels, as measured by impact, meaningfulness, and competence. Studies have analyzed K-12 student-teacher relationships, as well as undergraduate instructor-student relationships, but there is a paucity of research discussing instructor-student rapport in undergraduate aviation students. As well, few studies examine the relationship between instructor-student rapport and student empowerment. If undergraduate aviation students value different aspects of the relationship with their instructor, and their feeling of empowerment is affected by this relationship, then it might be incumbent on instructors to be aware or create intentional rapport to meet these needs.

Research Questions

The central question for this study is "What is the relationship between instructor-student rapport and undergraduate aviation student empowerment?" In order to answer this question, the following research questions will be used:

RQ1: Is there a relationship between instructor-undergraduate aviation student rapport and student perception of impact?

RQ2: Is there a relationship between instructor-undergraduate aviation student rapport and student perception of meaningfulness?

RQ3: Is there a relationship between instructor-undergraduate aviation student rapport and student perception of competence?

Rapport

Instructor-student relationships (ISRs) have been identified as one way to impact student learning outcomes (Frisby & Martin, 2010; Tinto, 1993), accelerate academic achievement (Battistich et al., 1997; Eccles, 2004; Teven 2001), increase feelings of confidence and self-directedness (Ames, 1992; Midgley et al., 1989; Pintrich et al., 1994; Ryan et al., 1998), and have a positive influence on motivation to persist in undergraduate studies (Hogan, 2020). The construct of rapport has been studied as an essential component of successful instructor-student relationships (Catt et al., 2007; Demir et al., 2019; Faranda & Clark, 2004; Frisby & Martin, 2010; Robinson et al., 2019; Smith & Robinson, 2021). Frisby and Martin (2010) defined rapport as "an overall feeling between two people encompassing a mutual, trusting, and prosocial bond" (p. 147) and Wilson et al. (2010) described rapport as an overall positive relationship existing between instructors and their students. Based on student input, instructor-student rapport is established when students perceive an instructor is accessible, approachable, fair,

interesting, and elicits feelings of mutual trust, respect, and care (Benson et al., 2005; Faranda & Clarke, 2004).

Professor-student rapport has been associated with student learning, and students reporting a feeling of rapport with their professor also reported greater enjoyment of course material, enjoyment of their instructor, were more likely to attend class, study, contact their professor, and engage in other beneficial academic behaviors (Murray, 1997). Further, rapport between teachers and students has been related to student enjoyment of the material, class attendance, and time spent studying (Benson, Cohen, & Buskist, 2005). Figure 1 is a model depicting the proposed relationship between instructor-student rapport, student empowerment, and critical consciousness. This study investigated the relationship between instructor-student rapport and student empowerment.

Intellectual Excitement and Interpersonal Rapport

Building on previous one-dimensional models, Lowman (1984) described effective teachers as using the dimensions of intellectual excitement and interpersonal rapport. Teachers with high ability to create interpersonal rapport would be seen as positive, democratic, and predictable, which "would most affect the instructor's role as a motivator of students both within and outside of class." (Lowman, 1994, p. 137). Lowman's (1984) approach addressed both task and interpersonal facets of effective teaching, and shared aspects with Reinsmith's (1992) Achetypal Forms, but two limitations were highlighted in Lowman's model. First, student motivation was originally thought to be highest with positive and democratic instructors, but later research suggested motivation was more complex (Lowman, 1990). Lowman (1990) found student motivation appeared to be a function of an instructor's skill in stimulating students' own internal motives. Second, the model failed to address the instructor's own teaching motivation

(Lowman 1994). Figure 1 illustrates the role of instructor motivation in the classroom as it relates to this study because there must be a desire to create rapport with students, as well as a clarity about an instructor's overall social objectives for students. Frymier (2007) discussed the role of instructors entering the classroom hoping to establish equitable, comfortable communicative relationships with students.

Lowman (1995) later expanded their model by using over 500 statements by students and professors, as opposed to the 50 data points in the original research, and highlighted the emotional component of student perceptions of their instructors. Lowman (1995) offered the effective instructor as one who engages and stimulates students as a dramatic performer in the classroom, while using communication of positive concern and skillful leadership to motivate them to work independently. This is important because it emphasized the environment an instructor creates, and not necessarily one-on-one relationships with students. Because individual relationships with each student may not always be feasible due to class size, additional instructor duties outside the classroom, and individual personality traits, it is imperative for instructors to realize the impact they can have on individual students by creating a classroom environment supporting rapport. As well, andragogical teaching principles may necessitate students working independently through various parts of their learning process.

Immediacy

Previously, rapport in teaching was associated with instructor immediacy behaviors, defined as teacher verbal and nonverbal behaviors reducing psychological and/or physical distance between themselves and students (Christophel & Gorham, 1995). While immediacy is believed to contribute to the creation of rapport, Gorham and Christophel's (1990) Immediacy Scale focused on behavior by assessing verbal and nonverbal behaviors a teacher might engage

in communicating psychological availability. Nonverbal behaviors, such as looking at the class while talking, characterized professor immediacy (Richmond et al., 1987), while verbal behaviors, such as praising students, measured students' feelings of a "good teacher" (Gorham, 1988). Wilson and Locker (2008) found verbal items reflected more than one component, and nonverbal behaviors reflected a single component which serves to differentiate between the two types of immediacy behaviors when assessing student outcomes.

Instructor nonverbal immediacy has been a strong predictor of student outcomes such as motivation (Christensen & Menzel, 1998; Christophel, 1990; Christophel & Gorham, 1995; Frymier, 1993), perceptions of learning (Christensen & Menzel, 1998; Witt et al., 2004), and attitude toward the course and the instructor (Andersen, 1979; Andersen et al., 1981; Christensen & Menzel, 1998). Instructor verbal immediacy has been associated with student motivation (Frymier, 1993; Wilson, 2006), perceptions of learning (Menzel & Carrell, 1999; Witt et al., 2004), and attitude toward the course and the instructor (Moore et al., 1996; Wilson, 2006). This is relevant because one of the empowerment constructs in this study is student perception of their own competence in the course.

Wilson et al. (2010) argued rapport is likely a larger construct than immediacy, and offered immediacy as one way to create positive instructor-student rapport. The Professor-Student Rapport Scale (PSRS) (Wilson et al., 2010) offered additional predication than with immediacy alone, revealing a stronger pattern of relationships than using the three immediacy factors of professor friendliness, flexibility, and nonverbal behaviors on their own, with each factor correlating with the measure of rapport (Wilson et al., 2010; Ryan et al., 2011). From this, Ryan et al. (2011) inferred rapport should then be able to predict student outcomes, but conceded more research is necessary.

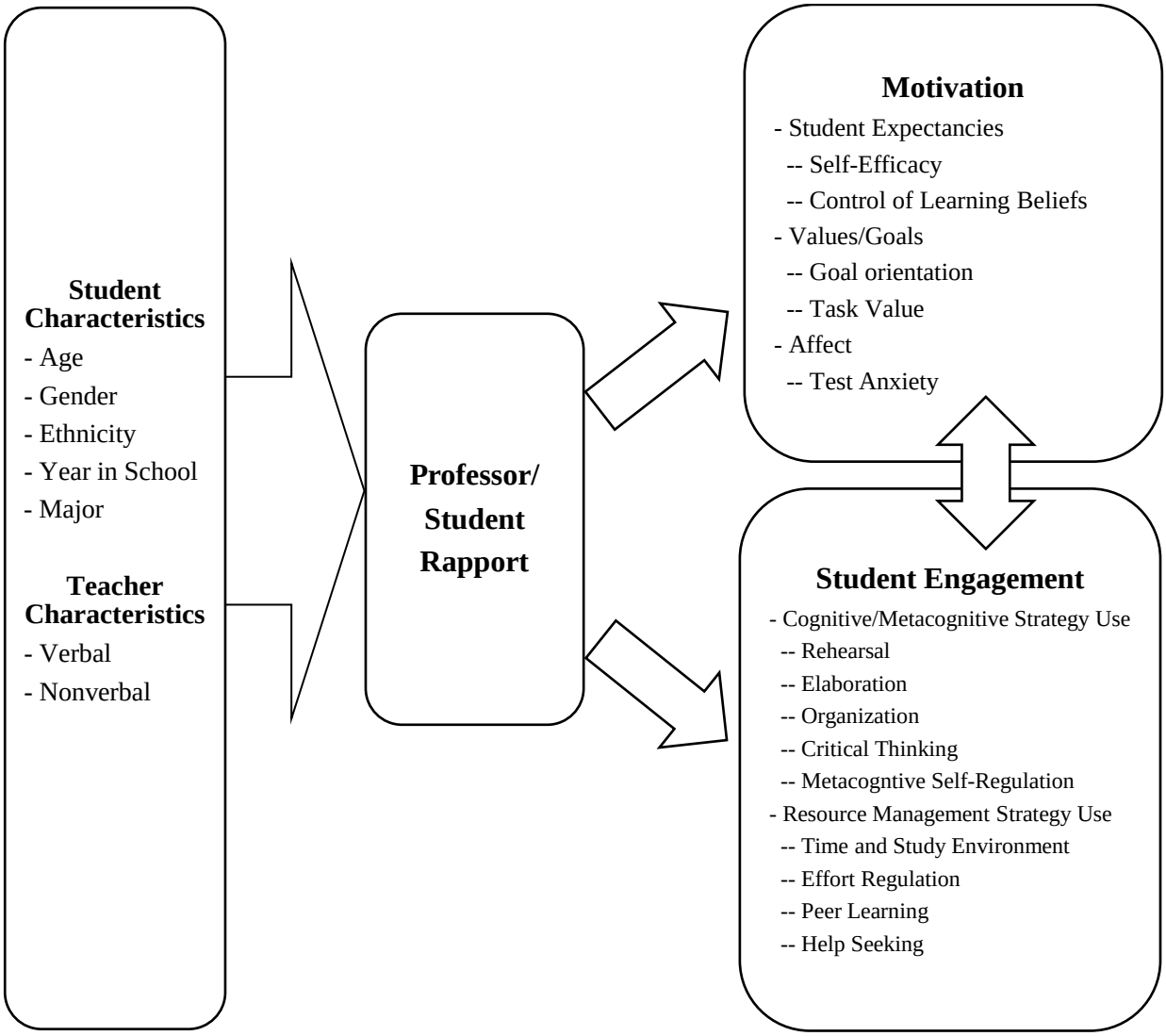
Estepp and Roberts (2015) found the combined variables of teacher immediacy and professor-student rapport were better predictors of motivation than engagement. Of note, professor-student rapport was found to be the greatest contributor in this relationship. While Gorham and Christophel's (1990) Immediacy Scale focused on instructor behaviors, the PSRS (Wilson et al., 2010) focused on student perceptions, which is the impression students have of their instructor, regardless of what an objective observer might notice. "Because we were interested in rapport, as it might influence students, it seemed most reasonable to ask for student perceptions of rapport with their instructor" (Wilson et al., 2010). This difference in measurement is important because it relies on students' feelings of perceived rapport with their instructor, and not necessarily a textbook definition noted by an outside observer.

While it might appear to be a subtle difference, using student perceptions of rapport, as opposed to observations by an observer, highlights the somewhat intangible qualities of instructor-student relationships. Using a checklist to establish rapport with students is not the goal, instead it is the instructor's desire to create an environment and connect with students in a meaningful way which could lead to student feelings of rapport. In this case, trial and error, along with feedback from students using measures such as the PSRS, or PSRS-B, can help instructors assess their goals.

Figure 2 shows Estepp and Roberts' (2015) adaptation of Pintrich and Zusho's (2007) work, incorporating factors in the classroom affecting student motivational processes and use of self-regulatory processes. Estepp and Roberts (2015) used Ormrod's (2008) definitions of student expectancy for success by measuring students' beliefs in their ability to perform tasks

Figure 2

Conceptual Model of Motivation and Engagement



Note. Adapted from "Teacher immediacy and professor/student rapport as predictors of motivation and engagement," by C. M. Estepp and T. G. Roberts, 2015, *North American Colleges and Teachers of Agriculture (NACTA) Journal, 59*(2), p. 156. Copyright 2015 by North American Colleges and Teachers of Agriculture (NACTA).

and the control they felt over their performance. This correlates to the construct of perceived competence in this study. As well, Estepp and Roberts (2015) discussed the value students place on tasks, and how those tasks relate to their future goals, correlating to the construct of meaningfulness in this study.

Professor-Student Rapport Scale (PSRS)

While Gremler and Gwinner (2000) initially studied rapport in corporate service relationships, Frisby and Myers (2008) were among the first to use this corporate survey in an educational setting to study rapport and correlations with student learning outcomes. Frisby and Myers (2008) found students' perceptions of rapport were not dependent on class size, correlating with Perkins et al.'s (1995) suggestions that an instructor can establish rapport with an entire class, regardless of size, by building rapport with a single student. Frisby and Myers (2008) further found rapport to significantly and positively correlate with student participation and affective and cognitive learning, where affective learning focuses on the attitudes, values, interests, and appreciation of learners (Krathwohl et al., 1966).

Wilson et al. (2010) realized a new survey measure was necessary to account for specific student perspectives in a classroom environment, and were among the first to create a scale measuring professor-student rapport. Traditional measures of rapport emphasized one-on-one relationships such as therapist-client (Anderson & Anderson, 1962) or roommates (Carey et al., 1986), and the instructor-student relationship required a measure to study the unique interpersonal dynamics between an instructor and a group of students.

While Wilson and Taylor (2001) raised questions about students not objectively reporting teacher behavior, Wilson et al. (2010) argued students are reporting likely teacher behaviors based on their general perceptions of teacher qualities. Because the rapport measure included

items addressing student impressions of their instructor, as opposed to exclusively instructor behaviors with Gorham and Christophel's (1990) Immediacy Scale, it had the potential to assess a broader construct (Ryan et al., 2011). This is important because the learner empowerment measure (Frymier et al., 1996) used in this study refers to student perceptions of their own feelings of impact, meaningfulness, and competence and not observations by an outside observer.

Ryan et al. (2011) assessed the psychometric characteristics of the PSRS (Wilson et al., 2010) and found adequate test-retest and internal consistency reliability. As expected, Ryan et al. (2011) found the rapport scale was significantly positively correlated with the Working Alliance Inventory (Connors, et al., 1997) and the Social Support Scale (Fassinger, 2000), and significantly negatively correlated with the Verbal Aggressiveness Scale (Bekiari et al., 2006). However, the PSRS (Wilson et al., 2010) revealed a Cronbach's alpha ($\alpha = .96$), indicating item redundancy.

To address the item redundancy in Wilson et al.'s (2010) PSRS, Wilson and Ryan (2013) found a more succinct version of their survey was able to carry near-full explanatory power similar to the full measure. By using principal component analysis on the original measure, and factor analysis to reduce scale length, Wilson and Ryan (2013) were able to offer a concise scale to adequately assess student perceptions of rapport called the Professor-Student Rapport Scale – Brief (PSRS-B). A stepwise addition of the full PSRS did not explain additional variability in student outcomes, further supporting the condensed version (Wilson & Ryan, 2013).

Of note, Wilson and Ryan's (2013) professor-student rapport study found the first factor of teacher characteristics emerged as expected, but the second factor of student involvement and reactions to their teacher was the only factor to predict student outcomes such as attitudes,

motivation, and some measures of learning. This result shows instructor-student rapport encompassing more than a caring and likeable teacher, and highlights what the instructor does to create an engaging classroom as an important component of this relationship.

Broom (2016) attempted to replicate Wilson and Ryan's (2013) study, and found two different factors emerged. Broom labeled these factors "Professor Cares about Students" and "Professor Creates an Engaging and Constructive Atmosphere." While these two factors encompass a broader construct of professor-student rapport, using the definition of rapport which includes the classroom environment could partially account for this difference. Broom (2016) confirmed the second factor was similar to Wilson and Ryan's (2013) second component of "Student Engagement" but felt it included a broader concept.

At the least, rapport could be considered a misleading term since it implies interpersonal dynamics and instructors may not think to use the PSRS (Wilson et al., 2010) and PSRS-B (Wilson & Ryan 2013) when desiring to measure student feelings about instructors and the classroom atmosphere. Broom (2016) pointed out the PSRS-B (Wilson & Ryan, 2013) was more a measurement of a student's feelings about coming to class, and questioned whether instructors would know to use it for the intended purpose based on the name.

When researching the PSRS-B, Wilson and Ryan (2013) added course grades as an unbiased measure of student learning, which the original PSRS (Wilson et al., 2010) did not use. Ryan and Wilson's (2014) psychometric analysis of the PSRS-B (Wilson & Ryan, 2013) highlighted the limited use of single-item student outcome measures in Wilson and Ryan's (2013) study, and instead examined the predictability of student outcomes in the PSRS-B (Wilson & Ryan, 2013) using multiple-item measures of affective learning, cognitive learning,

learner empowerment, learning indicator items, and student communication satisfaction to provide a more rigorous assessment.

As with the PSRS (Wilson et al., 2010), Ryan and Wilson (2014) assessed the validity of the PSRS-B (Wilson & Ryan, 2013) using established similar scales including the Immediacy Scale, Working Alliance Inventory, Social Support Scale, and the dissimilar Verbal Aggressiveness Scale, with significant correlation in the expected directions. The PSRS-B (Wilson & Ryan, 2013) displayed a Cronbach's alpha ($\alpha = .83$), indicating acceptable internal consistency, without suggesting item redundancy. As well, the PSRS-B (Wilson & Ryan, 2013) was shown to have convergent validity, and was able to adequately predict the variability in each of the outcomes.

Broom (2016) used a sample of students with various types of faculty members, such as tenured, tenure-track, lecturer, and instructors, while the PSRS and PSRS-B (Wilson & Ryan, 2013) contain the term professor, and while this study intentionally uses a generic term of instructor, the term educator may be even more appropriate for general application in higher education. By using student input to create this measure, and using sound psychometric properties, Wilson and Ryan (2013) created the PSRS-B to give instructors a succinct tool to measure student feelings about professor-student rapport in the classroom and predict student learning outcomes.

Empowerment

Empowerment has been conceptualized through social movements (Rappaport, 1981), democratic theory and education (Dewey, 1916), and through ecological perspectives at the community level, organizational level, and psychological level. Conceptual frameworks and

empirical data collected for psychological empowerment have identified behavioral, emotional, cognitive, and relational components (Christens, 2012; Zimmerman, M. A. 1995).

The behavioral component of empowerment, or community participation, refers to various forms of community and organizational involvement such as seeking to influence policy, attending community meetings, or participating in organizational activities (Christens et al., 2016). However, among youth and adolescents, participatory behavior in the community can include discussions of social and political issues with peers, teachers, family members, and others (Mahatmya & Lohman, 2012; Wray-Lake & Flanagan, 2012). This behavior, which is considered participatory, could provide a bridge between an empowering environment in the classroom and community participation.

The emotional component of empowerment refers to an individual's perception and feelings that their participation is able to influence societal and civic decision-making (Christens et al, 2016). The emotional component has been conceptualized and studied as sociopolitical control, or a sense of self efficacy (Bandura, 1982) as well as an individual's motivation to control their environment (De Charms, 1968)- specific to the sociopolitical domain. This component is relevant to this study's empowerment construct of impact.

The cognitive component of empowerment refers to an awareness of the forces shaping policies and systems, and the understanding of how to make changes within these systems (Christens et al., 2016). Research on power and social change processes has contributed to community psychological research and assessed the cognitive component according to three dimensions: knowledge of the source of social power, knowledge of the nature of social power, and knowledge of the instruments of social power (Speer, 2000; Speer & Peterson, 2000). It could be argued that critical reflection (Diemer et al., 2016), or the process of learning to

question social arrangements and structures marginalizing groups of people, must occur before an awareness of these social dynamics can occur. Critical reflection will be discussed further in the critical consciousness section.

The relational component of empowerment emphasizes the role of relationships and relational capacities in the processes of psychological empowerment (Russell et al., 2009). Of particular interest to this study is the relational component of psychological empowerment which could include dimensions such as facilitating others' empowerment, bridging social divisions, collaborative competence, network mobilization, and passing a legacy of empowerment to others (Christens, 2012). This perspective acknowledges an instructor's desire to empower students for their own benefit, and for the benefit of the community.

Frymier et al. (1996) found that empowering behaviors include teacher immediacy and instructor efforts to make content relevant to students. They stated that empowering behavior refers to the actions a person takes to create an environment which helps others feel empowered. In this case, being empowered is defined as an internal condition experienced by an individual as a result of their environment, similar to state motivation (Frymier et al., 1996). As well, this is meaningful because the concept of rapport encompasses the environment an instructor is able to create in the classroom.

Thomas and Velthouse (1990) originally defined empowerment in corporate settings as "a process of enhancing feelings of self-efficacy among organizational members through the identification of conditions that foster powerlessness and through their removal by both formal organizational practices and informal techniques of providing efficacy information" (p. 474), or providing tasks and an environment to create intrinsic task motivation, which increases one's feeling of self-efficacy and energy (Conger & Kanungo, 1988; Thomas & Velthouse, 1990).

However, Luechauer and Shulman (1993) offered a definition applying to both educational and corporate organizations, where empowerment is the "humanistic process of adopting the values and practicing the behaviors of enlightened self-interest so that personal and organizational goals may be aligned in a way that promotes growth, learning, and fulfillment" (p. 13).

Block (1987) first discussed empowerment in the context of the workplace, and while Conger and Kanungo (1988) focused their research on corporate empowerment, their social view of empowerment is applicable to most relational constructs. They raised many important questions such as "Does the sharing of authority and resources with subordinates automatically empower them?" and "Are the effects of an empowering experience the same as the effects of delegation, participation, and resource sharing?" (p. 473) and were among the first to propose empowerment be viewed as a motivational construct, focusing on enabling rather than delegating.

Senge (1990) helped bridged the gap between industry and education by viewing businesses as learning organizations, where learning was considered the best way to develop a competitive advantage. He recognized the importance of empowerment in the workplace, stating empowered learners are responsible for their learning and are vital in creating these learning organizations. Senge (1990) developed the idea of learning organizations, where a learning culture is established, sharing five key characteristics: systems thinking, personal mastery, mental models, shared vision, and team learning. Many of these characteristics are also relevant in academic settings.

Shulman et al. (1993) suggested that the role of faculty, who have the goal of empowering students, is to create conditions sustaining student commitment to producing high quality work. According to Frymier et al. (1996), communication is important to creating a

shared vision for this empowerment relationship. Not surprisingly, communication is also a key factor in instructor-student rapport (Wilson & Locker, 2008).

Power

In order to discuss empowerment, it necessary to understand the construct of power. Social exchange theory (Blau, 1964; Emerson, 1962; Homans, 1974; Thibaut & Kelley, 1959) describes power as a function of the dependence and/or dependence of actors. An individual's expertise and an individual's ability to access specialized knowledge are two of the principal sources of power (Bacharach & Lawler, 1980). McClelland (1975) posited that individuals are assumed to have a need for power, which implies an internal urge to influence and control other people, which is relevant to this study because it emphasizes the importance of instructor motivation in teaching and building rapport with students. If instructors have a strong need for power, it would most certainly impact building rapport with students, and could impact social outcomes. Deci and Ryan (2012) found that students develop beliefs and values aligning with their teachers, and these beliefs help students be more academically successful. These results point to the power instructors have to influence student beliefs and values in the classroom.

Conger and Kanungo (1988) explored empowerment as a motivational construct, referring to an individual's need for self-determination (Deci, 1975), or belief in personal self-efficacy (Bandura, 1986b). In the corporate setting, managers strengthening this need self-determination, or a belief in their employees' self-efficacy, would help make the employees feel more powerful. According to McClelland (1975), "if [teachers] want to have far-reaching influence, they must make their [students] feel powerful and able to accomplish things on their own" (p. 263), which is in alignment with andragogical principles where self-directed learning is

emphasized. This translates to instructors empowering students by motivating them, supporting their need for self-determination, and helping to strengthen their self-efficacy.

Self-Efficacy

Conger and Kanungo's (1988) focus on empowerment as an enabling behavior implies creating motivation for task accomplishment by developing personal efficacy. Bandura (1994) defined perceived self-efficacy as "people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives" (p. 1) and these beliefs determine how people feel, think, self-motivate, and behave. Further, self-efficacy is the key to promoting a sense of agency in people that they are able to influence their own lives (Bandura, 1997/2001a). Self-efficacy refers to the perceptions of a person's capabilities to produce actions, whereas, outcome expectations are beliefs about the anticipated outcome of those actions. Students often receive persuasive information from instructors that they are capable of performing well, and general classroom conditions are capable of influencing situationally specific self-efficacy (Schunk, 2012). As well, teacher trust and school climate were found to have a positive impact on student self-efficacy in primary and secondary school aged students (Lee et al., 2019).

Conger and Kanungo's (1988) findings can be applied in academic settings, that when students fail to gain desired outcomes, they may still feel empowered if their efficacy belief is reinforced by their instructor's recognition of performance. According to Schunk (1999), personal variables and environments affect one another through a reciprocal influence. An example of this environmental influence is an instructor giving positive verbal feedback to students, raising their personal self-efficacy. This influence is relevant to this study because one of the measured constructs of empowerment is student perceived impact.

Engagement

Students with self-efficacy are more likely to engage in tasks, expend effort, persist in overcoming difficulties, and perform at higher levels (Bandura, 1997; Pajares, 1996; Schunk, 1996; Zimmerman, B. J. 1995). Student engagement strongly predicts academic achievement (Fredricks et al., 2004; Lee, 2014; Reyes et al., 2012), and involves participatory involvement in academic contexts, such as responding to teacher questions, paying attention, and doing assigned work (Fredricks et al., 2004). Engaged students may not always be empowered students, but empowered students who feel what they are doing is meaningful, who feel like they are competent, or who feel what they are doing is impactful, are most likely exhibiting engaged behaviors.

Martin and Collie (2016) expanded on previous research and found student engagement was higher as the teacher-student relational balance became more positive, outweighing the limiting properties of negative teacher-student relationships, and resulting in cumulative engagement yield when increasing positive teacher-student relationships across subjects. Positive teacher-student relationships can have an energizing effect, activating positive academic emotions (Furrer & Skinner, 2003; Furrer et al., 2014), which can cause achievement behavior through engagement (Meyer & Turner, 2002). As well, Lei et al. (2018) found moderately strong and positive correlations between student behavioral, emotional, and cognitive engagement and academic achievement.

Further, Martini et al. (2019) found professor work engagement was positively associated with social support from students- showing instructor-student rapport having beneficial engagement correlations for instructors as well as students. This bidirectional and cyclical relationship is a necessary component in the proposed model (Figure 1) between instructor-

student rapport, student empowerment, and critical consciousness because positive instructor intent is necessary to cultivate a classroom environment supporting the goal of student empowerment.

In classrooms with more emotionally supportive teacher-student interactions, students have experienced greater levels of autonomy and more supportive peer relationships, which were predictive of student engagement gains (Ruzek et al., 2016). Lerdpornkulrat et al. (2016) found significant associations between student perception of classroom climate and student motivation and level of engagement. In a study examining instructor-student project collaboration, Jafar (2016) found students reported higher levels of engagement, accountability, and empowerment. Significantly, Spencer (2019) proposed that adding student ownership to student engagement provides empowerment, where highly engaging environments can promote empowerment because they focus on student agency and ownership.

As well, transformational leadership was found to directly and positively influence healthcare employee empowerment, which in turn was found to positively influence engagement (Garcia-Sierra & Fernandez-Castro, 2018). While there are differences between employer-employee relationships and instructor-student relationships, a transformational instructor may be seen as a leader in the classroom and many dynamics may still be relevant. This link between engagement and empowerment is important if the goal of instructors is to empower their students, and engagement has been identified as a positive outcome of instructor-student relationships.

Motivation

Schunk (2008) defined motivation as the process of instigating and sustaining goal-directed behavior, and conceptually helps to understand why people behave as they do. Frymier

et al. (1996) argued that empowerment is an expanded, and more inclusive, conceptualization of motivation. According to self-determination theory (SDT), individuals are intrinsically motivated by being self-determined (Reeve et al., 2004). A sense of control is the foundation for self-determination, where people see themselves as having the opportunity to make their own choices and initiate their own activities (Deci & Ryan, 1985).

State Motivation

Empowerment has been conceptualized as a motivation-based construct (Conger & Kanungo, 1988; Thomas & Velthouse, 1990), which can be experienced at a task level (state) or a global level (trait). Christophel (1990) found both trait and state motivation were positively associated with learning, however, state motivation was a better predictor. While research has shown state motivation is influenced by trait motivation (Tremblay et al., 1995), instructors are not generally able to account for the traits, or personalities, of each of their students. Therefore, instructors must rely on their influence of student state motivation by cultivating a motivating classroom environment.

Teacher communication variables have been found to influence learner empowerment (Frymier et al., 1996), and immediacy, through verbal and nonverbal aspects, was found to significantly and positively correlate with the state motivation of students (Christophel & Gorham, 1995). State motivation requires an inherent interest and pleasure in the task at hand in order to engage and persist in an activity, while trait motivation is considered stable and enduring, being affected by individual characteristics such as personality (Tremblay et al., 1995; Unsworth & McMillan, 2013).

In Table 1, Frymier et al. (1996) found student empowerment was primarily influenced by teacher behavior, and that the construct of meaningfulness had the largest correlation with

state motivation (.79 in both studies). "This positive and significant correlation between empowerment and state motivation confirms empowerment as a motivation-based concept, with meaningfulness being most representative of motivation" (Frymier et al., 1996, p. 196).

Significantly, Frymier et al. (1996) found learner empowerment had a significant positive relationship with state motivation, and a nearly nonexistent relationship with trait motivation. This result supports that learner empowerment is situational and the class environment can affect it. As seen in Table 1 (Frymier et al., 1996, p. 195), teacher immediacy and relevance behaviors were found to have a significant and positive relationship with learner empowerment, indicating that empowerment may be influenced by teacher communication behaviors.

Table 1

Correlations Among Variables in Study Two

	1	2	3	4	5	6	7	8	9
1. Meaningfulness									
2. Competence	.48*								
3. Impact	.67*	.42*							
4. Empowerment	.86*	.68*	.91*						
5. State Motivation	.79*	.49*	.57*	.73*					
6. Trait Motivation	-.10	-.01	-.03	-.05	.05				
7. Affective Learning	.84*	.48*	.57*	.75*	.73*	-.14*			
8. Learning Behaviors	.72*	.41*	.70*	.76*	.67*	.00	.63*		
9. Relevance	.74*	.39*	.62*	.72*	.52*	-.06	.68*	.65*	

Note. From "The development of a learner empowerment measure," by A. B. Frymier, G. M. Shulman, and M. L. Houser, 1996, *Communication Education*, *45*, p. 195 (doi:10.1080/03634529609379048). Copyright 2003 by EBSCO Publishing.

*p<.05

Learner Empowerment Measure

In this study, empowerment was measured through the constructs of meaningfulness, competence, and impact using Frymier et al.'s (1996) learner empowerment measure. Though empowerment measures originally began in organizational structures, these measures have been updated to account for differences in instructor-student relationships and classroom environments. Learners have unique relational needs that must be accounted for when studying empowerment.

Bandura's (1986a) social cognitive theory was the basis for Conger and Kanungo's (1988) original organizational empowerment model. Thomas and Velthouse (1990) further advanced Conger and Kanungo's (1988) work by developing a more complex cognitive model with three significant differences. First, intrinsic task motivation was used to specify the type of motivation identifying empowerment. Second, additional task assessments producing motivation were specified. And third, focusing on the interpretive processes, or constructions, to capture individual differences in responses, as opposed to stimulus-response assumptions. In this case, task assessments occur within the person and refer to the task itself, as opposed to the context of the task or the external rewards or punishments, and are the proximal cause of intrinsic task motivation (Thomas & Velthouse, 1990).

While Shultz and Shulman (1993) were among the first to use Thomas and Velthouse's (1990) empowerment measure in the classroom, this measure did not account for differences between organizational and academic environments. Frymier et al. (1996) based their model on the assumption that all educational, governmental, or business organizations share many common characteristics and processes. Teachers act as managers of the classroom where they direct and guide student behavior, much like a manager directs and guides subordinates'

behavior (Frymier et al., 1996). However, unlike previous measures, Frymier et al. (1996) updated their framework, taking into account the unique differences between corporate and classroom settings.

Frymier et al. (1996) used two separate studies to develop their learner empowerment measure. The second study improved on the results of the first study, though both studies demonstrated construct validity. The second study rewrote some of the original questions to focus on "feeling empowered," and to further establish validity of the learner empowerment measure (Frymier et al., 1996), they collected the previously used measures of motivation and relevance, and added the measure of learning. While the factor analysis results were consistent within both studies, and consistent with Thomas and Velthouse's (1990) previous ideas, study two was found to be superior. The overall reliability between both studies remained the same, but the reliability of each dimension improved significantly (Frymier et al., 1996). The reliability for the construct of meaningfulness increased from .89 to .94, competence increased from .83 to .92, and impact increased from .81 to .95, potentially due to more consistent wording of questions and increasing items on each dimension.

In both studies, Frymier et al. (1996) used Richmond's (1990) motivation scale to operationalize trait and state motivation, with a reliability of .91 for state motivation and .89 for the trait motivation scale. Frymier et al. (1996) used Frymier and Shulman's (1995) scale to operationalize relevance, with an alpha reliability of .91. Learning was operationalized in both studies using two methods. First, Frymier et al. (1996) used an abbreviated version of the affective learning scale (Gorham, 1988), with an alpha reliability of .98. Second, they collected data from their teaching colleagues, finding thirteen student activities representing indicators of learning, where this learning behaviors scale had an alpha reliability of .84 (Frymier et al., 1996).

The second study (Frymier et al., 1996) showed three factors with eigenvalues > 1.00, and MSA = .95 indicated sampling adequacy. The first factor of impact accounted for 35% of the variance, with 16 items loading. The second factor of meaningfulness accounted for 33% of the variance, with 10 items loading. The third factor of competence accounted for 25 of the variance, with 9 items loading. Choice did not emerge as a factor as it had in the previous corporate model. Table 2 (Frymier et al., 1996, p. 194) shows the empowerment factor analysis for each of the three factors that emerged.

Empowerment Constructs

Thomas and Velthouse (1990) originally found four dimensions of assessment included in cognitive components of intrinsic motivation: meaningfulness, competence, impact, and choice, where all have additive motivational effects. These results aligned with previous research (Bandura, 1977a/1986a; Deci, 1975; Hackman & Oldham, 1980), and offered a synthesis of their cognitive motivational content. Frymier et al. (1996) expanded on traditional views of motivation and found empowered learners feel more competent in the classroom, find tasks more meaningful, and feel like they have an impact on their learning process.

The construct of meaningfulness refers to the value of the task goal, or purpose, in relation to an individual's own ideas or standards, defined as their intrinsic caring about a task (Thomas & Velthouse, 1990). Hackman and Oldham's (1980) work model discussed job "meaningfulness," based on task significance, as a necessary psychological component of intrinsic work motivation. If students feel their work is meaningful, it increases the care they feel toward a task, and in turn increases their motivation, which is supported by Frymier et al. (1996), who found the motivational component of empowerment best represented by the dimension of meaningfulness.

Table 2

Empowerment Factor Analysis

Item	Meaningfulness	Competence	Impact
Impact			
1.	.46	.30	.80
*2.	.41	.40	.65
3.	.46	.20	.66
*4.	.40	.37	.73
5.	.51	.35	.86
*6.	.54	.33	.73
7.	.49	.40	.75
*8.	.53	.30	.80
9.	-.44	-.36	-.69
10.	.62	.44	.78
11.	-.53	-.33	-.66
*12.	.39	.28	.62
13.	.53	.32	.78
*14.	-.46	-.39	-.56
15.	.45	.33	.72
16.	.67	.54	.70
Meaningfulness			
1.	.71	.32	.52
2.	.80	.52	.62
3.	.82	.49	.64
4.	-.78	-.46	-.55
5.	.83	.45	.59
6.	.84	.34	.56
7.	.84	.42	.48
8.	.71	.25	.43
9.	-.82	-.41	-.47
10.	-.79	-.39	-.48
Competence			
1.	.39	.69	.40
2.	-.29	-.68	-.25
3.	.35	.77	.39
4.	-.30	-.75	-.32
5.	.48	.76	.41
6.	.42	.84	.37
7.	.42	.73	.35
8.	-.26	-.73	-.24
9.	.42	.78	.37

Note. From "The development of a learner empowerment measure," by A. B. Frymier, G. M. Shulman, and M. L. Houser, 1996, *Communication Education, 45*, p. 194 (doi:10.1080/03634529609379048).

*Indicates an *a priori* choice dimension item

The construct of competence, previously referred to as self-efficacy or personal mastery by Bandura (1977a/1986b), refers to the degree to which an individual can perform task activities skillfully when they try (Thomas & Velthouse, 1990). Bandura (1977a) found that low-efficacy caused people to avoid situations requiring the relevant skills, and this avoidance behavior prevented individuals from confronting their fears, building competencies, and improving their perceived competence. While Ruzek et al. (2016) did not find significant mediating effects of emotionally-supportive classrooms on middle and high school student competence beliefs, Fredricks et al. (2004) and Skinner et al. (2008) found emotionally supportive teachers did correlate to feelings of competence in students. If an instructor creates a supportive classroom environment, this could allow low-efficacy students to overcome their fears and increase their feelings of competence.

The construct of impact refers to the degree an individual feels their behavior is making a difference toward accomplishing the purpose of a task, or producing the intended effects in their environment (Thomas & Velthouse, 1990). Originally studied as locus of control by Rotter (1966), Hackman and Oldham (1980) referred to impact as knowledge of results. Bandura (1977b) clarified impact, or locus of control, as the performance-outcome relationship as opposed to the effort-performance relationship. Abrahamson et al. (1978) defined universal helplessness, or external locus of control, as occurring when impact is viewed as unlikely, regardless of performance, while personal helplessness occurs when an individual perceives impact is possible, even without the competence to perform. If students believe their actions carry impact, it could influence their actions inside and outside the classroom.

The construct of choice involves causal responsibility for an individual's actions, and unlike Rotter's (1966) locus of control involving outcome contingencies, choice involves

behavior being perceived as self-determination (Deci & Ryan, 1985; Thomas & Velthouse, 1990). Hackman and Oldman's (1980) model included the experienced sense of responsibility stemming from autonomy, while Deci and Ryan (1985) noted that perceived choice, or self-determination, produces greater flexibility, creativity, initiative, resiliency, and self-regulation.

In Frymier et al.'s (1996) learner empowerment measure, the construct of choice did not emerge as a factor. Possible reasons for this notable absence are: different populations between employees and students, duration of the relationship between employer-employee and instructor-student, experience levels between employees and students, and students feeling they are not able, or actually not being able, to exercise choice in a course with a syllabus (Frymier et al., 1996). Another possible reason choice did not emerge as a factor is instrumentation, which was addressed in their second study.

Of note, Frymier et al. (1996) found that the dimensions of empowerment are interdependent and summative. A student would not have to experience all three dimensions to experience some level of empowerment. A student scoring low in one construct and high in the other two could still indicate a moderate level of empowerment. This is significant because it could account for differences in personalities, or learning styles, of students. Individual students may assign differing levels of importance to the dimensions of meaningfulness, competence, and impact.

Theoretical and Conceptual Framework and Models

While immediacy, self-efficacy, engagement, and motivational theory have been discussed within the constructs of this study, the theoretical and conceptual frameworks of social cognitive theory (Bandura, 1986a), self-directed learning (Knowles, 1980/1984), self-regulated learning (Schunk, 1999), transformative learning theory (Mezirow, 1978), and critical

consciousness theory (Freire, 1973/2005) are also lenses through which to understand student empowerment and instructor-student rapport. Bandura's (1986a) social cognitive theory refers to the relationship between personal factors, environmental factors, and behaviors. Self-directed learning (Knowles, 1980/1984) and self-regulated learning (Schunk, 1999) further explain the dynamics between a learner and their desired outcomes. Transformative learning theory (Mezirow, 1978) discusses the process a learner goes through while incorporating new information and updating their perspective. And, critical consciousness theory (Freire, 1973/2005) involves the personal reflection and action to challenge unjust systems in our society.

Social Cognitive Theory

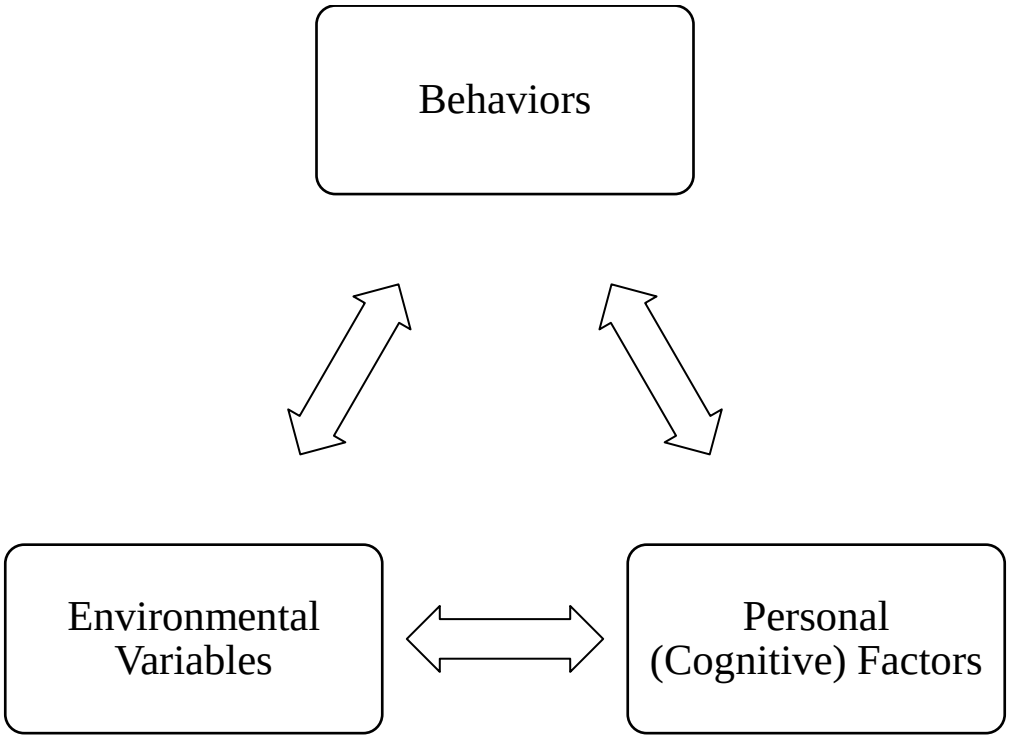
According to Bandura (1986a), social cognitive theory refers to internal processes in conjunction with external influences. Social cognitive theory emphasizes that much of human learning occurs in social environments, where people acquire knowledge, rules, skills, strategies, beliefs, and attitudes by observing others (Schunk, 2012). As well, individuals also learn the usefulness and appropriateness of behaviors, along with consequences, of modeled behaviors, and act in accordance with what they believe about their capabilities and expected outcomes of these behaviors (Schunk, 2012). Some of the assumptions this theory makes are: 1) the reciprocal interactions among persons, behaviors, and environments, 2) enactive and vicarious learning, 3) the distinction between learning and performance, and 4) the role of self-regulation (Zimmerman & Schunk, 2003).

Bandura's (1986a) triadic reciprocity comprises bidirectional interactions between environmental influences, personal factors, and behaviors. Figure 3 shows the triadic reciprocity between personal (cognitive) factors, environmental variables, and behaviors, where the strength of each interaction is not always equal. Bandura (1986a) used this model to discuss classroom

dynamics between instructors and students, believing that classroom environments and student behaviors influence each other in many ways during the learning process.

Figure 3

Triadic Reciprocity Model



Note. From "Social foundations of thought and action: A social cognitive theory," by A. Bandura, 1986, p. 24. Copyright 1986 by Prentice-Hall, Inc.

Teacher-student interactions were found to have strong and consistent relationships with instructional outcome measures (Murray, 1997), and had positive effects on students' attitudes, cognition, classroom behavior, and relationships (Cox et al., 2010). If instructor-student relationships impact student relationships with others, then this highlights how instructor-student rapport can be carried outside the classroom into social settings. Noddings (2012) stated that teachers need to "connect the moral worlds of school and public life" (p. 779) where teacher-student relationships hope to increase the likelihood students will bring those caring relations

into the community. While this study referred to school-age students, more research is necessary to evaluate the role of caring relation in higher education.

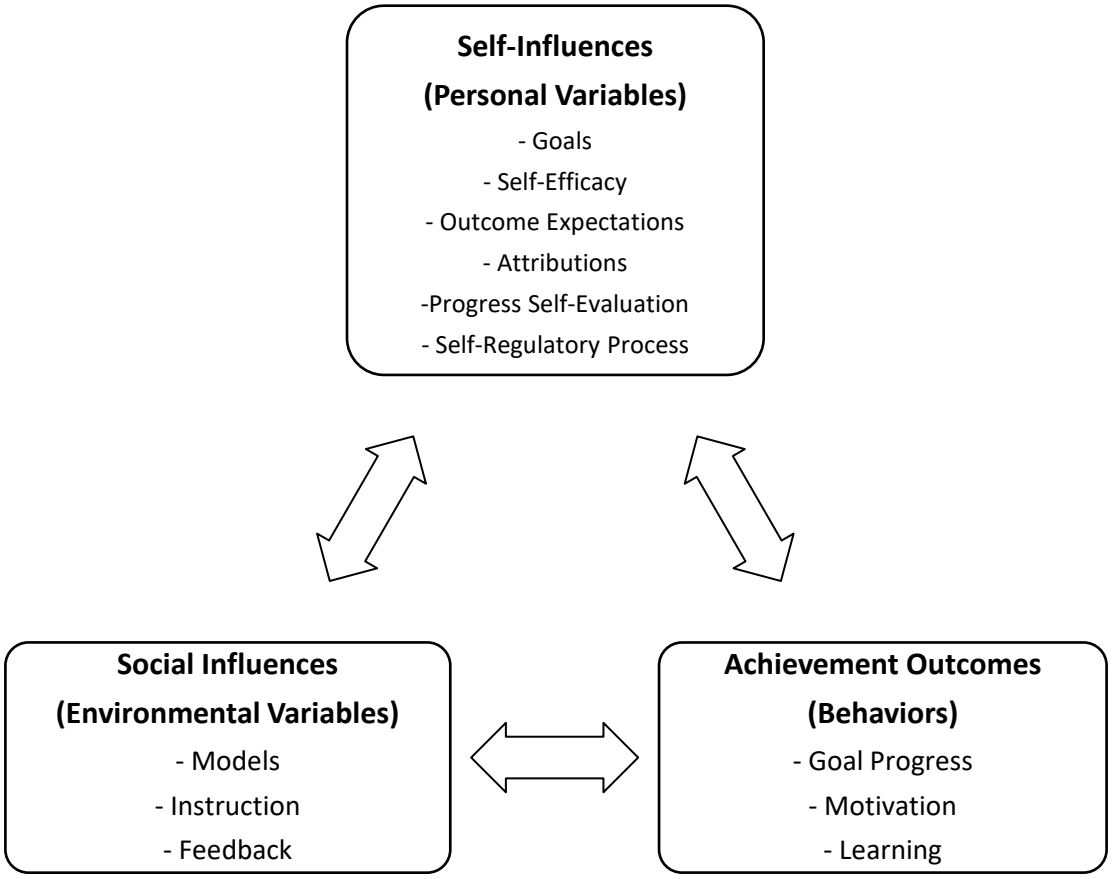
Schunk's (1999) model of social-self interaction in achievement builds on Bandura's (1986a) triadic reciprocality and phases of self-regulatory development (Schunk & Zimmerman, 1997). Schunk's model is relevant to this study because it explains the interaction between students, their environment in the classroom, and resulting outcomes such as motivation. Figure 4 is Schunk's (1999) model incorporating triadic reciprocality variables (Bandura, 1986a), social modeling, self-verbalization, and goals with progress feedback.

The first type of social influence that can be internalized is social modeling, or observational learning, where students must attend to a model, mentally code the information for retention, be capable of reproducing the modeled action, and be motivated to accomplish this (Schunk, 1999). The second type of social influence is modeled verbalization of actions, rules, strategies, and problem-solving operations. Verbalization, coupled with modeled actions, leads to better learning and achievement than modeling alone (Rosenthal & Zimmerman, 1978). The third way social information can be incorporated into a self-regulatory system, is through goals with progress feedback- which has been shown to increase achievement outcomes (Bandura, 1988; Locke & Latham, 1990) and motivation.

The concept of enactive learning, or learning from the consequences of actions, results in retaining behaviors with successful consequences, and refining or discarding behaviors with failures, or negative consequences (Bandura, 1986a). Social cognitive theory differs from Skinner's (1953) conditioning theory because behavioral consequences are thought to be sources of information and motivation, as opposed to just strengthening behavior based on outcome.

Figure 4

Social-Self Interaction in Achievement Settings



Note. From "Social-self interaction and achievement behavior," by D. H. Schunk, 1999, *Educational Psychologist, 34*, p. 221. (https://doi.org/10.1207/s15326985ep3404_3. CC-BY-NC.). Copyright 1999 by Lawrence Erlbaum Associates, Inc.

The cognitive element of processing what behaviors will have desirable consequences and what behaviors are not satisfying, and influencing those behaviors, is the key difference between previous conditioning theory (Skinner, 1953) and social cognitive theory (Bandura, 1986a).

The concept of vicarious learning, or learning from observing, can keep learners from having to experience negative consequences for themselves. Some sources of vicarious learning are observing or listening in person, symbolic, electronic, or print (Schunk, 1999). An instructor

sharing stories or giving examples to students could accelerate learning over what would be possible if students had to perform every one of the behaviors themselves.

Social cognitive theory differentiates between learning new information and the use of information, or performance of previously learned behavior. Factors determining whether an individual will perform what they learn depends on motivation, interest, incentives to perform, perceived need, physical state, social pressures, and types of competing activities (Schunk, 1999). Students may learn a skill in a classroom, but may not have a chance to apply that skill until later.

Self-Directed Learning and Self- Regulated Learning

Self-directed learning (SDL) is an adult education concept which includes activities outside a traditional school environment. Knowles (1975) defined SDL as "a process in which individuals take the initiative, with or without help from others, in diagnosing their learning needs, formulating goals, identifying human and material resources, choosing and implementing appropriate learning strategies, and evaluating learning outcomes" (p. 18). In SDL, the learner takes the initiative to identify learner needs, create learner goals, gather resources, choose the appropriate strategy to achieve their goals, and evaluate their learning outcomes (Knowles, 1975; Saks & Leijen, 2014). One of Knowles' (1980/1984) integral andragogical assumptions for adults was SDL, where part of maturing as an adult involves the development of intrinsic motivation to learn. This is a shift away from extrinsic motivation, involving external rewards such as praise or grades, though some adults may still desire these things.

Similar to SDL, but with a significant difference, self-regulated learning (SRL) involves students that are "metacognitively, motivationally, and behaviorally active participants in their own learning process" (Zimmerman, 1989, p. 329). In contrast to SDL, SRL is mostly utilized in

the school environment, may involve instructors providing initial instructions and expectations, and emerged from educational and cognitive psychology. Self-regulation is an individuals' self-generated cognitions, affects, and behaviors that are systematically oriented toward attainment of their goals, or being behaviorally, cognitively, metacognitively, and motivationally active in one's learning and performance (Zimmerman & Schunk, 2003).

Self-regulation is a dynamic and cyclical process comprising feedback loops, where goal setting triggers SRL, with an emphasis on motivation, or why a person chooses to self-regulate and sustain efforts (Schunk, 2012). In SRL, learners set learning goals, monitor their goals, and regulate their cognition, motivation, and behavior toward achieving their set goals (Pintrich, 2000; Saks & Leijen, 2014). Research has also focused on the metacognitive development of college students as lifelong learners, and the value of SRL in understanding the complexity of SDL (Candy, 1991; Pilling-Cormick & Garrison, 2007).

Tough's (1967/1979) initial and subsequent investigations of learning projects began the examination of SDL and were significant in studying education beyond the classroom. He highlighted the complexity of adult learning outside the classroom by highlighting how learners: set goals, decide what resources are needed, decide where to learn, stay motivated, set timetables, assess current knowledge, analyze hinderances to learning, and make appropriate adjustments (Tough, 1979). Tough's (1979) learning projects occurred when there was a sustained and highly deliberate effort to learn. He posited that adults go through many deliberate learning episodes during their day, which can include reading, listening, or watching, and can take place anywhere, with an instructor, a group, or alone.

Constructivism theories rest on six assumptions of SRL: an intrinsic motivation to seek information, learner understanding going beyond the information given, mental representations

changing with development, progressive refinements in levels of understanding, developmental constraints on learning, and reflection and reconstruction stimulating learning (Paris & Byrnes, 1989). In this theory, the learner uses a framework to organize and apply what they are learning. These theories highlight a learner's ability to continue the learning process outside a classroom, implying an active and ongoing learning process.

According to Schunk (1999), a key process in SRL is the internalization of social variables to self-influences, where learners transform information acquired from the social environment into mechanisms of self-regulation. With increased skill acquisition, this social-to-self transformation process becomes an interactive process as learners alter and adjust their social environments to further enhance achievement. The result of this internalization is a set of personal influences employed by learners, using self-regulation, to sustain motivation and learning (Schunk, 1999).

Table 3 depicts a social cognitive model of the development of self-regulatory competence, developing from social sources to self-sources (Schunk & Zimmerman, 1996/1997; Zimmerman, 2000). The first two levels of observational and emulative rely primarily on social factors, while the second two levels of self-controlled and self-regulated shifts the source of influence to the learner. This model is relevant to this study because competence is one of the empowerment constructs being analyzed. As well, it highlights the interaction between social influences and personal beliefs and actions.

Table 3

Social Cognitive Model of the Development of Self-Regulatory Competence

Level of Development	Social Influences	Self-Influences
Observational	Models	
	Verbal description	
Emulative	Social guidance	
	Feedback	
Self-controlled		Internal standards
		Self-reinforcement
Self-regulated		Self-regulatory processes
		Self-efficacy beliefs

Note. From "Social-self interaction and achievement behavior," by D. H. Schunk, 1999, *Educational Psychologist, 34*, p. 2 (https://doi.org/10.1207/s15326985ep3404_3.). Copyright 1999 by Lawrence Erlbaum Associates, Inc.

Transformative Learning Theory

While Mezirow (1978) originally discussed transformative learning theory, many adult educators have contributed to its definition, creating an ongoing and evolving discourse, with Mezirow himself updating his original ideas and incorporating input from his own experiences as well as others in his field. Transformative learning is the process of changing a frame of reference, or structures of assumptions, in an individual- often through discourse, or "dialogue devoted to assessing reasons presented in support of competing interpretations, by critically examining evidence, arguments, and alternative points of view" (Mezirow, 1997, p. 6). Mezirow (1997) discussed the essential learning needed to prepare responsible and productive individuals in the workforce, who are autonomous and socially responsible thinkers.

In this context, autonomy, a component of andragogical learning, refers to an individual's understanding and skills necessary to be critically reflective of their assumptions and to engage

in discourse to validate their beliefs (Mezirow, 1997). Mezirow (1997) warned that merely acquiring knowledge or competency will not create the ability to think autonomously, and appropriate educational intervention is necessary. This is significant because instructors must take this into account when creating educational objectives in order to help create autonomous and socially responsible students. As well, Mezirow (1997) discussed the conditions needed to cultivate this transformation, where the ideal conditions for discourse are the same conditions for adult learning and education. The instructor must understand the nature of adult learning to select appropriate educational practices, and resist social and cultural forces distorting and diminishing this learning. This awareness is part of figure 1's proposed cycle where instructors use these social objectives as a foundation for creating rapport with students.

Servage (2008) suggested transformative learning theory's use during teachers' participation in professional learning communities, allowing them to move beyond thinking about the means of education to actively considering the result of their work as well. This corresponds to the study's proposed link between critical consciousness and instructor-student rapport, where the motivation, or social goals, of instructors should be established before creating rapport with students. Shamir et al. (1993) found the most significant motivational aspect of charismatic or transformational leadership to be the increased intrinsic value of goal accomplishment as a result of articulating a meaningful vision or mission. Though originally conceived in an organizational structure, it is relevant in a classroom setting.

Merriam and Bierema (2014) suggested three main perspectives of transformative learning theories. The first perspective of transformative learning theories is cognitive analytic perspectives, which is based on Mezirow's (2000) work and subsequent research and critiques. It considers the life experience which makes individuals stop and examine how they view

something, which can lead to questioning their assumptions about themselves and the world (Merriam & Bierema, 2014). By rejecting past perspectives and seeking to incorporate new perspectives into a broader and more inclusive life world, individuals can challenge their operating frameworks and principles. Mezirow (2000) stated that transformation is at the heart of adulthood, and provides "a foundation for a philosophy of adult education" (Mezirow, 2012, p. 89).

The second perspective of transformative learning theories is noncognitive perspectives and counters Mezirow's rationalistic and analytic approach, offering more holistic and integrative perspectives (Merriam & Bierema, 2014). Daloz (1986) focused on sociocultural contexts by suggesting adult development is related to the ability to make sense of the world and personal experiences. Elias (1997) added the dimension of the unconscious mind to transformative learning, defining it as expanding consciousness by transforming basic world views and the specific capacities of the individual. Dirkx (2001) also focused on the emotional, inner unconscious workings of the psyche, through soul work, where adult educators must understand their own feelings and emotions, and the role these feelings and emotions play in their lives.

Continuing in the noncognitive perspectives, Charanaiya (2012) focused on a clearer understanding of self and one's role in the world, where identity is expanded while engaging with intellectual, relational, and reflective experiences. The contradictions challenging beliefs and practices move the individual through a cultural-spiritual journey. O'Sullivan (2012) focused on the interconnectedness among the universe, the natural environment, the human community, and the personal world. In this case, deep transformation is possible while thinking holistically, focusing on webs and circles instead of hierarchies.

The third perspective of transformative learning theories is social change, or socio-emancipatory perspectives, referring to the awareness of power dynamics and oppressive structures in the world, and using this awareness to bring about change. This perspective is based on Freire's (1970/2000) work discussing individuals experiencing personal change, and then taking action to change the sociocultural world. As it relates to this study, students experiencing personal change in the classroom, through rapport, could then be motivated or empowered to take action to change the sociocultural world. Most importantly, the social change perspective notes the importance of learner dialogue and critical reflection, allowing individuals to move from passive acceptance of a situation to empowerment through critical consciousness (Merriam & Bierema, 2014).

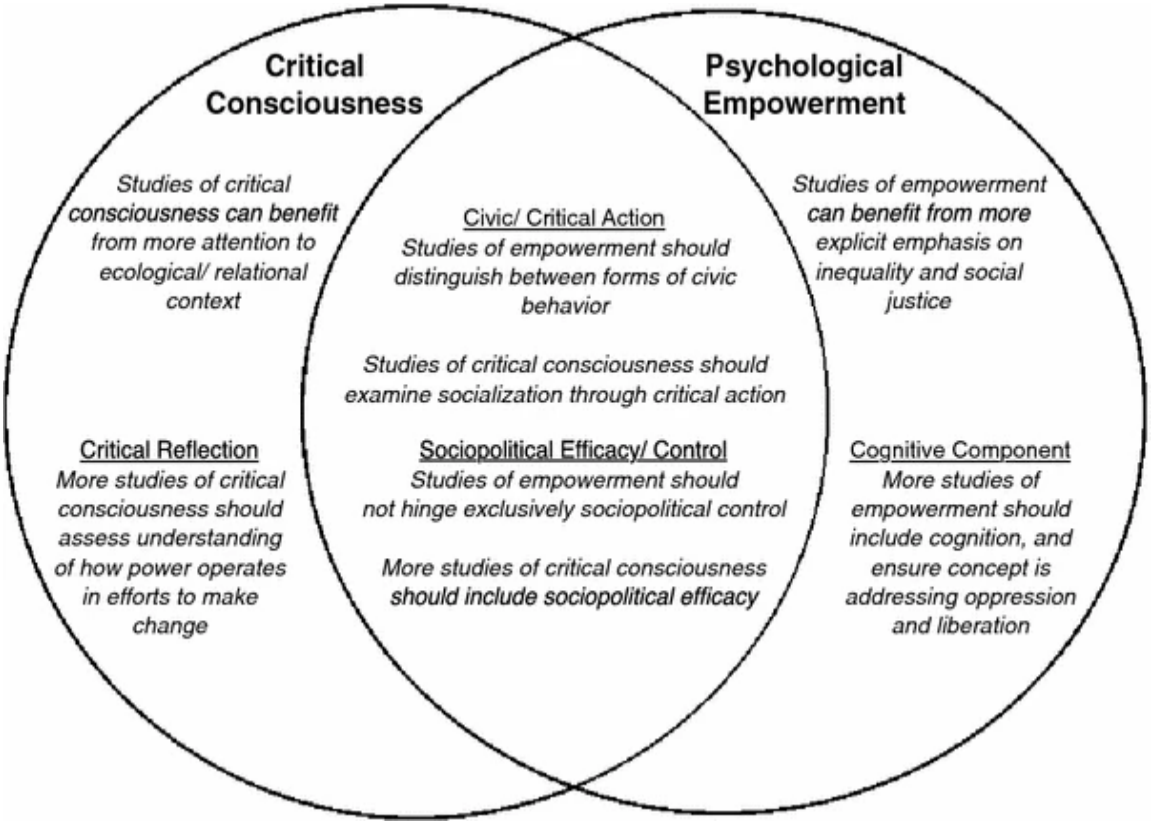
Critical Consciousness Theory

Empowerment and critical consciousness are both overarching conceptual frameworks encompassing emotional and cognitive aspects of youth civic development, and are often used interchangeably when discussing overcoming oppression and fostering human development, community participation, and wellbeing (Christens et al., 2016). Critical consciousness began with Freire, (1973/2005) who believed marginalized Brazilians becoming more aware of social and economic inequities, along with the causes of these inequities, could more effectively resist oppressive systems and transform their social and political conditions. Critical consciousness consists of reflection and action geared toward transformation of social systems and conditions and is "learning to perceive social, political, and economic contradictions, and to take action against the oppressive elements of reality (Freire, 2000, p. 35). Freire (1973/2013) emphasized consciousness is intentionality toward the world and reality, producing transitivity of consciousness. Intentionality while developing rapport with students is essential if educators

want students to be connected to the environment around them. Figure 5 (Christens et al., 2015, p. 23) depicts one way of viewing how empowerment and critical consciousness are related.

Figure 5

Recommendations for Conceptual Cross-Fertilization Between Critical Consciousness and Psychological Empowerment



Note. From "Empowerment and critical consciousness: A conceptual cross-fertilization," by B. D. Christens, L. T. Winn, and A. M. Duke, 2016, *Adolescent Research Review, 1*, p. 23 (doi: 10.1007/s40894-015-0019-3.). Copyright 2015 Springer International Publishing.

Modern elements of critical consciousness, based on Freire's (1973) initial work, focus on ages 12-22 and comprise three elements: critical reflection, critical motivation, or efficacy, and critical action (Diemer et al., 2015; Watts & Hipolito-Delgado, 2015). In the context of this

study, critical reflection can be stimulated in a classroom environment inviting not only self-reflection, but also group discussion. Critical motivation begins with self-efficacy, and according to Schunk (2012), general classroom conditions are capable of influencing situationally specific self-efficacy. Critical action may be the most difficult for instructors to directly influence through instructor-student rapport, though increasing critical reflection and critical motivation in students could increase the likelihood of critical action by students.

Critical reflection refers to the process of learning to question social arrangements and structures marginalizing groups of people (Diemer et al., 2016). It involves critically analyzing social, political, economic, race, or gender inequities, as well as the endorsement of egalitarian social and political arrangements and focuses on the causal attributions for the disparate conditions of people in society. For example, individuals with a higher level of critical reflection would be less likely to victim blame because they would understand circumstances perpetuated by oppressive systems, and can understand the link between group disparities and historical and contemporary oppressive systems (Christens et al., 2016).

Critical motivation refers to an individual's perceived capacity and commitment to address perceived injustices (Diemer et al., 2016). Christens et al. (2016) referred to this idea as political efficacy and used Watt et al.'s (2011) definition of an individual or collective having the ability and capacity to change their political and social conditions, where this sense of efficacy leads to a higher chance of effective action in the social world (Watts et al., 1999). When an individual feels they have the ability to illicit change, they can be more motivated to act.

Critical action refers to "engaging individually or collectively to change perceived injustices" (Diemer et al., 2016, p. 216) and seeking to change unjust conditions through policy reform, practices, or programs (Christens et al., 2016). Critical actions may be part of the formal

political system or engaging in social justice activism (Diemer et al., 2015) and encompass a broad spectrum of participatory behavior stemming from individual sociopolitical actions (Christens et al., 2016). The critical action component is conceptually similar to the behavioral component of psychological empowerment, or community participation, whereby both include actions taken inside and outside formal political systems. However, the behavioral component of psychological empowerment is discussed in broader terms, where some contexts orient it toward social and political change, and some do not (Maton, 2008). In contrast, critical action encompasses actions specifically oriented toward changing unjust systems and policies (Christens et al., 2016).

> In the preface to Freire's (2013) work, Chonchol discusses one of the prevalent themes: The decodification by a "culture circle" under the self-effacing stimulus of a coordinator who is no "teacher" in the conventional sense, but who has become an educator-educatee, in dialogue with educatee-educators too often treated by formal educators as passive recipients of knowledge (xlii).

This statement emphasizes the bidirectional nature of instructor-student relationships, and the need to remove one-way dialogue in the classroom where students passively receive information. It highlights the learning process between students and educators, thus showing the importance of instructor perceptions and intent when creating rapport with students (Figure 1). Specifically, the process of building critical consciousness among teachers has been examined (Zion et al., 2015) and has been offered as a way to develop critical consciousness among students, further strengthening Figure 1's proposed relationship between instructor-student rapport, empowerment, and critical consciousness.

While there is some debate about the application of Freire's (2013) principles in American landscapes due to the ambiguous and shifting boundaries between oppressors and the oppressed, and the inherent beneficiaries colluding to maintain the "impersonal structures of oppression" (p. xliv), the call to critical consciousness by empowered learners cannot be ignored. If educators have the opportunity to empower learners to challenge any form of social injustice, especially if those learners are beneficiaries of the structures of oppression, it is incumbent on them to do so. Chonchol further states "Theory or introspection in the absence of collective social action is escapist idealism or wishful thinking" (Freire, 2013, xliii).

Summary

One of the UN's developmental goals is education, focusing on ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for everyone. As well, these goals seek to ensure all learners acquire the knowledge and skill, through education, to promote human rights, gender equality, promotion of a culture of peace, and an appreciation of cultural diversity. In order to promote human rights, a culture of critical consciousness is needed to recognize pervasive cultural inequity. One proposed way to potentially increase societal critical consciousness may be to support student empowerment in the classroom. By studying the relationship between instructor-student rapport and student empowerment, instructors may be able to cultivate a classroom environment supporting these goals.

While instructor-student rapport has been studied in K-12, there is a scarcity of research studying instructor-student rapport and feelings of empowerment in undergraduate aviation students. To understand instructor-student rapport, and student empowerment, it is necessary to understand the theoretical and conceptual frameworks behind these constructs. The concepts of immediacy, self-efficacy, engagement, and motivational theory, the theoretical and conceptual

frameworks of social cognitive theory (Bandura, 1986a), self-directed learning (Knowles, 1980/1984), transformative learning theory (Mezirow, 1978), and social consciousness theory (Freire, 1973/2005) are also lenses through which to understand empowerment and instructor-student rapport

This study looks at Figure 1's proposed relationship between instructor-student rapport using the PSRS-B (Wilson & Ryan, 2013), student empowerment using the learner empowerment measure (Frymier et al., 1996), and critical consciousness (Freire 1973/2005). Specifically, it seeks to understand the relationship between instructor-student rapport and student empowerment. By measuring student feelings of rapport and student feelings of empowerment, through impact, meaningfulness, and competence, it can offer instructors new ways of looking at the classroom environment and the potential impacts of creating rapport with students.

CHAPTER 3: METHODS

Introduction

In order to understand how educators may be able to empower learners, the PSRS-B (Wilson & Ryan, 2013) was used to measure student feelings of instructor-student rapport, and the learner empowerment measure (Frymier et al., 1996) was used to measure student feelings of empowerment, through impact, meaningfulness, and competence. By understanding this correlational relationship, using data from the online survey completed by students, instructors may be able promote a classroom environment contributing to student empowerment.

Purpose of the Study

The purpose of this quantitative correlational study was to examine how intentional instructor-student rapport correlates to undergraduate aviation student empowerment levels, as measured by impact, meaningfulness, and competence. Studies have analyzed K-12 student-teacher relationships, as well as undergraduate instructor-student relationships, but there is a paucity of research discussing instructor-student rapport in undergraduate aviation students. As well, few studies examine the relationship between instructor-student rapport and student empowerment.

Research Questions

The central question for this study is "What is the relationship between instructor-student rapport and undergraduate aviation student empowerment?" In order to answer this question, the following research questions were used:

RQ1: Is there a relationship between instructor-undergraduate aviation student rapport and student perception of impact?

RQ2: Is there a relationship between instructor-undergraduate aviation student rapport and student perception of meaningfulness?

RQ3: Is there a relationship between instructor-undergraduate aviation student rapport and student perception of competence?

Research Design

The survey design was used for this quantitative study (see Appendix A). Permission was granted and the survey was administered to a population sample of undergraduate aviation students, including Professional Flight students and Aviation Management students (see Appendix B). The survey sought to obtain data identifying the relationship between instructor-student rapport and student empowerment. The PSRS-B (Wilson & Ryan, 2013) was used to assess rapport, offering an abbreviated version of the full PSRB (Wilson et al., 2010) with similar explanatory power. This design allowed participants the opportunity to complete the survey in 10 minutes, potentially increasing participation rates (Revilla & Ochoa, 2017) and completion rates. The online format of the Qualtrics survey was cost effective, easily accessible by participants, and made data collection, interpretation, and protection of the data easier to accomplish.

Data Collection and Instrumentation

A quantitative study was performed using non-probability convenience sampling with a 41-question survey entitled *Instructor-Student Rapport and the Impact on Undergraduate Aviation Student Empowerment Survey* (see Appendix A). The first method for data collection in this study included the PSRS-B (Wilson & Ryan, 2013), using a Likert-type (1932) rating scale from 1 (Very Little) to 5 (A Great Deal) to measure rapport. The second method for data collection included the 35-question learner empowerment measure (Frymier et al., 1996), using a

Likert-type (1932) rating scale from 0 (Never) to 4 (Very Often) to measure student empowerment. For consistency of comparison, the learner empowerment measure (Frymier et al., 1996) was changed to use a rating scale from 1 (Never) to 5 (Very Often) to correlate to the PSRS-B (Wilson & Ryan, 2013).

The sample population for the survey included undergraduate aviation students over the age of 18. In this undergraduate aviation program, there were Aviation Management students completing the academic curriculum of the school, an addition to a minor in Business. As well, there were Professional Flight students completing a similar academic curriculum while earning flying ratings. Examples of these ratings include: private pilot license, instrument rating, commercial multi-engine, and certified flight instructor.

The 41-question survey was administered through Qualtrics, with a link and QR code for the survey posted electronically in a student administrative Canvas course. As well, an approved *E-Mail Invitation for On-line Survey* (see Appendix C) was sent to all students in the aviation program. The survey was opened approximately six weeks prior to the end of spring semester. The survey was open for six weeks to allow for maximum participation. An approved *Reminder E-Mail Invitation for On-line Survey* (see Appendix D) was sent after the survey was open for four weeks. As well, the survey was re-opened approximately three weeks after closing it, for approximately two weeks during the summer semester to allow for more data to be collected.

The Qualtrics online survey began with an *Information Letter* (Appendix B) containing detailed information about study participation. Participants were informed about voluntary participation, any risks or discomforts associated with the survey, benefits to themselves or others as a result of the survey, compensation or costs for participation, ability to withdraw at any time by closing their browser, and the protection of their privacy by not collecting personal

data or linking any identifying data. This data was required for Human Subject research guidelines. Researcher contact information was provided in the event the participant had questions or required more information about the study. Each participant was required to consent to voluntary participation by selecting an *agree* button, providing access to the survey.

Data Analysis

This exploratory quantitative study was performed using non-probability convenience sampling, with a 41-question survey in Qualtrics. Survey data were collected and analyzed using R (R Core Team, 2023) and RStudio Open Source Edition (AGPL v3) (Posit Team, 2023). Descriptive statistics were used to describe the participants in the study. Data analysis for this research was conducted using linear regression to analyze the relationship between instructor-student rapport and each factor of student empowerment: impact, meaningfulness, and competence. Rapport was measured using an independent continuous variable of rapport, and student empowerment was measured using three dependent continuous variables of student perceived impact, meaningfulness, and competence.

The independent variable in this study included student-reported feelings of rapport with their selected instructor. The six question PSRS-B (Wilson & Ryan, 2013) comprised the first six questions of this study's survey measure, where respondents used a Likert-type (1932) rating scale from 1 (Very Little) to 5 (A Great Deal), for each question, to measure student feelings of rapport with their selected instructor. For each respondent, the mean score from the Likert-type (1932) scale of the six questions was used as their rapport score.

The dependent empowerment variables in the 41-question survey were measured by the learner empowerment measure (Frymier et al., 1996), which was modified to use a rating scale from 1 (Never) to 5 (Very Often), in order to correlate to the PSRS-B (Wilson & Ryan, 2013)

scale. The variable of impact was measured with 16 questions, the variable of meaningfulness was measured with 10 questions, and the variable of competence was measured with nine questions, for a total of 35 questions measuring student feelings of empowerment. For each respondent, the mean score from the Likert-type (1932) scale was used for each variable of empowerment.

In this study's survey, reverse coding was used for the 11 questions written in the negative. For example, "I dislike my instructor/professor's class" was coded in reverse to correlate to questions written in the positive such as "My instructor/professor makes class enjoyable." Higher values for rapport indicated respondents feeling a stronger sense of rapport with their instructor. Similarly, higher values for impact indicated respondents feeling a stronger sense of their actions having an impact, higher values for meaningfulness indicated respondents feeling a stronger sense of the experience being meaningful to them, and higher values for competence indicated respondents feeling a stronger sense of their own competence.

The assumptions of linear regression were assessed to ensure appropriate modeling. The assumption of linearity was assessed plotting linear regression on a scatterplot. Because there is one independent variable, multicollinearity is not applicable. The assumption of homogeneity of variance was assessed by plotting the residuals of each model. Normality was assessed using the Shapiro-Wilk (1965) test, as well as plotting the distribution of the residuals to look for normality. The assumption of independence was assessed as reasonable because each observation was sampled independently. The assumption of no measurement error in the predictor is violated because some measurement error can be assumed in this study.

The data were analyzed and plotted using linear regression modeling to find the change in value of each response variable (empowerment, impact, meaningfulness, competence) for every

unit change in the predictor variable (rapport). Explained variance was calculated to find the proportion of variance in the response variable that was explained by the predictor variable. The residuals were analyzed and plotted. The predictor was centered on zero to make the intercept more meaningful due to the rating scale on the survey questions beginning with the number one. Outliers or influential cases were also assessed. Correlations between the predictor variable and each response variable were analyzed. While correlations in this exploratory study may not causal, they are able to show a need for further research in this area.

Summary

This quantitative study was performed using non-probability convenience sampling with a 41-question survey, analyzing the relationship between instructor-student rapport and student empowerment, through the constructs of impact, meaningfulness, and competence. The method to collect data for analysis consisted of the PSRS-B (Wilson & Ryan, 2013) and learner empowerment measure (Frymier et al., 1996). The Qualtrics survey link and QR code were disseminated through student email distribution and an administrative Canvas course for undergraduate aviation students. The results of this study were analyzed using linear regression with a single independent variable and 3 dependent variables, with overall empowerment being assessed as a single variable as well. While the results of this study are correlational, and not causal, they can help to understand the relationship between instructor-student rapport and undergraduate aviation student empowerment.

Research Question Matrix

Research Question	Survey Instrument Used to Address Question	Analysis of the Data
1. What is the relationship between instructor-student rapport and student perception of impact?	Questions 1-6, 7-22	- Descriptive Statistics – N, min, max, mean, standard deviation - Distribution – skew and kurtosis - Linear relationship - Homogeneity of variance - Linear regression - Residuals - Variance
2. What is the relationship between instructor-student rapport and student perception of meaningfulness?	Questions 1-6, 23-32	- Descriptive Statistics – N, min, max, mean, standard deviation - Distribution – skew and kurtosis - Linear relationship - Homogeneity of variance - Linear regression - Residuals - Variance
3. What is the relationship between instructor-student rapport and student perception of competence?	Questions 1-6, 33-41	- Descriptive Statistics – N, min, max, mean, standard deviation - Distribution – skew and kurtosis - Linear relationship - Homogeneity of variance - Linear regression - Residuals - Variance

CHAPTER 4: RESULTS

Introduction

In order to understand the relationship between instructor-student rapport and student empowerment, it was necessary to analyze the data collected from the survey in this study. Responses were collected and analyzed in Qualtrics, Microsoft Excel, R (R Core Team, 2023) and RStudio Open Source Edition (AGPL v3) (Posit Team, 2023). Participant demographics were examined, as was the internal consistency of the survey measure. The overall research question considering the relationship between instructor-student rapport was investigated, along with each specific research question concerning the relationship between instructor-student rapport and each construct of impact, meaningfulness, and competence. For each research question, the testing assumptions of linearity, homogeneity of variance, normality, and independence were evaluated, and linear regression was used to assess correlations.

Purpose of the Study

The purpose of this quantitative correlational study was to examine how intentional instructor-student rapport correlates to undergraduate aviation student empowerment levels, as measured by impact, meaningfulness, and competence. Studies have analyzed K-12 student-teacher relationships, as well as undergraduate instructor-student relationships, but there is a paucity of research discussing instructor-student rapport in undergraduate aviation students. As well, few studies examine the relationship between instructor-student rapport and student empowerment.

Research Questions

The central question for this study is "What is the relationship between instructor-student rapport and undergraduate aviation student empowerment?" In order to answer this question, the following research questions were used:

RQ1: Is there a relationship between instructor-undergraduate aviation student rapport and student perception of impact?

RQ2: Is there a relationship between instructor-undergraduate aviation student rapport and student perception of meaningfulness?

RQ3: Is there a relationship between instructor-undergraduate aviation student rapport and student perception of competence?

Organization of Data Analysis

For this exploratory quantitative study, the survey was administered in Qualtrics using non-probability convenience sampling to a population sample of undergraduate aviation students, including Professional Flight students and Aviation Management students. The survey sought to obtain data identifying the relationship between instructor-student rapport and student empowerment. The PSRS-B (Wilson & Ryan, 2013) was used to assess rapport, offering an abbreviated version of the full PSRB (Wilson et al., 2010) with similar explanatory power. The Survey data were collected and analyzed using Qualtrics, Microsoft Excel, R (R Core Team, 2023) and RStudio Open Source Edition (AGPL v3) (Posit Team, 2023). Descriptive statistics were used to describe the participants in the study. Data analysis for this research was conducted using linear regression to analyze the relationship between instructor-student rapport and each factor of student empowerment: impact, meaningfulness, and competence. Rapport was measured using an independent continuous variable of rapport, and student empowerment was

measured using three dependent continuous variables of student perceived impact, meaningfulness, and competence.

Participants

The invitation to complete the survey was extended to students in one school in an institution of higher education. In the school, at the time the survey was distributed, the population was approximately 616 undergraduate aviation students, made up of approximately 400 Professional Flight students (64.94%) and 216 Aviation Management students (35.06%). In this population, approximately 501 students were male (81.33%) and 115 students were female (18.67%). One hundred ninety respondents began the survey, with 132 respondents completing it, resulting in a survey completion rate of 69.47%. The number of students receiving the email survey invitation in the school was approximately 616, for a response rate of 21.43%. Of the 132 completed surveys, 27 completed survey responses had missing data, resulting in an analytic sample of 105 completed responses with no missing data.

Nearly three quarters of the respondents were male (N = 74, 70.48%), and over one quarter of the respondents were female (N = 30, 28.57%), where the percentage of female responses was slightly higher than the percentage of females in the school. One respondent preferred not to answer (N = 1, .95%). The majority of the respondents identified as White/Caucasian (N = 92, 87.62%), four identified as two or more ethnicities (3.81%), three identified as Hispanic/Latino/Spanish (2.86%), two identified as Asian (1.90%), one identified as Black/African American (.95%), and three preferred not to answer (2.86%). Table 4 shows the descriptives of sample demographic variables. The mean age for the sample was 21.08 years (SD = 2.78).

Table 4

Descriptives for Demographic Variables

Demographic	Total	
	N	%
Ethnicity		
American Indian/Alaska Native	0	0
Asian	2	1.90
Black/African American	1	.95
Hispanic/Latino/Spanish	3	2.86
Middle Eastern/North African	0	0
Pacific Islander/Native Hawaiian	0	0
White/Caucasian	91	87.62
Two or more	4	3.81
Other/Unknown	0	0
Prefer not to answer	3	2.86
Gender		
Male	74	70.48
Female	30	28.57
Non-binary/Self-Identify	0	0
Prefer not to answer	1	.95

Internal Consistency / Reliability

Internal consistency, or homogeneity, measures the extent to which all the questions assed the same skill, characteristic, or quality (Fink, 2010). Cronbach's (1951) coefficient alpha (see Table 5) for each variable describes the average of all the correlations between each item and the total score, and was measured in RStudio Open Source Edition (AGPL v3) (Posit Team, 2023). The Cronbach's (1951) coefficient alpha calculated for rapport ($\alpha = .81$) was similar to the previously reported value for the PSRS-B (Wilson & Ryan, 2013) ($\alpha = .83$), and was high

enough to show strong internal consistency, without highlighting potential redundancy in the items.

The Cronbach's (1951) coefficient alpha calculated for empowerment (α = .95) was similar to the previously reported value for the learner empowerment measure (Frymier et al., 1996) (α = .89), though the higher number could indicate a higher potential for redundancy. The constructs of impact (α = .93) and meaningfulness (α = .93), also indicated strong internal consistency, but with some potential for item redundancy, and were consistent with previously reported values for impact (α = .95) and meaningfulness (α = .94). Cronbach's (1951) coefficient alpha calculated for the construct of competence (α = .83) indicated a lower internal consistency than the learner empowerment measure (Frymier et al., 1996) (α = .92), but with a potentially lower chance of redundancy.

Table 5

Construct Reliability / Internal Consistency Using Variable Totals

Scale	N	Cronbach's Alpha		
		Survey	Wilson & Ryan (2013)	Frymier et al. (1996)
Rapport (6)	105	.81	.83	
Empowerment (35)	105	.95		.89
Impact (16)	105	.93		.95
Meaningfulness (10)	105	.93		.94
Competence (9)	105	.83		.92

Research Question Findings

The central question for this study is "What is the relationship between instructor-student rapport and undergraduate aviation student empowerment?" In order to answer this central question, the total sum of all six rapport questions was used as each respondent's input for

rapport. As well, the total sum of all 35 empowerment questions was used as each respondent's input for empowerment. In order to answer each research question, the constructs of empowerment were analyzed with rapport separately, using the mean of each group of questions, giving one mean value for impact's 16 questions, one mean value for meaningfulness' 10 questions, one mean value for competence's nine questions, and for consistency, one mean value for rapport's six questions. Otherwise, the total value for impact's sixteen questions would be disproportionately large versus competence, which had nine questions and would have a lower total score. The mean, minimum, maximum, range, standard deviation, skewness, kurtosis, and standard error of the study's continuous variables are presented in Table 6.

Overall Research Question

RQ: Is there a relationship between instructor-undergraduate aviation student rapport and student empowerment?

The variable of rapport used the total values from the rapport questions for each respondent, giving one value representing the student feelings of rapport. The variable of empowerment used the total score of all three constructs of empowerment, giving one value representing the student feelings of empowerment for each respondent.

Testing Assumptions

Linearity.

A scatterplot (Figure 6) and boxplot (Figure 7) were produced and examined to determine if a linear relationship existed between the independent and dependent variables. There was evidence to support a linear relationship between rapport and empowerment, supporting the assumption of linearity.

Homogeneity of variance.

The residuals of the model were plotted (Figures 8, 9, 10) , and the Q-Q graph (Figure 11) was analyzed, to determine if the variance was consistent for all values of the independent variable, which supported the assumption of homogeneity of variance.

Normality.

Normality was assessed using the Shapiro-Wilk (1965) test, as well as plotting the sample residuals distribution (Figure 8). Normality was found to be a somewhat reasonable assumption for the variable of empowerment ($p = .04$). However, the data for empowerment did not fit the distribution normally with 95% confidence.

Independence.

Because all students in the study were from the same School of Aviation, there is no reason to believe the assumption of independence is violated.

Analysis

Null hypothesis (H_0): There is no correlation between rapport and empowerment

Alternate hypothesis (H_1): There is a correlation between rapport and empowerment

Equation for the sample:

$$Y_i = \beta_0 + \beta_1 Rapport_i + \varepsilon_i$$

$$\hat{Y}_i = \beta_0 + (4.46)(Rapport_i) + \varepsilon_i$$

Y_i = Empowerment
β_0 = y-intercept
β_1 = Coefficient for Rapport
ε_i = Residual

Table 6 shows the descriptives for the continuous independent and dependent variables using total values for instructor-student rapport and student empowerment. Table 7 shows values

for the regression model. Based on the model, where rapport was centered, a student reporting an average score of 26.47 for instructor-student rapport reported an average score of 138.24 for empowerment ($\beta_0 = 138.24$, $p < .001$). The estimated effect of rapport on empowerment ($\beta_1 = 4.46$, $p < .001$) indicates for each point increase in the score for rapport, the reported score for empowerment is predicted to increase 4.46 (+/- .40) points. These effects are relatively small compared to the observed variability in reported empowerment in the sample (SD = 19.62).

Table 6

Descriptives for Continuous Variables Using Totals

Variable	N	Mean	Min	Max	Range	SD	Skew	Kurtosis	SE
Rapport (6)	105	26.47	17	30	13	3.26	-.95	.35	.32
Empowerment (35)	105	138.24	76	171	95	19.62	-.38	-.02	1.92

Table 7

Rapport Regression Model Predicting Empowerment

Empowerment	N	Intercept	R^2	Adjusted R^2	Rapport
Rapport	105	138.24 ***	.55	.54	4.46 ***
Standard Error of Estimate		(1.30)			(.40)

Note. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

The predictor of rapport explains 55% of the variance in empowerment ($R^2 = .55$, $F(1, 103) = 124.1$, $p < .001$). According to Cohen (1988/1992), rapport has a strong positive Pearson (1895) r correlation with empowerment (.74). Diagnostic plots (Figure 12) indicate there are no outliers or influential cases. The low standard error for rapport (.40) and empowerment (1.30) indicates the sample means are closely distributed around the population mean and the study sample is representative of the population.

The results suggest there is evidence of a relationship, where average empowerment scores increase with higher average rapport scores. The model is moderate in explaining variance in empowerment (55%), and with a p-value ($p < .001$), there is sufficient evidence to reject the null hypothesis, indicating a likelihood of some significant explanatory power.

Figure 6

Linear Model Empowerment

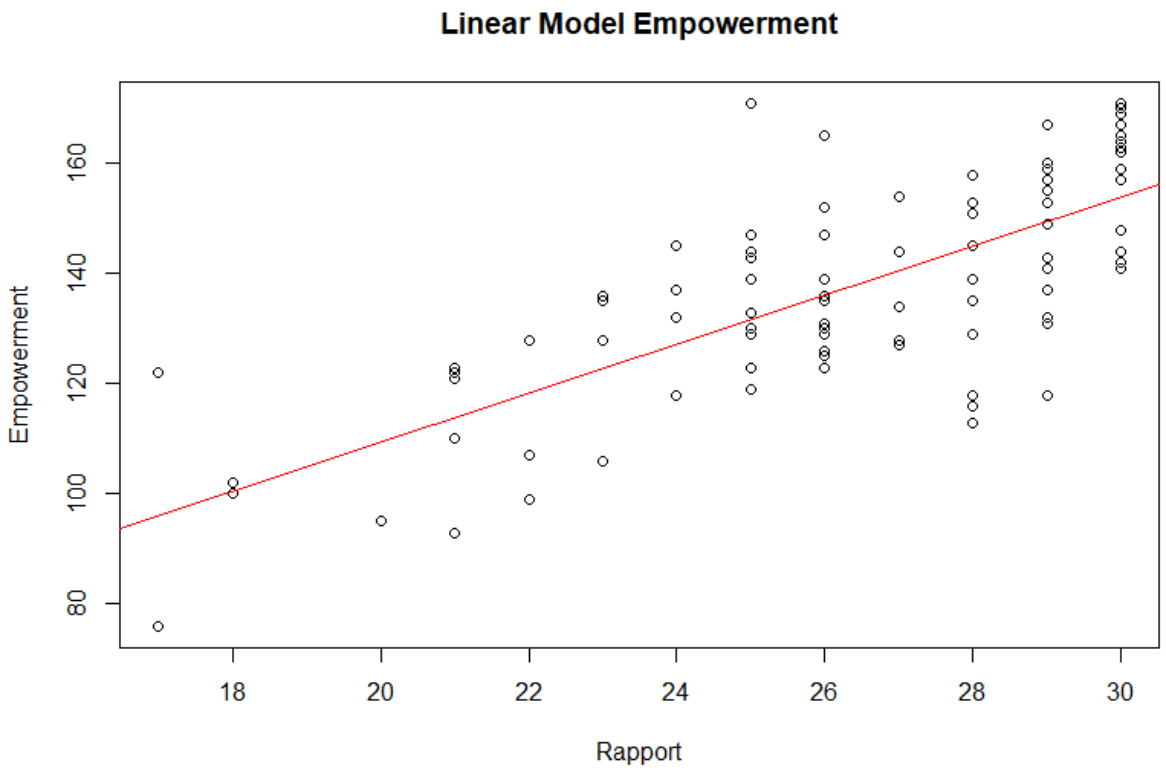


Figure 7

Boxplot Empowerment

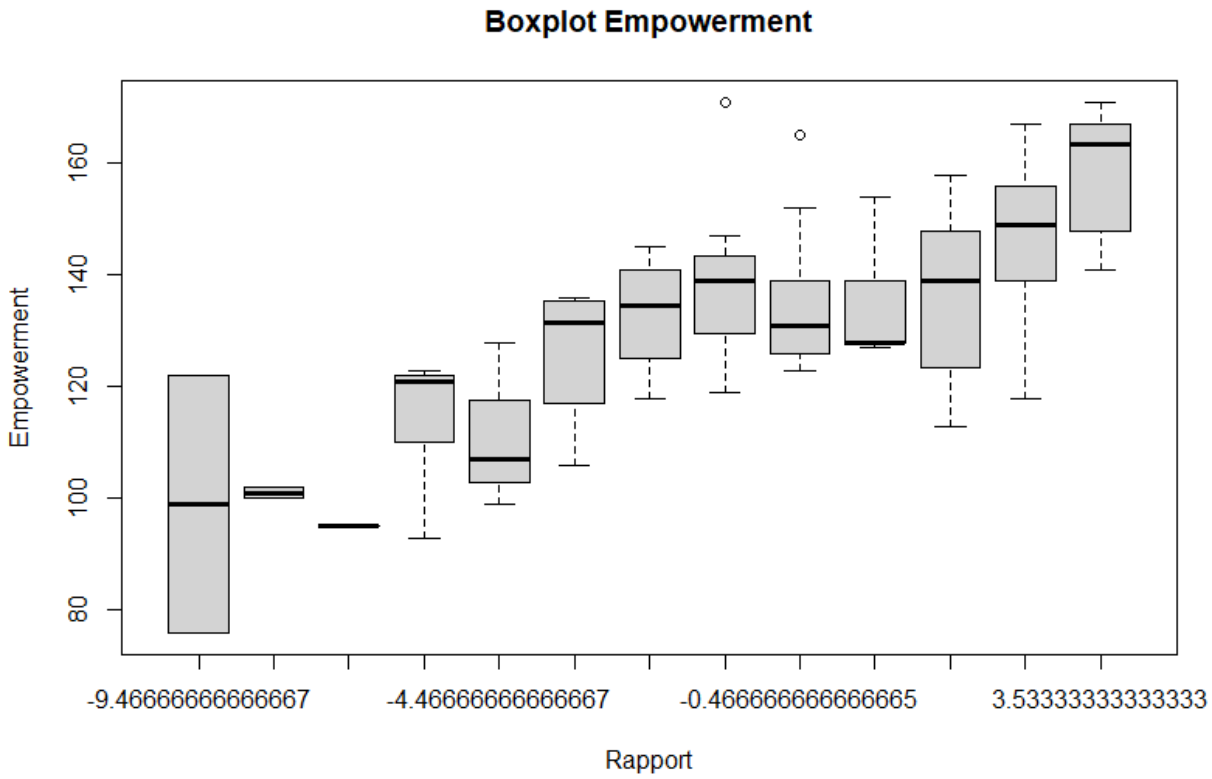


Figure 8

Histogram of Residuals Empowerment

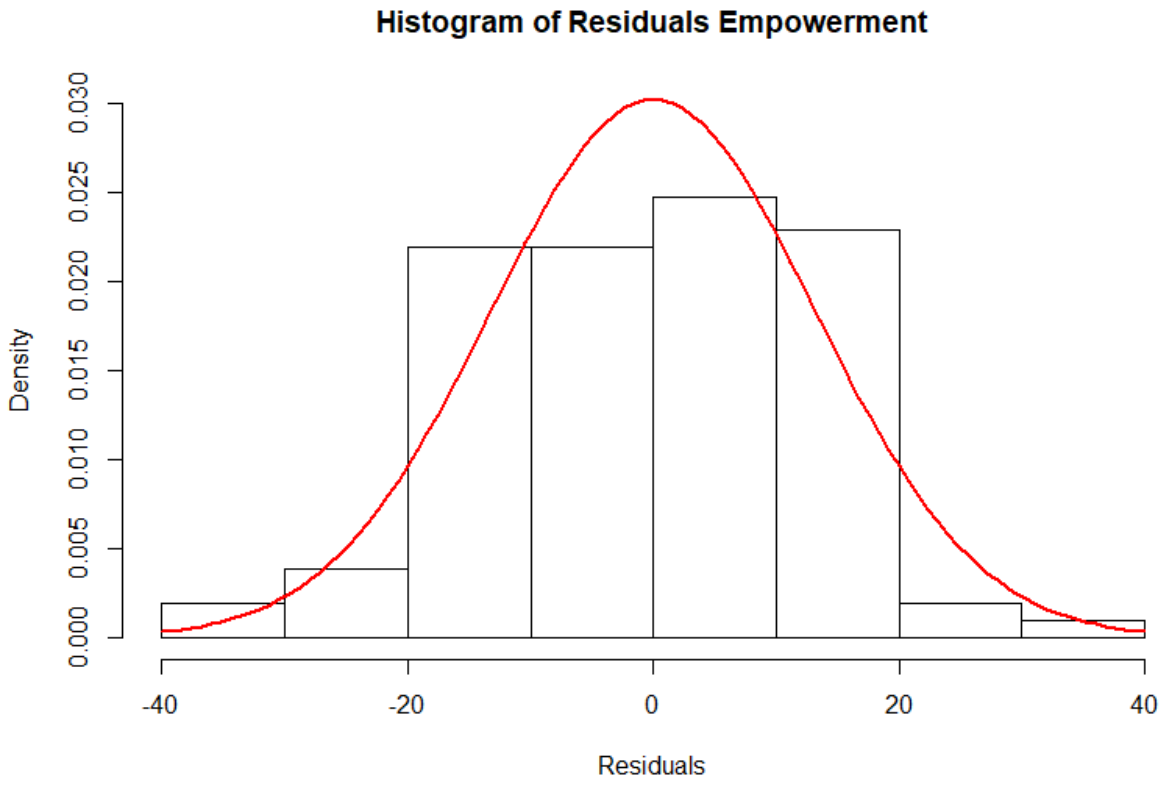


Figure 9

Pearson Residuals Empowerment

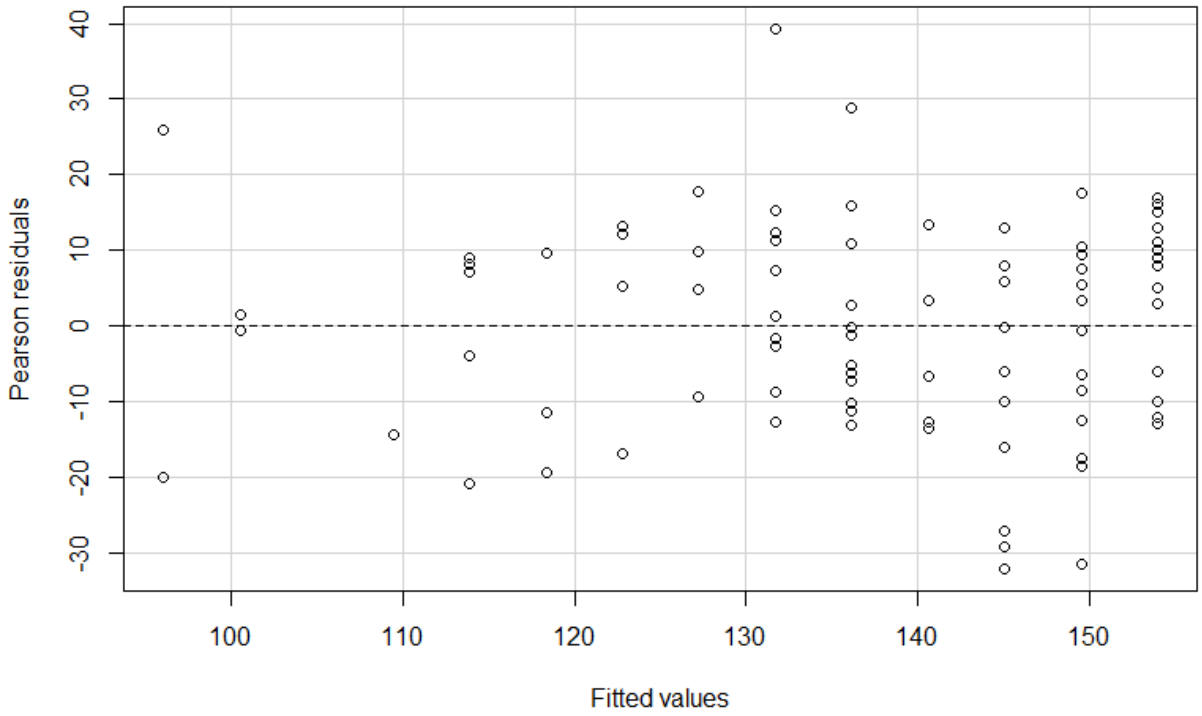


Figure 10

Residuals vs. Fitted Values Empowerment

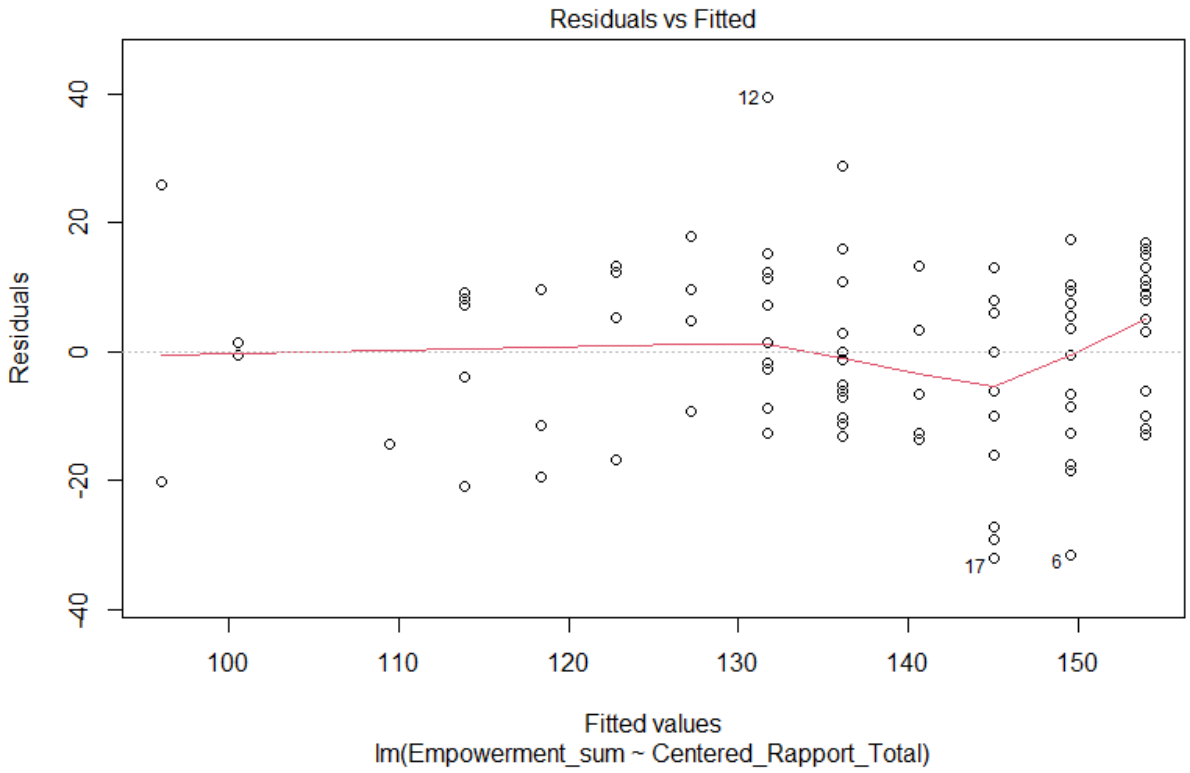


Figure 11

Q-Q Plot Empowerment

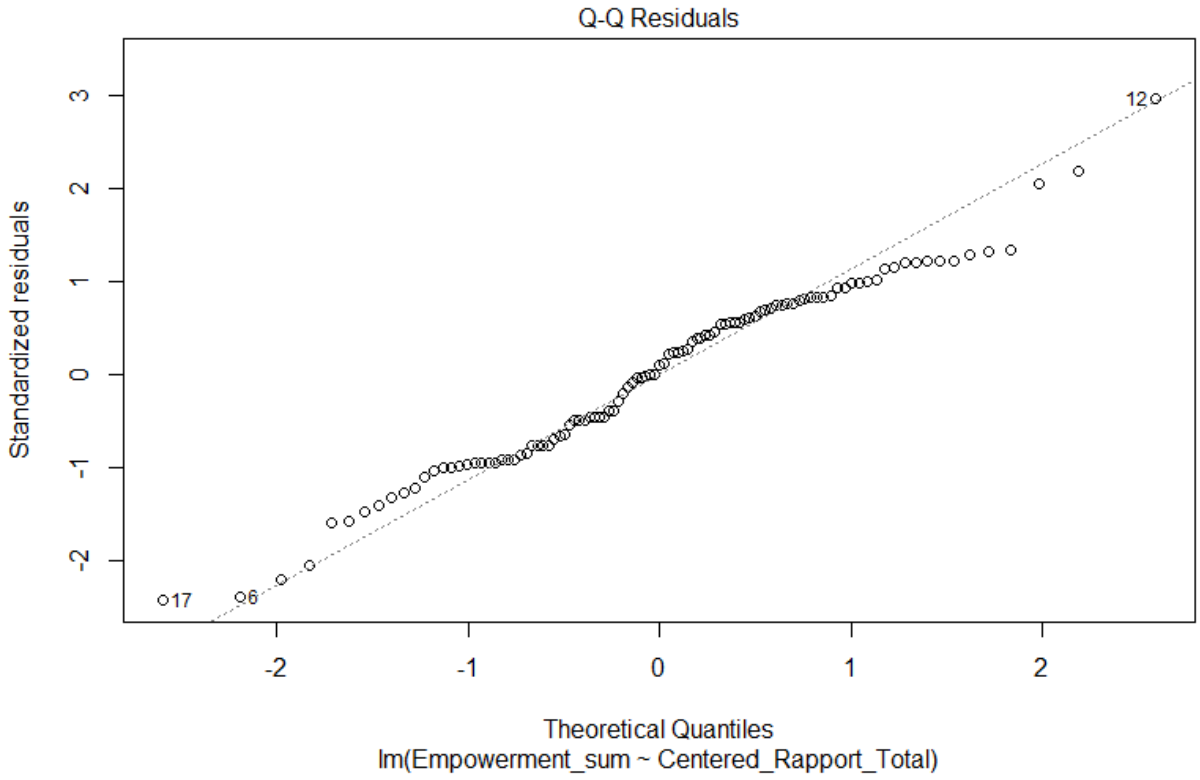
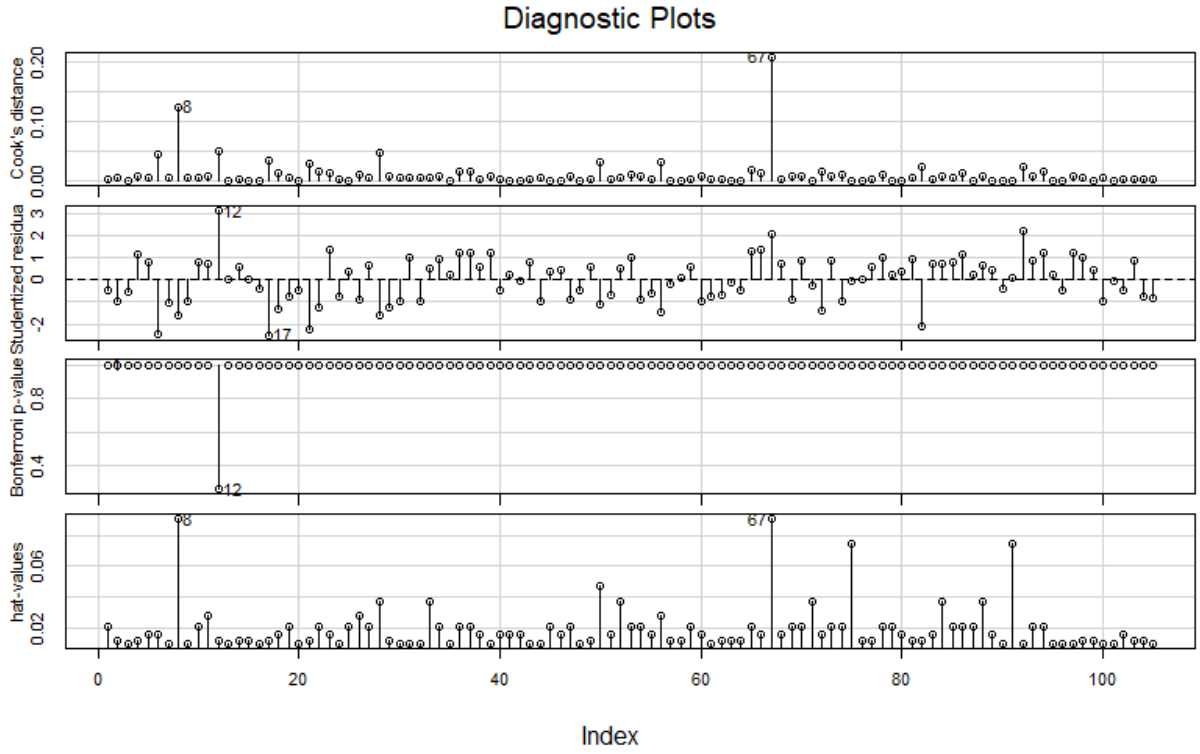


Figure 12

Diagnostic Plots Empowerment



Research Question 1

RQ 1: Is there a relationship between instructor-undergraduate aviation student rapport and student perception of impact?

Testing Assumptions

Linearity.

A scatterplot (Figure 13) and boxplot (Figure 14) were produced and examined to determine if a linear relationship existed between the independent and dependent variables.

There was evidence to support a linear relationship between rapport and impact, supporting the assumption of linearity.

Homogeneity of variance.

The residuals of the model were plotted (Figures 15, 16, 17), and the Q-Q graph (Figure 18) was analyzed, to determine if the variance was consistent for all values of the independent variable, which supported the assumption of homogeneity of variance.

Normality.

Normality was assessed using the Shapiro-Wilk (1965) test, as well as plotting the sample residuals distribution (Figure 15). Normality was found to be a reasonable assumption for the variable of impact ($p = .16$).

Independence.

Because all students in the study were from the same School of Aviation, there is no reason to believe the assumption of independence is violated.

Analysis

Null hypothesis (H_0): There is no correlation between rapport and impact

Alternate hypothesis (H_1): There is a correlation between rapport and impact

Equation for the sample:

$$Y_i = \beta_0 + \beta_1 Rapport_i + \varepsilon_i$$

$$Y_{\hat{i}} = \beta_0 + (.78)(Rapport_i) + \varepsilon_i$$

Y_i = Impact
β_0 = y-intercept
β_1 = Coefficient for Rapport
ε_i = Residual

Table 8 shows the descriptives for the continuous independent and dependent variables using mean values for instructor-student rapport and mean student impact, meaningfulness, and competence. Table 9 shows values for the regression model. Based on the model, where rapport was centered, a student reporting an average mean score of 4.41 for rapport reported an average mean score of 3.63 for impact ($\beta_0 = 3.63$, $p < .001$) The estimated effect of rapport on impact ($\beta_1 = .78$, $p < .001$) indicates for each point increase in the average score for rapport, the reported average score for impact is predicted to increase .78 (+/- 1 .11) points. These effects are slightly higher than the observed variability in reported impact in the sample (SD = .73).

Table 8

Descriptives for Continuous Variables Using Means

Variable	N	Mean	Min	Max	Range	SD	Skew	Kurtosis	SE
Rapport (6)	105	4.41	2.83	5	2.17	.54	-.95	.35	.05
Empowerment									
Impact (16)	105	3.63	1.81	5	3.19	.73	-.14	-.74	.07
Meaningfulness (10)	105	4.05	1.1	5	3.9	.74	-1.05	1.74	.07
Competence (9)	105	4.41	2.44	5	2.56	.49	-.83	1.13	.05

Table 9

Rapport Regression Model Predicting Impact

Impact	N	Intercept	R^2	Adjusted R^2	Rapport
Rapport	105	3.63 ***	.33	.33	.78 ***
Standard Error of Estimate		(.06)			(.11)

Note. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

The predictor of rapport explains 33% of the variance in impact ($R^2 = .33$, $F(1, 103) = 51.74$, $p < .001$), which is not a satisfactory explanation of variance in impact. According to Cohen (1988, 1992), rapport has a moderate positive Pearson (1895) r correlation with impact

(.58). Diagnostic plots (Figure 19) indicate there are no major outliers, or influential cases. The low standard error of rapport (.05) and impact (.07) indicate the sample means are closely distributed around the population mean and the study sample is representative of the population.

The results suggest there is evidence of a relationship, where average impact scores increase with higher average rapport scores. The model is weak in explaining variance in empowerment (33%), but with a p-value ($p < .001$), there is sufficient evidence to reject the null hypothesis, indicating a likelihood of some significant explanatory power.

Figure 13

Linear Model Impact

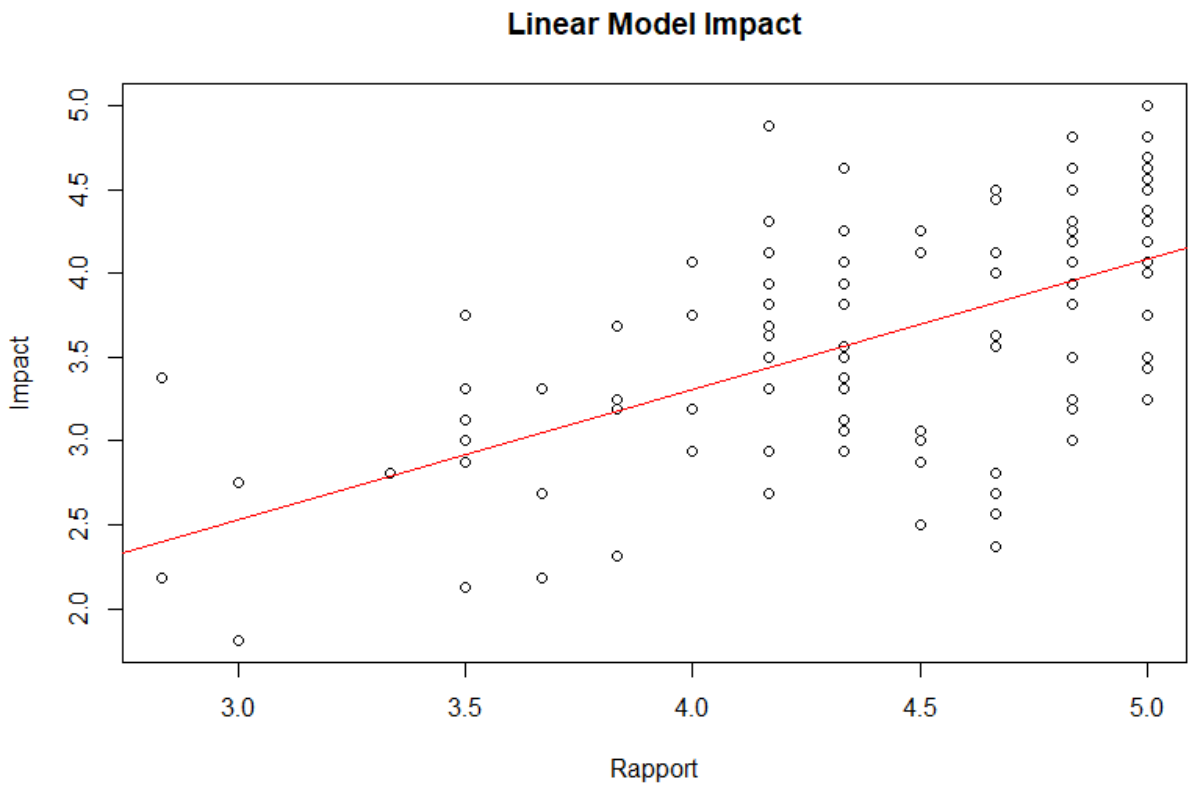


Figure 14

Boxplot Impact

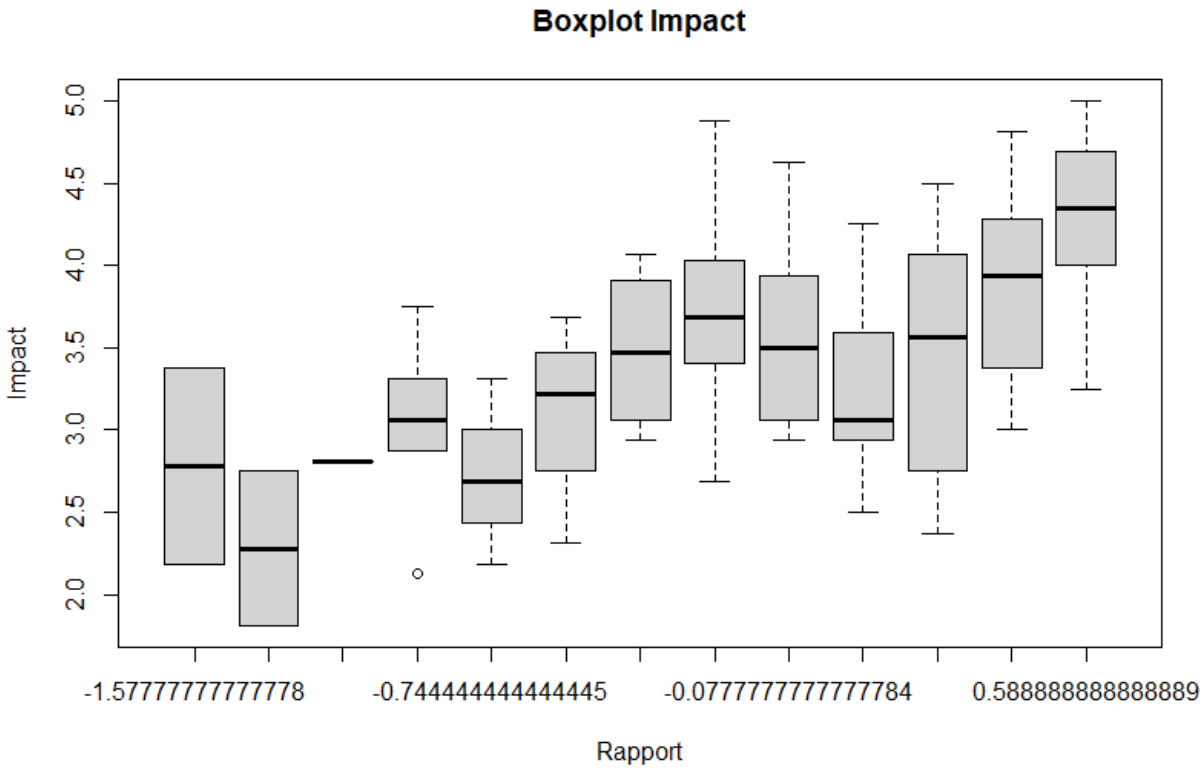


Figure 15

Histogram of Residuals Impact

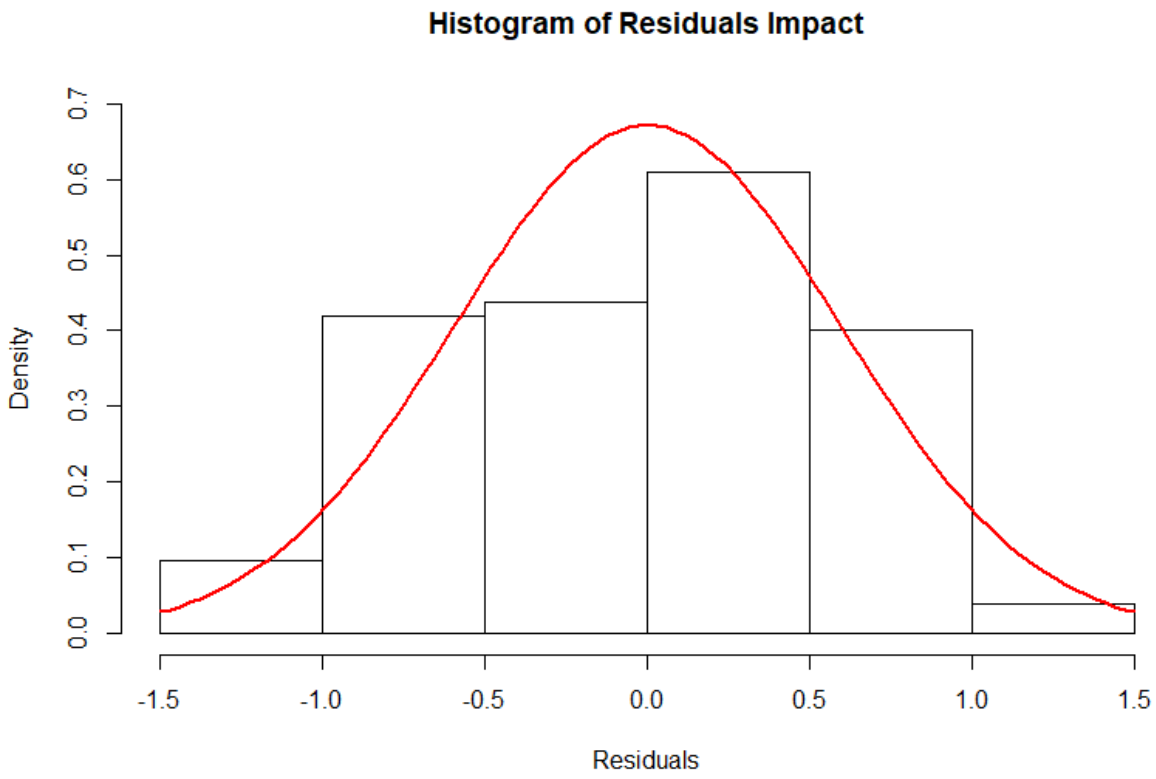


Figure 16

Pearson Residuals Impact

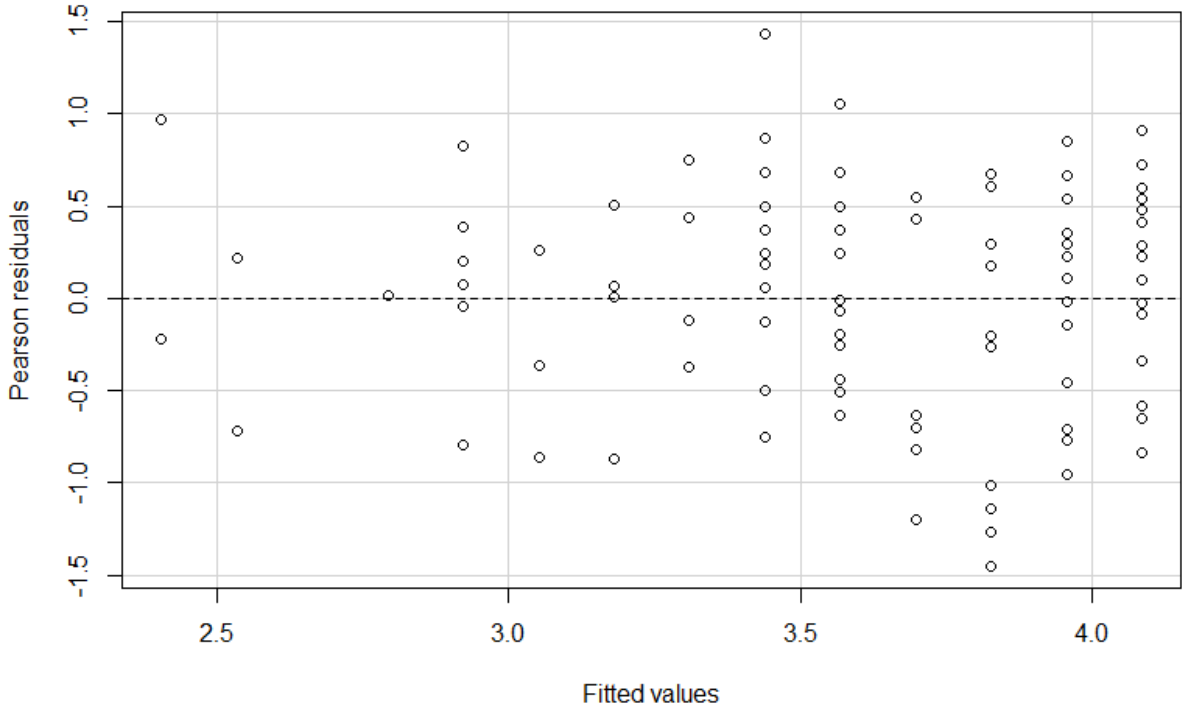


Figure 17

Residuals vs. Fitted Values Impact

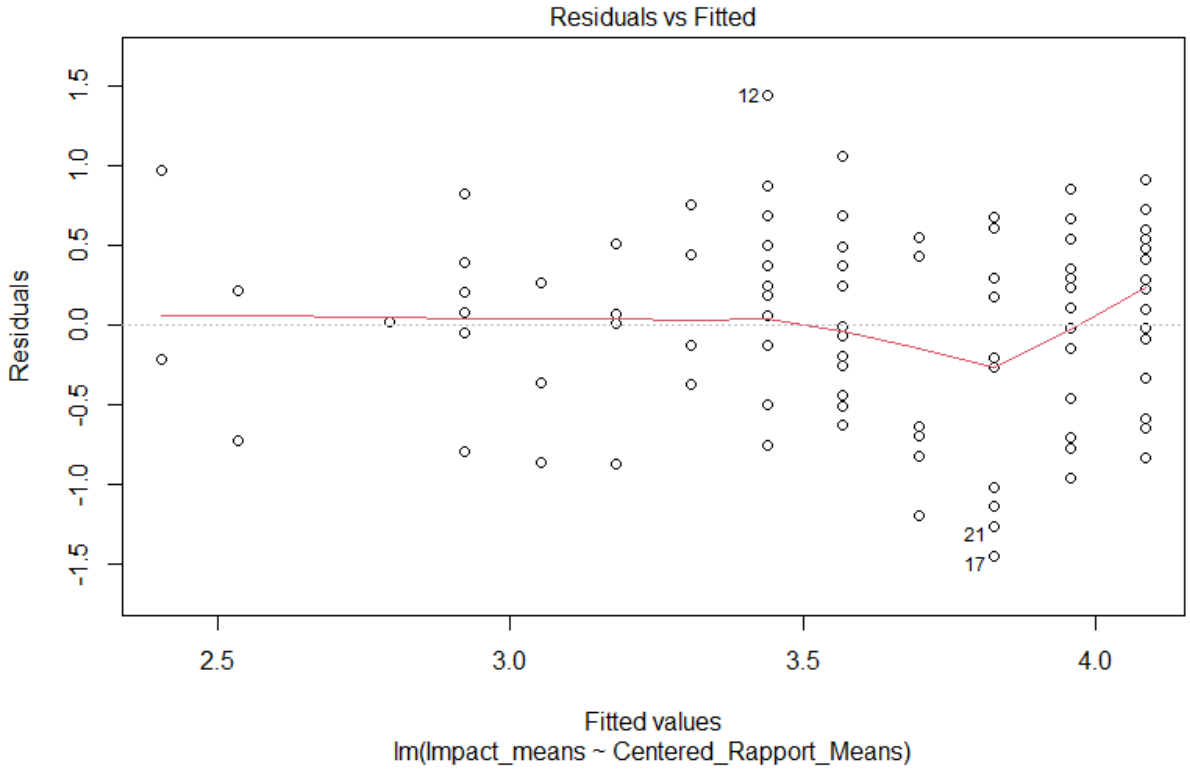


Figure 18

Q-Q Plot Impact

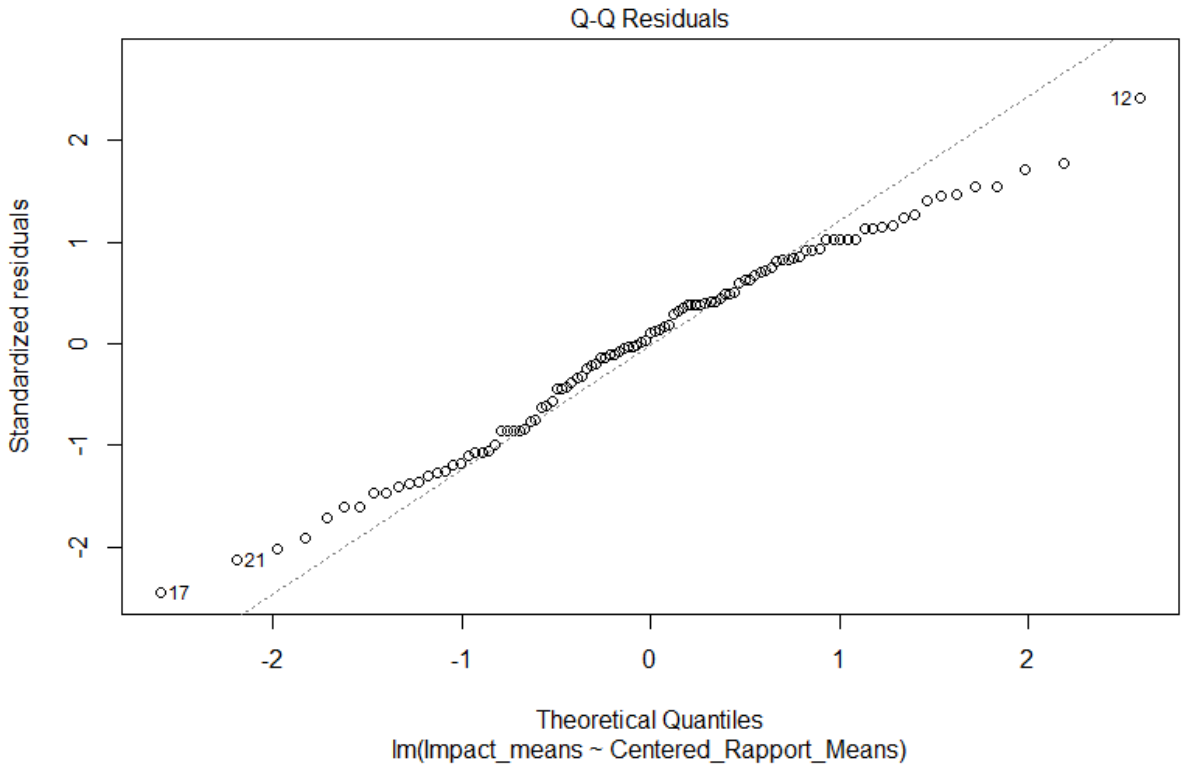
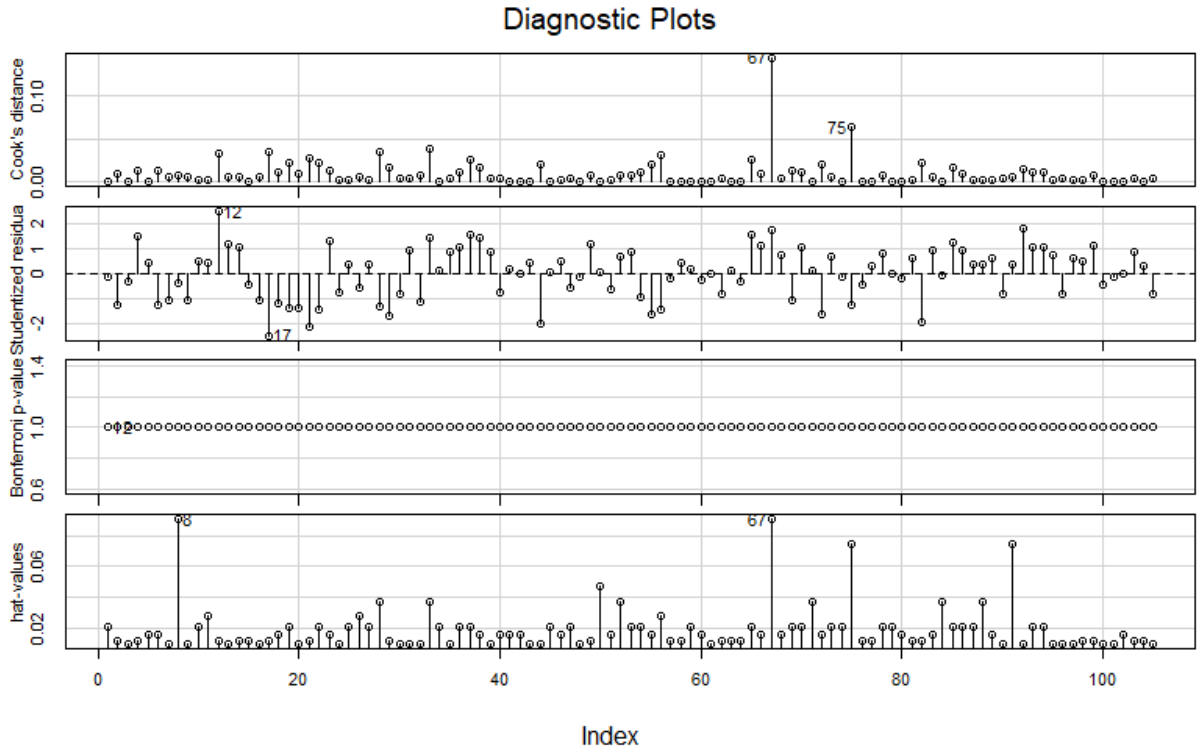


Figure 19

Diagnostic Plots Impact



Research Question 2

RQ 1: Is there a relationship between instructor-undergraduate aviation student rapport and student perception of meaningfulness?

Testing Assumptions

Linearity.

A scatterplot (Figure 20) and boxplot (Figure 21) were produced and examined to determine if a linear relationship existed between the independent and dependent variables. There was evidence to support a linear relationship between rapport and impact, supporting the assumption of linearity.

Homogeneity of variance.

The residuals of the model were plotted (Figures 22, 23, 24) , and the Q-Q graph (Figure 25) was analyzed, to determine if the variance was consistent for all values of the independent variable, which supported the assumption of homogeneity of variance.

Normality.

Normality was assessed using the Shapiro-Wilk (1965) test, as well as plotting the sample residuals distribution (Figure 22). Normality was not found to be a reasonable assumption for the variable meaningfulness ($p < .05$). The data for meaningfulness did not fit the distribution normally with 95% confidence. By assessing the residuals in Figure 23 and Figure 24, along with the Q-Q graph in Figure 25, this violation of normality seems to be due to one single case. There is no reason to suspect this value is not legitimate, but because regression can be robust in the face of moderate violations of normality this model will still be used to analysis data- though results should be interpreted with caution.

Independence.

Because all students in the study were from the same School of Aviation, there is no reason to believe the assumption of independence is violated.

Analysis

Null hypothesis (H_0): There is no correlation between rapport and meaningfulness

Alternate hypothesis (H_1): There is a correlation between rapport and meaningfulness

Equation for the sample:

$Y_i = \beta_0 + \beta_1 Rapport_i + \varepsilon_i$

$Y_{\hat{i}} = \beta_0 + (1.06)(Rapport_i) + \varepsilon_i$

Y_i = Meaningfulness
β_0 = y-intercept
β_1 = Coefficient for Rapport
ε_i = Residual

Table 10 shows values for the regression model. Based on the model, where rapport was centered, a student reporting an average mean score of 4.41 for rapport reported an average mean score of 4.05 for meaningfulness ($\beta_0 = 4.05$, $p < .001$) The estimated effect of rapport on meaningfulness ($\beta_1 = 1.06$, $p < .001$) indicates for each point increase in the average score for rapport, the reported average score for meaningfulness is predicted to increase 1.06 (+/- .08) points. These effects are slightly higher than the observed variability in reported meaningfulness in the sample (SD = .74).

Table 10

Rapport Regression Model Predicting Meaningfulness

Meaningfulness	N	Intercept	R^2	Adjusted R^2	Rapport
Rapport	105	4.05 ***	.60	.60	1.06 ***
Standard Error of Estimate		(.05)			(.08)

Note. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

The predictor of rapport explains 60% of the variance in meaningfulness ($R^2 = .60$, $F(1, 103) = 156.1$, $p < .001$). According to Cohen (1988, 1992), rapport has a strong positive Pearson (1895) r correlation with meaningfulness (.78). Diagnostic plots (Figure 26) indicate there are no major outliers, or influential cases. The low standard error of rapport (.05) and meaningfulness (.07) indicate the sample means are closely distributed around the population mean and the study sample is representative of the population.

The results suggest there is evidence of a relationship, where average meaningfulness scores increase with higher average rapport scores. The model is moderate in explaining

variance in meaningfulness (60%), and with a p-value ($p < .001$), there is sufficient evidence to reject the null hypothesis, indicating a likelihood of some significant explanatory power.

Figure 20

Linear Model Meaningfulness

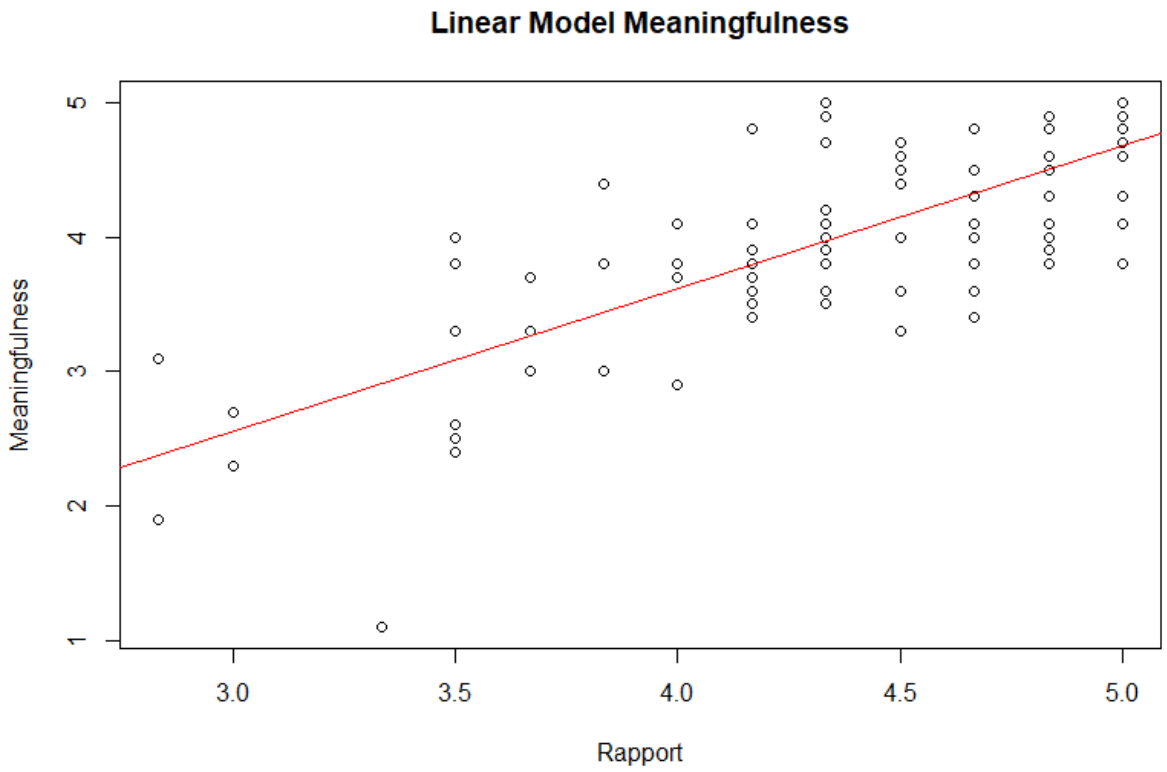


Figure 21

Boxplot Meaningfulness

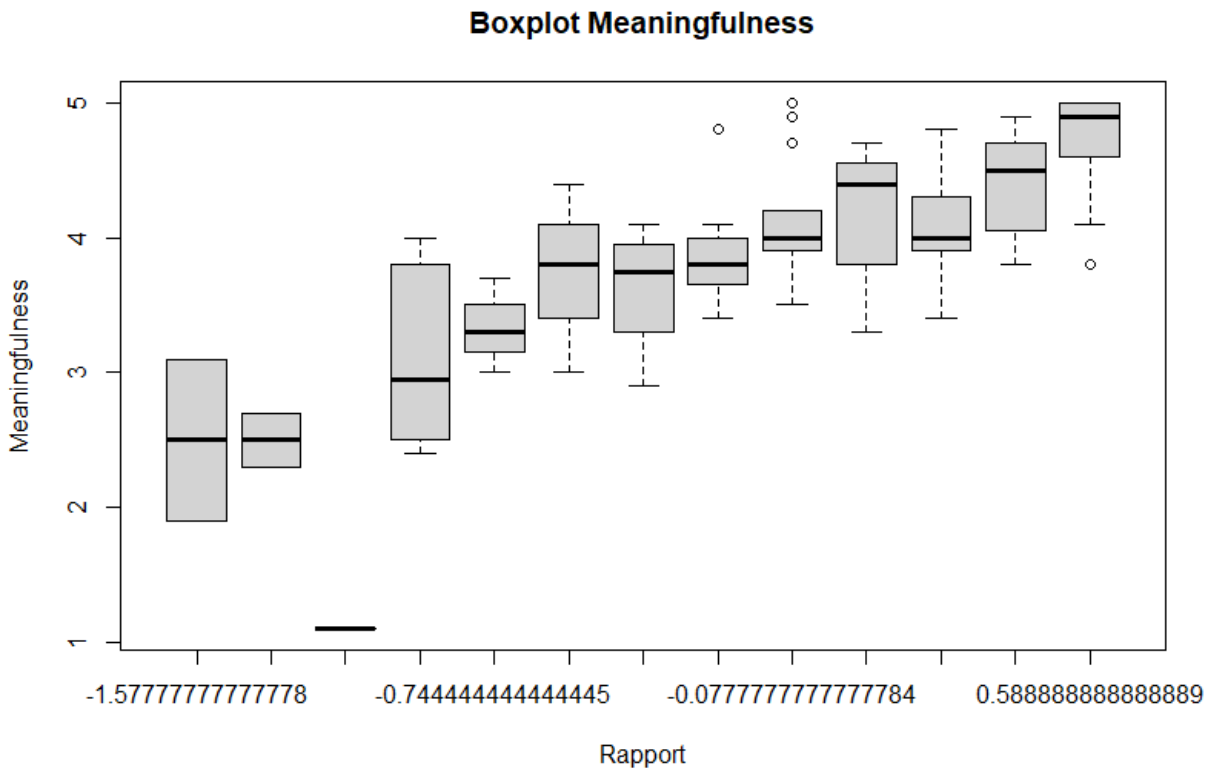


Figure 22

Histogram of Residuals Meaningfulness

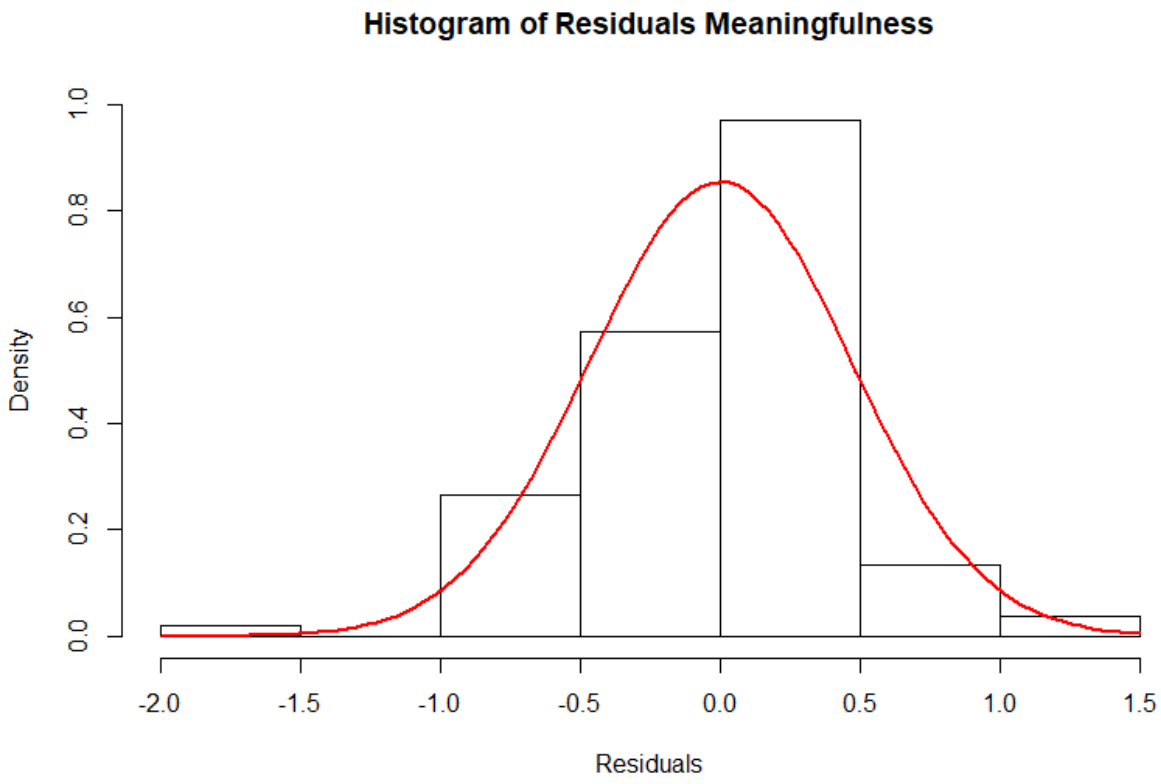


Figure 23

Pearson Residuals Meaningfulness

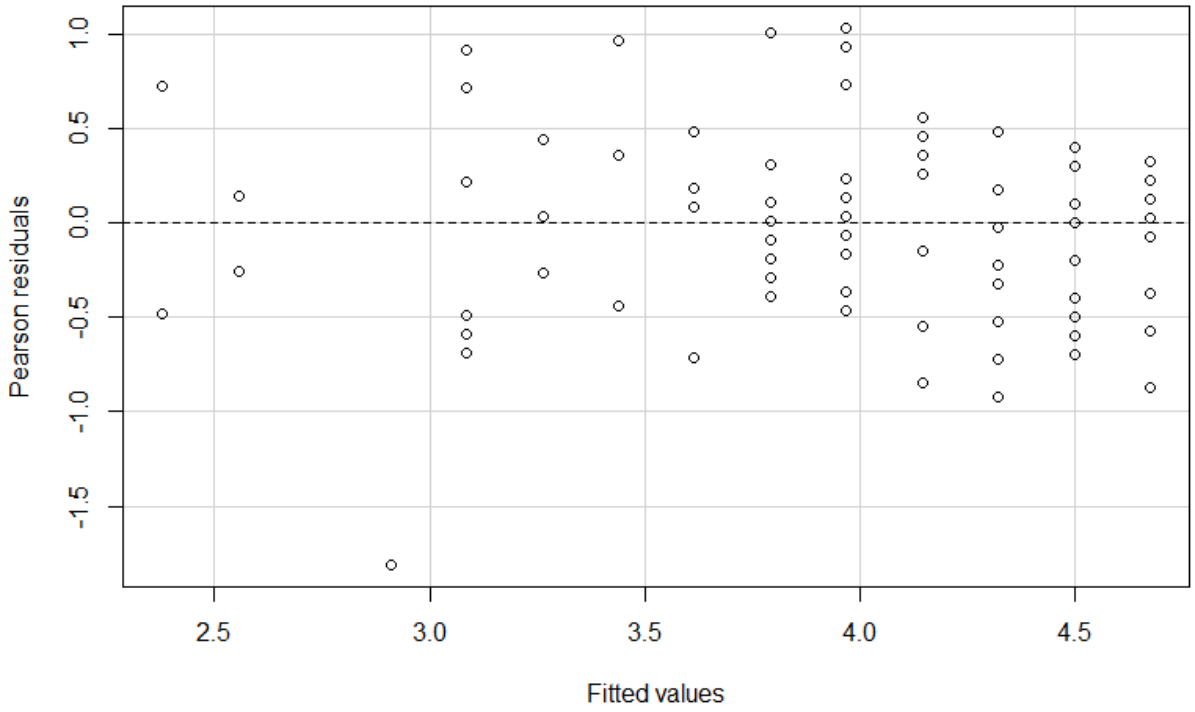


Figure 24

Residuals vs. Fitted Values Meaningfulness

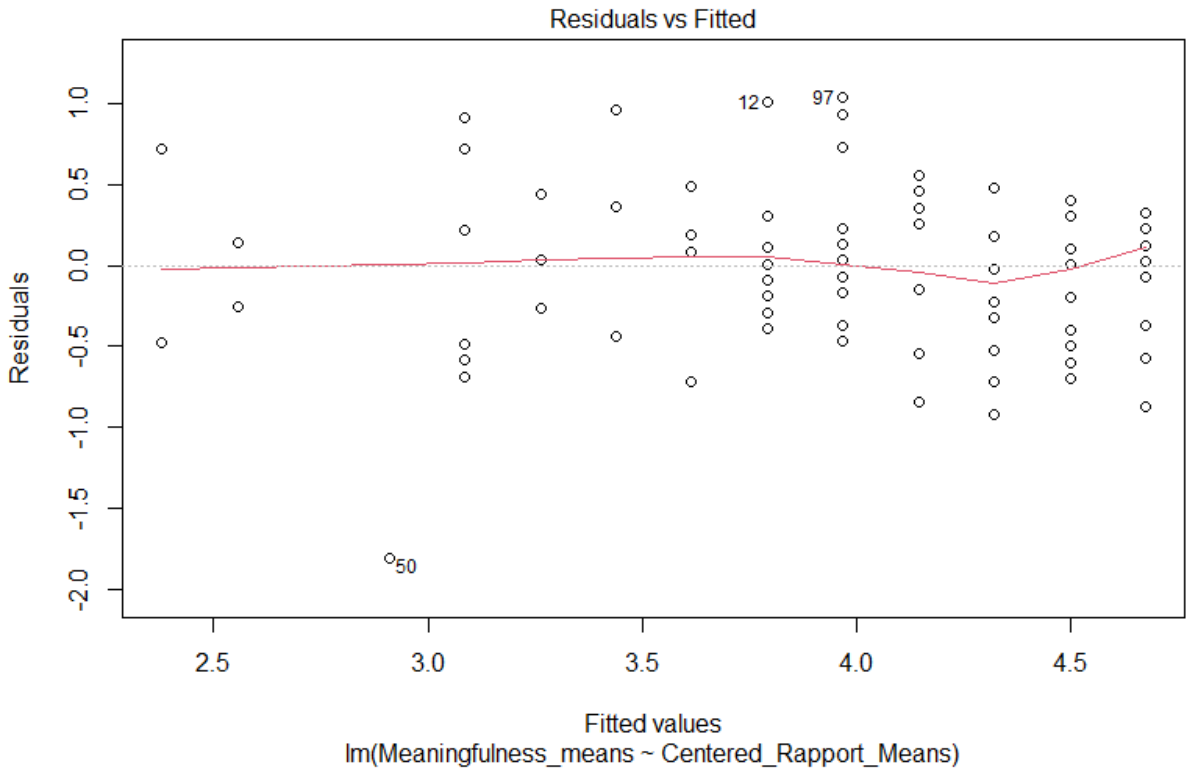


Figure 25

Q-Q Plot Meaningfulness

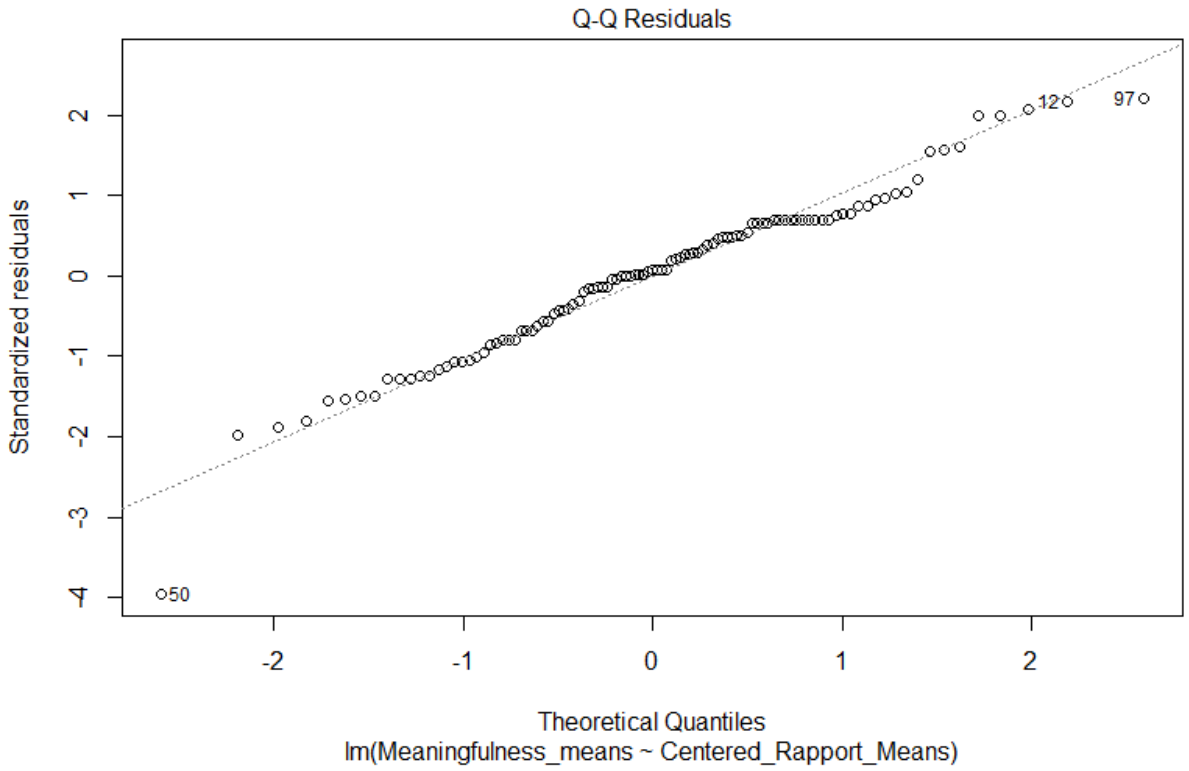
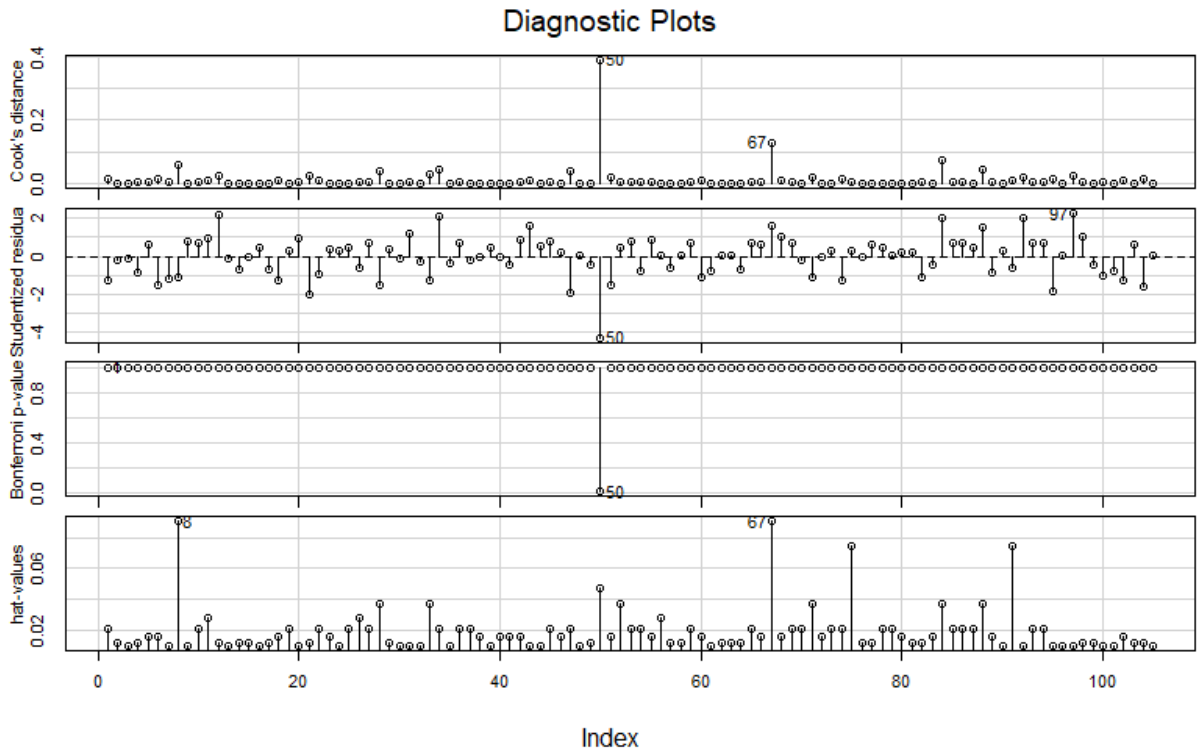


Figure 26

Diagnostic Plots Meaningfulness



Research Question 3

RQ 1: Is there a relationship between instructor-undergraduate aviation student rapport and student perception of competence?

Testing Assumptions

Linearity.

A scatterplot (Figure 27) and boxplot (Figure 28) were produced and examined to determine if a linear relationship existed between the independent and dependent variables. There was evidence to support a linear relationship between rapport and impact, supporting the assumption of linearity.

Homogeneity of variance.

The residuals of the model were plotted (Figures 29, 30, 31), and the Q-Q graph (Figure 32) was analyzed, to determine if the variance was consistent for all values of the independent variable, which supported the assumption of homogeneity of variance.

Normality.

Normality was assessed using the Shapiro-Wilk (1965) test, as well as plotting the sample residuals distribution (Figure 29). Normality was not found to be a reasonable assumption for the variable meaningfulness ($p < .05$). The data for meaningfulness did not fit the distribution normally with 95% confidence. By assessing the residuals in Figure 30 and Figure 31, along with the Q-Q graph (Figure 32), this violation of normality seems to be due to a few cases. There is no reason to suspect these values are not legitimate, but because regression can be robust in the face of moderate violations of normality this model will still be used to analysis data- though results should be interpreted with caution.

Independence.

Because all students in the study were from the same School of Aviation, there is no reason to believe the assumption of independence is violated.

Analysis

Null hypothesis (H_0): There is no correlation between rapport and competence

Alternate hypothesis (H_1): There is a correlation between rapport and competence

Equation for the sample:

$Y_i = \beta_0 + \beta_1 Rapport_i + \varepsilon_i$

$Y_{\hat{i}} = \beta_0 + (.41)(Rapport_i) + \varepsilon_i$

Y_i = Competence
β_0 = y-intercept
β_1 = Coefficient for Rapport
ε_i = Residual

Table 11 shows values for the regression model. Based on the model, where rapport was centered, a student reporting an average mean score of 4.41 for rapport reported an average mean score of 4.41 for competence ($\beta_0 = 4.41$, $p < .001$) The estimated effect of rapport on competence ($\beta_1 = .41$, $p < .001$) indicates for each point increase in the average score for rapport, the reported average score for competence is predicted to increase .41 (+/- .08) points. These effects are relatively small compared to the observed variability in reported empowerment in the sample (SD = .49).

Table 11

Rapport Regression Model Predicting Competence

Competence	N	Intercept	R^2	Adjusted R^2	Rapport
Rapport	105	4.41 ***	.21	.21	.41 ***
Standard Error of Estimate		(.04)			(.08)

Note. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

The predictor of rapport explains 21% of the variance in competence ($R^2 = .21$, $F(1, 103) = 27.94$, $p < .001$), which is not a satisfactory explanation of variance in competence. According to Cohen (1988, 1992), rapport has a moderate positive Pearson (1895) r correlation with impact (.46). Diagnostic plots (Figure 33) indicate there are no outliers or influential cases. The low standard error of rapport (.04) and competence (.08) indicate the sample means are closely distributed around the population mean and the study sample is representative of the population.

The results suggest there is evidence of a relationship, where average competence scores increase with higher average rapport scores. The model is weak in explaining variance in

competence (21%), but with a p-value ($p < .001$), there is sufficient evidence to reject the null hypothesis, indicating a likelihood of some significant explanatory power.

Figure 27

Linear Model Competence

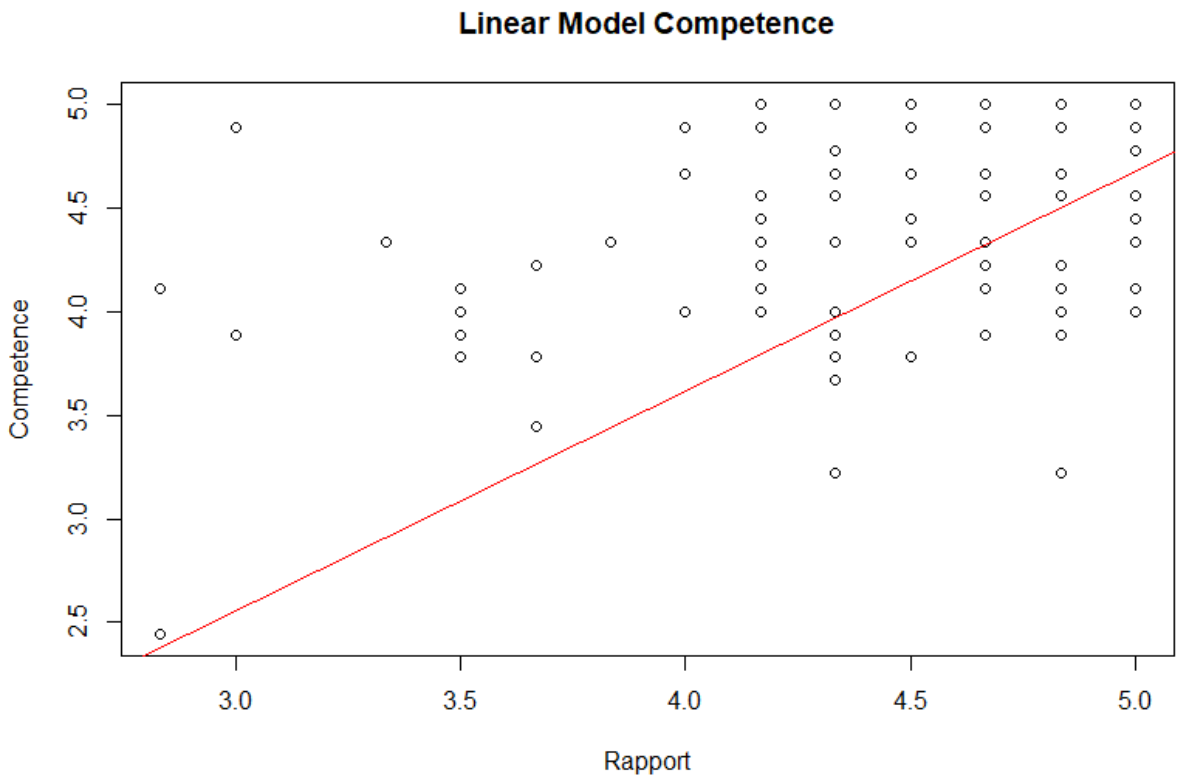


Figure 28

Boxplot Competence

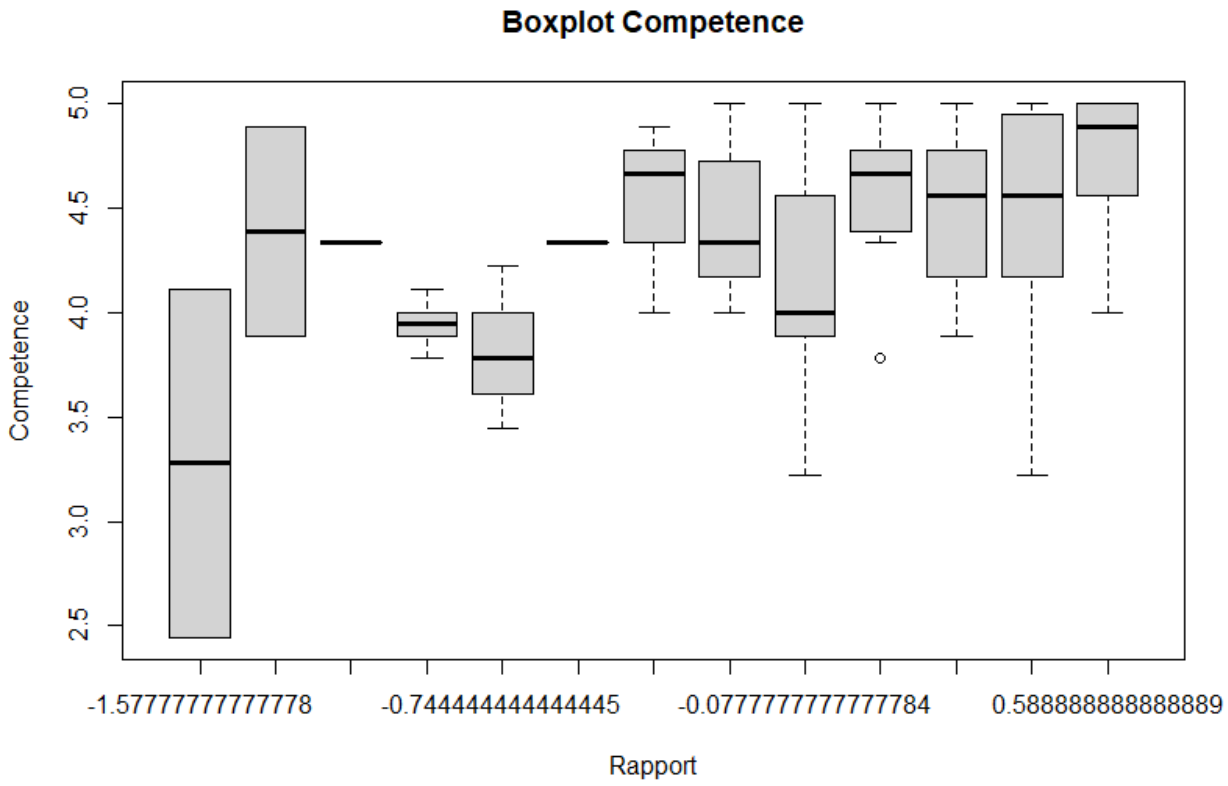


Figure 29

Histogram of Residuals Competence

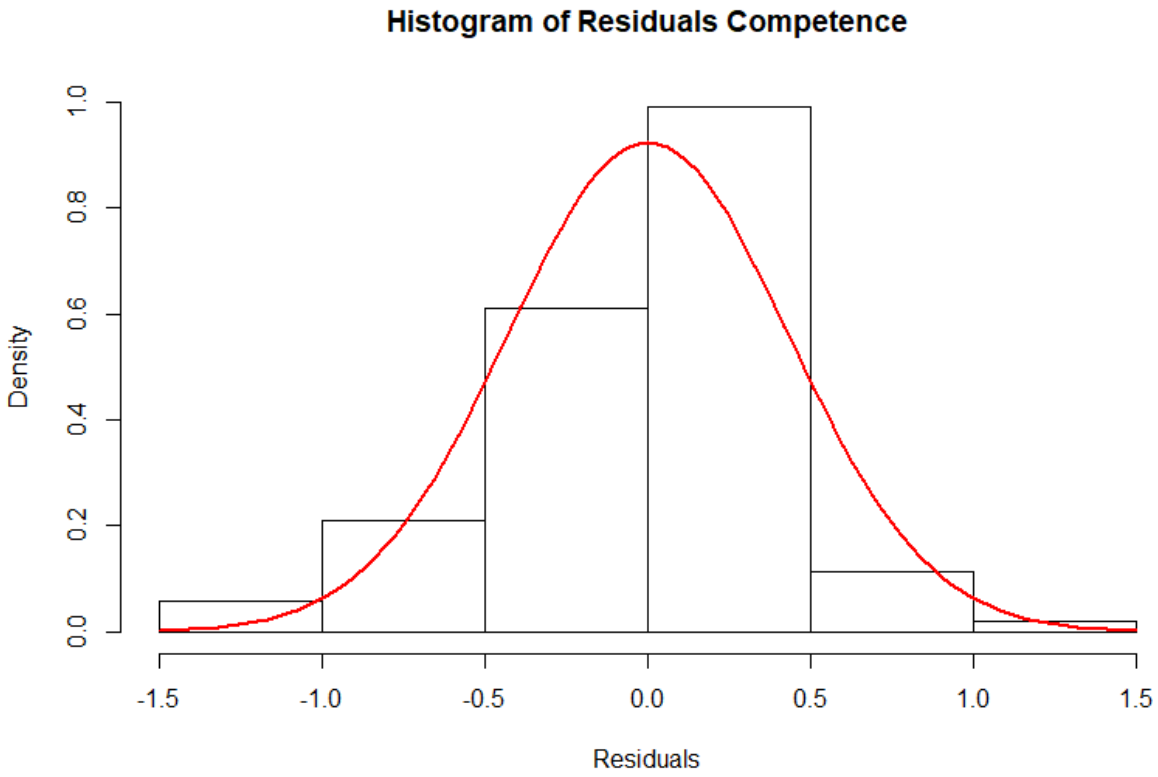


Figure 30

Pearson Residuals Competence

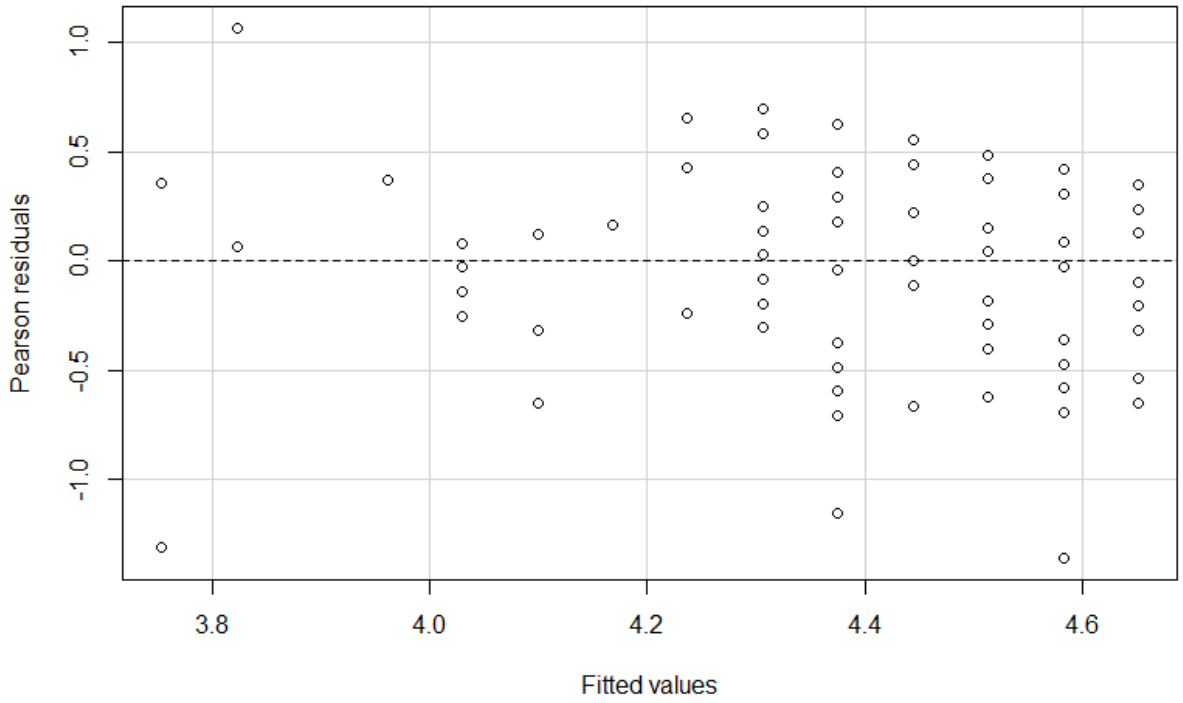


Figure 31

Residuals vs. Fitted Values Competence

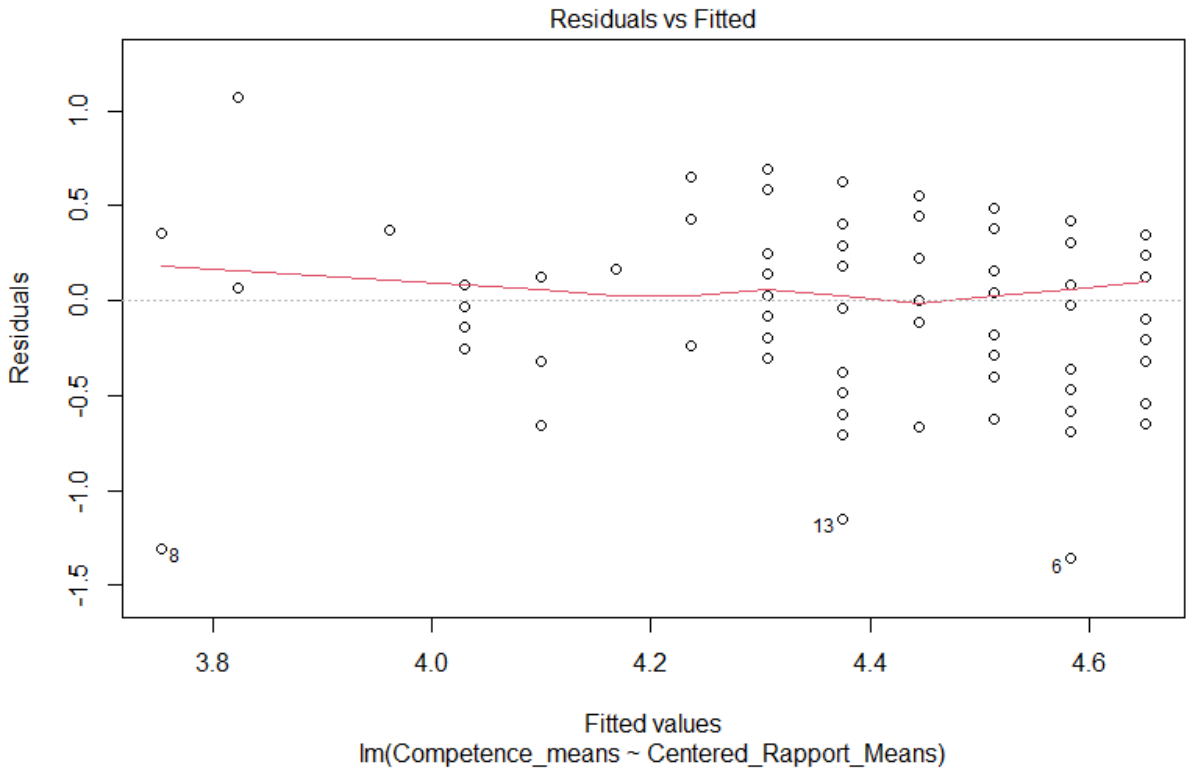


Figure 32

Q-Q Plot Competence

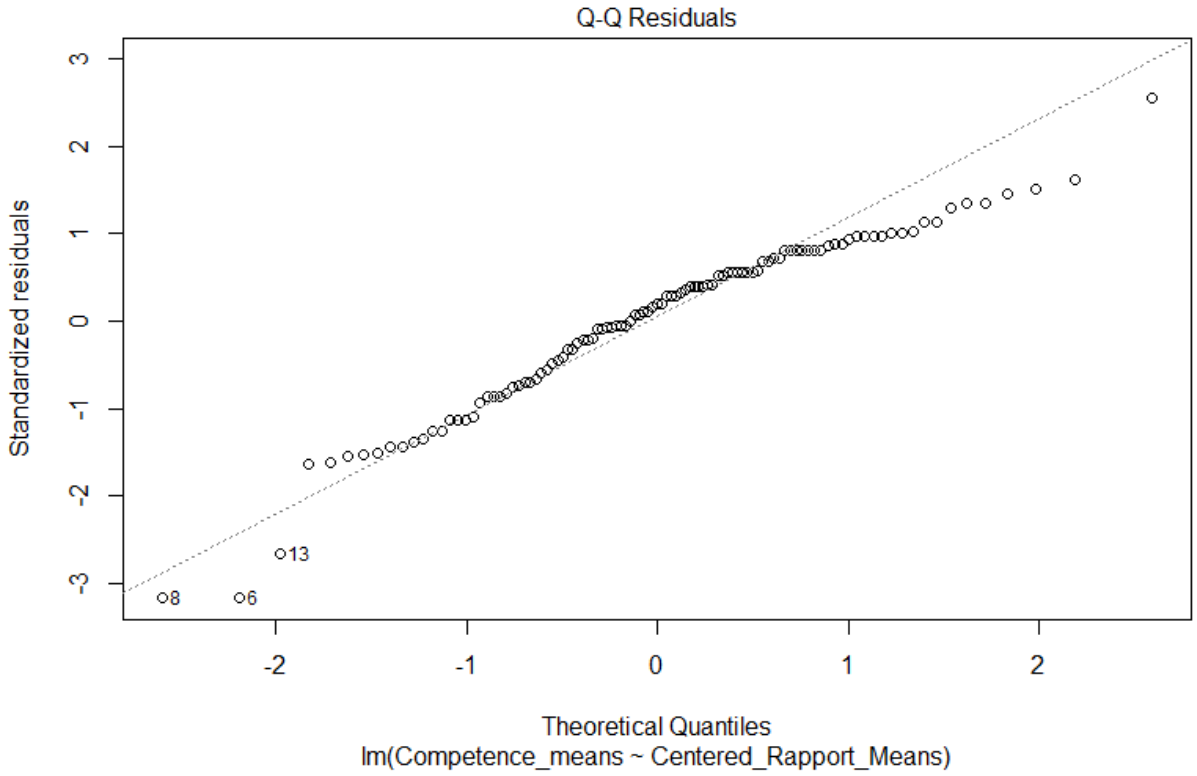
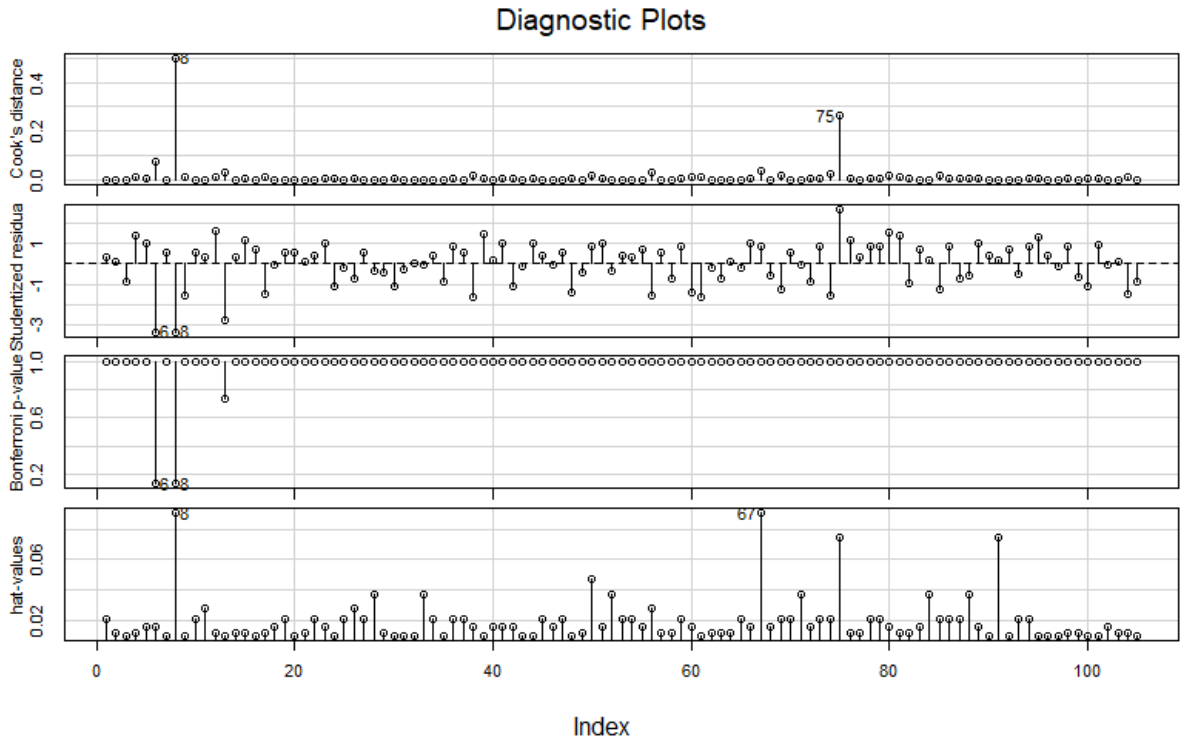


Figure 33

Diagnostic Plots Competence



Summary

Survey data indicated there was a statistically significant relationship between instructor-student rapport and undergraduate aviation student feelings of empowerment. Further examination revealed evidence supporting a relationship between instructor-student rapport and each construct of impact, meaningfulness, and competence. While the relationship between instructor-student rapport and student feelings of impact had a lower correlation than instructor-student rapport and empowerment, this relationship was found to be statistically significant. The relationship between instructor-student rapport and student feelings of meaningfulness had a lower correlation than instructor-student rapport and empowerment, but a higher correlation than

rapport and impact, and was found to be statistically significant. Finally, the relationship between instructor-student rapport and student feelings of competence had the lowest correlation, and was also found to be statistically significant.

CHAPTER 5: DISCUSSION

Introduction

Educators strive to improve student learning outcomes, but can these outcomes contribute to empowerment, or even critical consciousness? If instructors approach education with the goal of improving social awareness through empowered students, then it is incumbent on them to use every resource available to achieve this goal. Figure 1 shows the proposed relationship between rapport, empowerment, and critical consciousness. This study sought to understand the relationship between instructor-student rapport and student empowerment, and found a statistically significant correlation supporting previous research on this topic.

Purpose of the Study

The purpose of this quantitative correlational study was to examine how intentional instructor-student rapport correlates to undergraduate aviation student empowerment levels, as measured by impact, meaningfulness, and competence. Studies have analyzed K-12 student-teacher relationships, as well as undergraduate instructor-student relationships, but there is a paucity of research discussing instructor-student rapport in undergraduate aviation students. As well, few studies examine the relationship between instructor-student rapport and student empowerment.

Research Questions

The central question for this study is "What is the relationship between instructor-student rapport and undergraduate aviation student empowerment?" In order to answer this question, the following research questions were used:

RQ1: Is there a relationship between instructor-undergraduate aviation student rapport and student perception of impact?

RQ2: Is there a relationship between instructor-undergraduate aviation student rapport and student perception of meaningfulness?

RQ3: Is there a relationship between instructor-undergraduate aviation student rapport and student perception of competence?

Conclusions

Survey data indicated there was a statistically significant relationship between instructor-student rapport and undergraduate aviation student feelings of empowerment. Further examination revealed evidence supporting a statistically significant relationship between instructor-student rapport and each construct of impact, meaningfulness, and competence. Specifically, the measures of empowerment and meaningfulness were found to be more strongly associated with rapport than impact and competence. The results were correlational, and more research is necessary to investigate any causal relationship between these factors.

The data for the relationship between instructor-student rapport and student empowerment revealed that for each point increase in the total score reported for feelings of rapport, there was a predicted increase of 4.46 points in the total score reported for feelings of empowerment. Additionally, for each point increase in the average score for rapport, the reported average score for impact was predicted to increase .78 points, meaningfulness was predicted to increase 1.06 points, and competence was predicted to increase .41 points.

The measures of overall empowerment and meaningfulness were found to be more strongly associated with rapport than impact and competence. In the empowerment model, the predictor of rapport explained 55% of the variance in empowerment. In the impact model, the predictor of rapport explained 33% of the variance in impact. In the meaningfulness model, the predictor of rapport explained 60% of the variance in meaningfulness. In the competence model,

the predictor of rapport explained 21% of the variance in competence. These results support Frymier et al.'s (1996) findings that a student does not have to experience all three dimensions of impact, meaningfulness, and competence to experience some level of empowerment. As well, if students were thinking about one of their aviation instructors while taking the survey, the course material would be meaningful to them if they wish to pursue employment in the aviation industry.

Because there is a scarcity of data using the PSRS-B (Wilson & Ryan, 2013) and learner empowerment measure (Frymier et al., 1996) together in a single measure, there is little basis for comparing the results of this study. However, the 41-question survey measure used in this study showed strong internal consistency within each construct, similar to previous individual studies. As well, the statistically significant correlations between instructor-student rapport and empowerment, and each of the constructs, were consistent with previous research analyzing the relationship between instructor-student relationships (ISRs) and student learning outcomes (Frisby & Martin, 2010; Tinto, 1993) and student feelings of confidence and self-directedness (Ames, 1992; Midgley et al., 1989; Pintrich et al., 1994; Ryan et al., 1998), where rapport has been studied as an essential component of these instructor-student relationships (Catt et al., 2007; Demir et al., 2019; Faranda & Clark, 2004; Frisby & Martin, 2010; Robinson et al., 2019; Smith & Robinson, 2021).

The statistically significant correlation between instructor-student rapport and student feelings of empowerment supports Estepp and Roberts' (2015) findings that professor-student rapport was a strong contributor in predicting student motivation, where empowerment can be defined as an expanded, more inclusive, conceptualization of motivation (Frymier et al., 1993). As well, this correlation aligns with previous research investigating empowerment as a

motivational construct (Conger & Kanungo, 1988), where instructors supporting students' needs for self-determination (Deci, 1975) and self-efficacy (Bandura, 1986b) contribute to student motivation and empowerment.

The statistically significant correlation between instructor-student rapport and student feelings of impact reflects similar findings in the second two levels of Table 3 *Social Cognitive Model of the Development of Self-Regulatory Competence* (Schunk & Zimmerman, 1996/1997; Zimmerman, 2000), where the source of influence is shifted to the learner. This correlation also corresponds to the idea of self-efficacy, or "people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives" (Bandura, 1994, p. 1), where empowerment is an enabling behavior creating motivation by developing personal efficacy (Conger & Kanungo, 1988). If instructors build rapport with students with intent to increase their self-efficacy, this could help students feel their actions have impact.

The statistically significant correlation between instructor-student rapport and student feelings of meaningfulness support Shamir et al.'s (1993) findings where the most significant motivational aspect of charismatic or transformational leadership was the increased intrinsic value of goal accomplishment as a result of articulating a meaningful vision or mission. In the classroom, this translates into an instructor's ability to relate classwork to the overarching goal of the course or subject. Similar to Frymier et al. (1996), who found the dimension of meaningfulness best represented the motivational component of empowerment, this study found meaningfulness to have the largest correlation with rapport, with rapport explaining a significant percentage of variance in meaningfulness (60%). This is important if adult development is related to the ability to make sense of the world and personal experiences (Daloz, 1986).

The statistically significant correlation between instructor-student rapport and student feelings of competence aligns with Frisby and Myers' (2008) study, where rapport was found to significantly and positively correlate with student participation and affective and cognitive learning. While Ruzek et al. (2016) did not find significant mediating effects of emotionally-supportive classrooms on middle and high school student competence beliefs, Fredricks et al. (2004) and Skinner et al. (2008) found emotionally supportive teachers did correlate to feelings of competence in students. If faculty have the goal of empowering students, their role is to create conditions sustaining student commitment to producing high quality work (Shulman et al., 1993) and becoming self-determined, where students have the opportunity to make their own choices and initiate their own activities (Deci & Ryan, 1985).

Although a student would not have to experience all three dimensions of impact, meaningfulness, and competence to experience some level of empowerment (Frymier et al., 1996), the results of this study show statistically significant correlations between rapport and each dimension individually, as well as a correlation with the total value for empowerment. While the dimensions of empowerment are interdependent and summative (Frymier et al., 1996), each factor of impact, meaningfulness, and competence has a statistically significant correlation with rapport which takes into account the unique characteristics of each construct.

Implications

By understanding the relationship between instructor-student rapport and student feelings of empowerment, instructors can create a classroom environment supporting instructor-student rapport to contribute to student feelings of empowerment. If students' perceptions of rapport are not dependent on class size (Frisby & Myers, 2008; Perkins et al, 1995), then instructors with large class sizes could still create a classroom environment supporting instructor-student rapport,

which could correlate to student empowerment. If empowerment and critical consciousness are correlated, then students can use the empowerment they feel to facilitate change in the community around them.

If instructor-student rapport correlates to positive student learning outcomes, then instructors could prioritize learning how to develop strong rapport with their students. In addition to creating lesson plans, implementing technology, and building on foundational concepts, instructors can use this combined survey to assess student empowerment by having students fill out this survey during the semester, and then make necessary changes to the classroom environment or student rapport. If the rapport-empowerment relationship is considered another facet of improving student learning outcomes, instructors can take this into account while creating educational objectives.

Limitations and Recommendations for Further Research

Limitations of this study include self-selection bias, response bias, incomplete data, and sample size of a specific population. Logistical considerations for this study included: 1) offering the survey at an appropriate time in the semester, with enough time for students to formulate opinions about their instructors and classrooms, 2) the length of the survey providing enough questions to satisfy research questions, but not long enough to be tedious for the respondent, 3) providing an incentive for students to take time away from studying and social activities, and 4) access to the internet.

While instructor-student rapport has been shown to predict positive student outcomes (Catt et al., 2007; Demir et al., 2019; Faranda & Clark, 2004; Frisby & Martin, 2010; Robinson et al., 2019; Smith & Robertson, 2021), the PSRS-B (Wilson & Ryan, 2013) has not specifically been analyzed in predicting student empowerment using the learner empowerment measure

(Frymier et al., 1996). The PSRS-B (Wilson & Ryan, 2013) has been shown to have a positive correlation with higher student motivation (Wilson, 2006; Wilson & Ryan, 2013), which is, as previously discussed, a possible component of empowerment. The purpose of this study is correlational and more research is needed to specifically determine any predictive or causal capabilities between these two surveys.

Self-selection bias was a limitation of this study because this survey was posted on a Canvas course and distributed through student emails. Students were able to choose whether or not to take the survey, therefore, the results may not be an accurate portrayal of the undergraduate aviation student population as a whole and are potentially more representative of those choosing to respond. Those choosing to respond may have done so for many reasons, and those reasons may not be representative of the population.

Response bias could have occurred in a few different forms. First, students may have feared repercussion from their responses, even though no personal identifying data was collected. Students choosing to participate in the random drawing for a gift card were asked for their email address, though it was specified it would not be included with their responses. If they chose an instructor who elicited negative feelings, they could be inclined to give a more positive score than what would be accurate because it was one of their faculty members conducting the research.

Second, students were asked to choose one of their instructors and keep this person in mind while answering the survey questions. There could be a chance of students selecting an instructor who elicits a large positive or negative feeling which could polarize their answers. As well, the survey was disseminated toward the end of the semester, and students who were dissatisfied with their grade, for example, may have answered in more negative way.

One advantage of negatively worded questions is to account for acquiescence bias, where respondents answer based on how they think the researcher wants them to feel (Graeff, 2005). As well, negatively worded questions can also account for respondents answering in one manner, such as all fives. However, Chyung et al. (2018) found a mix of positively and negatively worded questions can cause threats to validity and reliability of the instrument.

Incomplete data was handled through line-item deletion, where a respondent's survey results were deleted if any data were missing. This could potentially bias the results because a response with missing data was not analyzed as part of the sample population. However, imputation was not selected to handle incomplete data due to the relatively large number of partially incomplete surveys and relatively small sample size. While each method has positive and negative qualities, the line-item deletion offered the most straightforward way to handle missing data.

The population being analyzed in this study were undergraduate aviation students, comprising Professional Flight students and Aviation Management students. The term *aviation student* could imply student pilot to some respondents, though it is a generic term for any student in the school whether they fly or not. The specificity of undergraduate aviation students' university experience could make the results of this study less generalizable to other undergraduate college students. The sample size could also decrease the power of the results, as well as generalizability to the rest of the undergraduate aviation student population and to undergraduate college students.

Recommendations for further studies include assessing the factors of gender, department (Aviation Management versus Professional Flight), and age or education level (undergraduate versus graduate student) using multivariate analysis of covariates (MANCOVA). Specifically,

further analysis in this study could include multivariate analysis of variance (MANOVA) to explain more of the sample variance and investigate variable interactions.

Conducting the study with a larger sample size could increase the power of analysis, allowing for greater generalizability to other aviation students. Conducting the study with undergraduate and/or graduate students from various programs on campus, or other campuses, could also allow for greater generalizability to undergraduate or graduate students. While logistically challenging, this cross-sectional study could be better served by a longitudinal study of undergraduate students with intent to pursue a graduate degree for a more robust analysis of the effects of age or degree on instructor-student rapport and student empowerment.

While the psychometric properties of the PSRS-B (Wilson & Ryan, 2013) and learner empowerment measure (Frymier et al., 1996) have been assessed separately, further study into the ability of the PSRS-B (Wilson & Ryan, 2013) to predict learner empowerment measure (Frymier et al., 1996) outcomes is needed. High Cronbach (1951) alpha scores could indicate some item redundancy within this survey measure, and should be reassessed in future studies to reduce respondent survey time. Recommendation for further study also includes research into the relationship between empowerment and critical consciousness.

Summary

If one of the UN's developmental goals is education, ensuring all learners acquire the knowledge and skill to promote human rights, gender equality, promotion of a culture of peace, and an appreciation of cultural diversity, then a culture of critical consciousness is needed to recognize pervasive cultural inequity. One way to increase societal critical consciousness may be to support student empowerment in the classroom. By studying the relationship between

instructor-student rapport and student empowerment, instructors may be able to promote a classroom environment supporting these goals.

To understand instructor-student rapport and student empowerment, the concepts of immediacy, self-efficacy, engagement, and motivational theory, the theoretical and conceptual frameworks of social cognitive theory (Bandura, 1986a), self-directed learning (Knowles, 1980/1984), transformative learning theory (Mezirow, 1978), and social consciousness theory (Freire, 1973/2005) are lenses through which to view these concepts.

This study analyzed Figure 1's proposed relationship between instructor-student rapport using the PSRS-B (Wilson & Ryan, 2013), student empowerment using the learner empowerment measure (Frymier et al., 1996), and critical consciousness (Freire 1973/2005). Specifically, it sought to understand the relationship between instructor-student rapport and student empowerment. The results of this study showing the statistically significant correlation between instructor-student rapport and student empowerment can offer instructors new ways of looking at the classroom environment and the potential impacts of building rapport with students.

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Appendix A

Instructor-Student Rapport and the Impact on Undergraduate Aviation Student Empowerment Survey

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This survey is for a research study to determine how instructor-student rapport empowers undergraduate aviation students. Your participation is voluntary and you can stop at any time. Your answers will be anonymous and will not affect your standing in any course. Please select one current class and academic instructor from your schedule. Please think about this class and instructor while answering all of the following questions.

Are you an undergraduate student in the School of Aviation at Auburn University?

Yes

No

Rapport. Please rate your level of agreement with each of the following statements. Use the scale Strongly Disagree to Strongly Agree when thinking about your selected instructor.

	1- Strongly Disagree	2- Disagree	3- Neither Agree nor Disagree	4- Agree	5- Strongly Agree
1. My instructor/professor encourages questions and comments from students.	O	O	O	O	O
2. I dislike my instructor/professor's class.	O	O	O	O	O
3. My instructor/professor makes class enjoyable.	O	O	O	O	O
4. I want to take other classes taught by my instructor/professor.	O	O	O	O	O
5. My instructor/professor's body language says "Don't bother me."	O	O	O	O	O
6. I really like to come to class.	O	O	O	O	O

Impact. Please rate how often you agree with each of the following statements. Use the scale Never to Very Often when thinking about your selected instructor.

	1- Never	2- Rarely	3- Sometimes	4- Often	5- Very often
1. I have the power to make a difference in how things are done in this class.	O	O	O	O	O
2. I have a choice in the methods I can use to perform my work.	O	O	O	O	O
3. My participation is important to the success of this class.	O	O	O	O	O
4. I have freedom to choose among options in this class.	O	O	O	O	O
5. I can make an impact on the way things are run in this class.	O	O	O	O	O
6. Alternative approaches to learning are encouraged in this class.	O	O	O	O	O
7. I have the opportunity to contribute to the learning of others in this class.	O	O	O	O	O
8. I have the opportunity to make important decisions in this class.	O	O	O	O	O
9. I cannot influence what happens in this class.	O	O	O	O	O
10. I have the power to create a supportive learning environment in this class.	O	O	O	O	O
11. My contribution to this class makes no difference.	O	O	O	O	O
12. I can determine how tasks can be performed.	O	O	O	O	O
13. I can make a difference in the learning that goes on in this class.	O	O	O	O	O
14. I have no freedom to choose in this class.	O	O	O	O	O

	1- Never	2- Rarely	3- Sometimes	4- Often	5- Very Often
15. I can influence the instructor.	O	O	O	O	O
16. I feel appreciated in this class.	O	O	O	O	O

Meaningfulness. Please rate how often you agree with each of the following statements. Use the scale Never to Very Often when thinking about your selected instructor.

	1- Never	2- Rarely	3- Sometimes	4- Often	5- Very Often
1. The tasks required of me in this class are personally meaningful.	O	O	O	O	O
2. I look forward to going to this class.	O	O	O	O	O
3. This class is exciting.	O	O	O	O	O
4. This class is boring.	O	O	O	O	O
5. This class is interesting.	O	O	O	O	O
6. The tasks required of me in this class are valuable to me.	O	O	O	O	O
7. The information in this class is useful.	O	O	O	O	O
8. This course will help me achieve my future goals.	O	O	O	O	O
9. The tasks required in this course are a waste of my time.	O	O	O	O	O
10. This class is not important to me.	O	O	O	O	O

Competence. Please rate how often you agree with the following statements. Use the scale Never to Very Often when thinking about your selected instructor.

	1- Never	2- Rarely	3- Sometimes	4- Often	5- Very Often
1. I feel confident that I can adequately perform my duties.	O	O	O	O	O
2. I feel intimidated by what is required of me in this class.	O	O	O	O	O
3. I possess the necessary skills to perform successfully in class.	O	O	O	O	O
4. I feel unable to do the work in this class.	O	O	O	O	O
5. I believe that I am capable of achieving my goals in this class.	O	O	O	O	O
6. I have faith in my ability to do well in this class.	O	O	O	O	O
7. I have the qualifications to succeed in this class.	O	O	O	O	O
8. I lack confidence in my ability to perform the tasks in this class.	O	O	O	O	O
9. I feel very competent in this class.	O	O	O	O	O

Which best describes your gender?

- O Male
- O Female
- O Non-binary / Self Identify _____
- O Prefer not to answer

What is your age? (Please enter integer numbers only) _____

Which best describes your ethnicity?

- O American Indian/Alaska Native
- O Asian
- O Black/African American
- O Hispanic/Latino/Spanish
- O Middle Eastern/North African
- O Pacific Islander/Native Hawaiian
- O White/Caucasian
- O Two or more
- O Other/Unknown
- O Prefer not to answer

What is your current grade in the course you chose for this survey? _____

What is your current overall GPA? _____

Which Aviation Department is your program of study in?

- O Professional Flight
- O Aviation Management
- O Other

To be entered into the Amazon digital gift card random drawing, please enter your email address (this information will NOT be used to identify your answers).

Appendix B

Information Letter

(NOTE: DO NOT AGREE TO PARTICIPATE UNLESS IRB APPROVAL INFORMATION WITH CURRENT DATES HAS BEEN ADDED TO THIS DOCUMENT.)

INFORMATION LETTER

For a Research Study Entitled
"Instructor-Student Rapport and the Impact on Undergraduate Aviation Student Empowerment"

You are invited to participate in a research study to provide insight into instructor-student rapport and empowerment in undergraduate aviation students. The study is being conducted by Rebecca Baughman, a doctoral candidate in the Department of Educational Foundations, Leadership, and Technology within the College of Education and advised by Dr. James Witte, Director of School of Aviation. You are invited to participate because you are an undergraduate aviation student and at least 18 years of age at Auburn University.

What will be involved if you participate? Your participation is completely voluntary. If you decide to participate in this research study, you will be asked to complete an electronic survey in Qualtrics with your demographic information and answer questions about your experiences with an instructor. Your total time commitment will be approximately 10 minutes.

Are there any risks or discomforts? There are no anticipated risks or discomforts associated with taking this survey. At any time during the survey, you may choose to stop completing the survey by closing your browser. To minimize any risks, all information will remain anonymous.

Are there any benefits to yourself or others? If you participate in this study, you can expect to contribute to a working body of knowledge that can be used to benefit students. We cannot promise you that you will receive any or all of the benefits described.

Will you receive compensation for participating? To thank you for your time, you will be offered the opportunity to enter a giveaway for $10 Amazon gift cards at the end of this survey. Entering the giveaway will require you to enter your email in order to be contacted if you are selected as a winner. Your email will not be associated with any of the answers you provide during the survey. There is no guarantee that you will receive any of the benefits described. Your chance of winning a gift card is approximately 1 out of 10, where approximately 10% of completed surveys will receive a gift card.

Are there any costs? If you decide to participate, there are no costs to you other than the estimated 10 minutes required to complete the survey.

If you change your mind about participating, you can withdraw at any time by closing your browser window. Once you have submitted anonymous data, it cannot be withdrawn since it will be unidentifiable. Your decision about whether or not to participate or to stop participating will not jeopardize your future relations with Auburn University.

Your privacy will be protected. Any information obtained in connection with this study will remain anonymous. We will protect your privacy and the data you provide by removing any identifiable private information. Information collected through your participation may be used to fulfill an educational requirement and could be used for future research studies, presentations at academic conferences, publication in academic journals, or distributed to another investigator for future research studies without additional informed consent from the subject or legally authorized representative.

If you have questions about this study, please contact Rebecca Baughman at (334)-844-1942 or Dr. James Witte at (334) 844-1905.

If you have questions about your rights as a research participant, you may contact the Auburn University Office of Research and Compliance or the Institutional Review Board by phone (334)-844-5966 or e-mail at IRBadmin@auburn.edu or IRBChair@auburn.edu.

HAVING READ THIS INFORMATION, PLEASE DECIDE IF YOU WISH TO PARTICIPATE IN THIS RESEARCH PROJECT. IF YOU DECIDE TO PARTICIPATE, PLEASE CLICK ON THE LINK BELOW. YOU MAY PRINT A COPY OF THIS LETTER TO KEEP.

The Auburn University Institutional Review Board has approved this document for use from _____ to _____. Protocol #_____

LINK TO SURVEY

The Auburn University Institutional Review Board has approved this Document for use from
02/16/2023 to ----------
Protocol # 23-079 EX 2302

Appendix C

E-Mail Invitation for On-line Survey

Hello,

I am a doctoral candidate in the Department of Educational Foundations, Leadership, and Technology within the College of Education at Auburn University, advised by Dr. James Witte, Director of School of Aviation. I would like to invite you to participate in my research study entitled "Instructor-Student Rapport and the Impact on Undergraduate Aviation Student Empowerment." You may participate if you are an undergraduate student in the School of Aviation, and at least 18 years of age, at Auburn University.

Your participation is completely voluntary. If you decide to participate in this research study, you will be asked to complete an electronic survey in Qualtrics with your demographic information and answer questions about your experiences with a chosen instructor. Your total time commitment will be approximately 10 minutes.

There are no anticipated risks or discomforts associated with taking this survey. At any time during the survey, you may choose to stop completing the survey by closing your browser. To minimize any risks, all information will remain anonymous.

To thank you for your time, you will be offered the opportunity to enter a giveaway for a digital $10 Amazon gift card at the end of this survey. Entering the giveaway will require you to enter your email in order to be contacted if you are randomly selected as a winner. Your email will not be associated with any of the answers you provide during the survey. There is no guarantee you will receive any of the benefits described. Your chance of winning a $10 gift card is approximately 1 out of 10, where approximately 10% of completed surveys will receive a gift card.

If you participate in this study, you can expect to contribute to a working body of knowledge that can be used to benefit students. Information collected through your participation may be used to fulfill an educational requirement and could be used for future research studies, presentations at academic conferences, publication in academic journals, or distributed to another investigator for future research studies without additional informed consent from the subject or legally authorized representative.

If you would like to know more information about this study, an information letter can be obtained by emailing me at rlb0066@auburn.edu.

You can access the survey using the link below.

If you have any questions, please contact me at 334-844-1942 or my advisor, Dr. James Witte, at 334-844-5966.

Thank you for your consideration,

Rebecca Baughman

LINK TO SURVEY

The Auburn University Institutional Review Board has approved this Document for use from 02/16/2023 to ---------- Protocol # 23-079 EX 2302

Appendix D

Reminder E-Mail Invitation for On-line Survey

REMINDER E-MAIL INVITATION FOR ON-LINE SURVEY

Hello,

If you have already completed the survey, please disregard this message. If you have not already completed this survey in Qualtrics, I am requesting your participation in my research. As a reminder, you can choose to enter a giveaway for a $10 Amazon gift card at the end of the survey, where your chances of winning are approximately 1 out of 10.

I am a doctoral candidate in the Department of Educational Foundations, Leadership, and Technology within the College of Education at Auburn University, advised by Dr. James Witte, Director of School of Aviation. I would like to invite you to participate in my research study entitled "Instructor-Student Rapport and the Impact on Undergraduate Aviation Student Empowerment." You may participate if you are an undergraduate student in the School of Aviation, and at least 18 years of age, at Auburn University.

Your participation is completely voluntary. If you decide to participate in this research study, you will be asked to complete an electronic survey in Qualtrics with your demographic information and answer questions about your experiences with a chosen instructor. Your total time commitment will be approximately 10 minutes.

There are no anticipated risks or discomforts associated with taking this survey. At any time during the survey, you may choose to stop completing the survey by closing your browser. To minimize any risks, all information will remain anonymous.

To thank you for your time, you will be offered the opportunity to enter a giveaway for a digital $10 Amazon gift card at the end of this survey. Entering the giveaway will require you to enter your email in order to be contacted if you are randomly selected as a winner. Your email will not be associated with any of the answers you provide during the survey. There is no guarantee you will receive any of the benefits described. Your chance of winning a $10 gift card is approximately 1 out of 10, where approximately 10% of completed surveys will receive a gift card.

If you participate in this study, you can expect to contribute to a working body of knowledge that can be used to benefit students. Information collected through your participation may be used to fulfill an educational requirement and could be used for future research studies, presentations at academic conferences, publication in academic journals, or distributed to another investigator for future research studies without additional informed consent from the subject or legally authorized representative.

If you would like to know more information about this study, an information letter can be obtained by emailing me at rlb0066@auburn.edu.

You can access the survey using the link below.

If you have any questions, please contact me at 334-844-1942 or my advisor, Dr. James Witte, at 334-844-5966.

Thank you for your consideration,

Rebecca Baughman

LINK TO SURVEY