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Transferable Skills from Faculty to Students through a Community of Practice

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by

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To Trish Harvey: Thank you for your unwithering support not just as my chair but as a faculty member in this program. Without your support I probably would not have finished. Thank you for always checking in on me, positive outlooks, laughs and being the pusher I need to achieve this hat.

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To my family: Thank you for being there for me. I am now done with school (at least for now!).

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CHAPTER ONE

Introduction

Chapter Overview

The purpose of this chapter is to explain the background and significance of the research questions, why this work between engineering and nursing is similar in nature, and to describe my relationship to the topic. Limitations on the subject matter are addressed as there needs to be more research on this area of study. Finally, the chapter explores how this dissertation contributes to the educational engineering field and how I hope my research impacts the faculty and students in a humanistic way.

Background of the Problem

Less than 40% of students who enter a university have an interest in obtaining a STEM degree, and just 20% of STEM-interested are from underrepresented minority groups (Freeman et al, 2014). Low-quality instruction is one of the main causes for poor student retention despite many professional development programs focusing on different educational practices and strategies (Gehrke & Kezar, 2017). The National Science Board (2018) has stated that over a quarter of students (26.7%) who enrolled in national sciences and engineering majors switched to social and behavioral science or other non-STEM majors within two years of declaring the major. However, many incoming new faculty members to these STEM professional fields have barely, if any, pedagogical preparation (Baiduc, Linsenmeier & Ruggeri, 2016; Gehrke & Kezar; 2017; Prevost et al., 2018). The lack of pedagogical preparedness is a problem discipline-wide within higher education. Especially those of education theories and strategies for how to teach

an effective curriculum since this seems to be an ongoing problem for many faculty members (Gehrke & Kezar, 2017).

Engineering education has not emphasized the best practices that faculty members should be taught before becoming professional educators, “Engineering education has focused on instructional behaviors rather than on the practical aspects of education” (Young-Brice et al., 2022, p. 2). Increasing the care of the patients to prepare graduate nurses to use a humanizing approach in their real world work environment is commonly known as the Caring Science approach in nursing education. “The humanistic approach acknowledges the importance of the affective side of teaching and learning” (Young-Brice et al., 2022, p. 3). The connection between Caring Science’s way of being that is taught in nursing education has yet to be connected to engineering education according to a national funded grant in 2022. The grant proposed that with the faculty members learning more about the learning theories that the beliefs and behaviors of the faculty member would change holistically towards the students-faculty relationship.

To address this problem, the National Science Foundation has granted a study to help connect the nursing caring science theory to the engineering educational human-centered design framework. The grant is the only grant of its kind doing this work in the country. The nationally funded grant proposed a model to take humanizing education, grounded in the Caring Science from nursing education, and incorporate it into engineering education through the use of a community of practice framework.

Caring Science forms a theoretical foundation to inform nursing education. Caring Science informed a human-educative caring framework that assumes the curriculum is about the reciprocal nature, where the intent to learn comes from

interactions and transactions between faculty and learners (Hills & Watson, 2011, p. 4) "Human Science paradigm requires a shift in thinking, being, and doing that holds people and our humanity at the center of our educational practice" (Cara et al., 2021, p. 12). Caring Science is the grounded theory in nursing education but these same teaching-learning processes can be seen through human-centered design processes in engineering. Both nurses and engineers use these frameworks in their real life jobs to ensure that their clients are in the center of every decision. Human Centered Design (HCD) is a creative approach in engineering that approaches problem solving with people at the center. "Human-centered design is about cultivating deep empathy with people you're designing with" (IDEO, 2023 IDEO.com). Therefore Human Science and HCD have humanity at the center of both of their processes.

The grants' asynchronous self-paced online content and the in-person community of practice will instruct engineering faculty using human-centered design theory with more broadly educational theory. These theories include metacognitive, constructivism and behaviorism to name a few. The grant hopes to "address the lack of educational theory, humanizing the students' experiences in the classroom and creating faculty with more understanding of pedagogical theories" (Young-Brice et al., 2022, p. 3). Embracing the skills from a community of practice to transfer them into the classroom through a student-faculty relationship is something that this dissertation is addressing.

Some anticipated outcomes of the grant were to allow faculty to internally reflect on their teaching practices and how to incorporate them into a self-paced course using the community of practice framework. My research design is to look at the students in some of their faculty member's classrooms and see if there has been a change in their faculty

since going through this grant-funded community of practice. My goal is to help the grant by looking at the impact of the students in the in-person faculty members' classroom and their perspectives of the faculty by allowing them to speak about their interactions with the faculty.

The research design I used was a mixed method in a convergent parallel design exploring the tools and techniques learned from the grant community of practice faculty members to transfer to the students in their classrooms. A convergent parallel design according to Creswell (2014) “is a form in which the researcher mergers quantitative and qualitative data in order to provide a comprehensive analysis of of the research problem” (p. 15) This design would allow the faculty participating in the community of practice will then be able to transfer their knowledge and learning to the classroom settings allowing their relationships with students to deepen into a more partnership relationship. This research may not expand the relationship between faculty and students. However, it can actively challenge the status quo of engineering faculty not seeing their students' as humans.

Therefore the motivation of this dissertation is to contribute to a conversation among scholars in nursing and engineering that urges a connection between the Caring Science and HCD supports both disciplines. Currently in engineering classrooms, the students are treated as more of seat warmers without their own individual selves but more a means to an end for faculty members as observed by me. Many times I have noticed the classroom looks like those of the 1920’s where the faculty will lecture and the students are supposed to be non-emotional beings. Caring Science in the nursing classrooms identifies the students as the main participants of the classroom (Watson, 1998) The

faculty tends to co-create the student-faculty relationship with the students. While numerous researchers are and have been exploring the ideas of caring science for some time, only a few choose to research human-centered design theory in engineering courses. The main question that drives my research is

- How does an in-person community of practice influence faculty and student classroom interactions?

Some secondary questions in this study are:

- How are the skills and strategies taught in the community of practice transferable to the classroom?
- What are the most significant changes, if any, in student-faculty relationships after engineering faculty participate in a community of practice training?

My Background

As an instructional designer at a higher educational institution with a degree in education, I was approached to help with the online asynchronous format for the grant's community of practice. My job is to create and oversee the online content for those unable to come to campus. After getting a better understanding of what the grant was trying to do, humanizing faculty to understand how they can have a better relationship with the students and the curriculum, it becomes important that my dissertations focus on the transferable skills from the community of practice (in-person) session to the students in the classroom. When obtaining my teaching degree, it was always pressed upon us that the relationship between faculty and students is essential for learning in the classroom. Assuming that every faculty from K-12 to higher education knows the importance of

caring for their students and building that relationship was not something I did not know was not happening.

Talking with faculty is part of my job as an instructional designer to determine the disconnect between students and the learning management system Desire to Learn (D2L). Many faculty have expressed that they use D2L, and the students have not complained about the setup of the course. However, when speaking with the students, it was the opposite; they needed to appreciate how some faculty were using the D2L. This aspect of not hearing the students or the faculty not allowing feedback is the main reason the dissertation focuses on the students. Do the faculty take what they are getting taught in the community of practice and implement it in their curriculum, relationships, and classroom?

Conceptual Framework

The community of practice (CoP) framework provides a conceptual lens for this convergent parallel design study of the transferable skills of holistically looking at the students as being more humanly learned in the CoP to the classroom, often missing in student-faculty relationships. This convergent parallel design study explored the transferable skills from faculty to students through the CoP framework to better understand how the CoP framework supported the transition of skills from master to apprentice and contributed to the facilitation of student-faculty relationships.

CoPs are a “learning partnership among people who find it useful to learn from and with each other about a particular domain” (Wenger et al., 2011, p. 9). Members within a CoP use each others’ experiences and knowledge to make sense of and address the challenges they face in their community. For a group to be considered a community of

practice, they must follow the three central factors that were developed by Wenger (1998). The first factor is that members must work together in shared conditions; second, the community achieves its tasks through working together, and three community members serve as a resource to each other (Wenger, 1998). Having a community working together, members develop the community's operational practices. These practices, such as policies, procedures, or community artifacts, can be explicitly developed or suggested as developing common perceptions, underlying assumptions, or interpretations (Wenger, 1998). These practices carry members moving from novices to experts within the community.

Sharing knowledge and experiences come together in a community of practice through legitimate peripheral participation (LPP) (Lave & Wenger, 1991). LPP is an adaptive structure where learning can take place. Lave and Wenger (1991) claimed that LPP is a way to describe the integration of learning within social practice. LPP happens when "learners inevitably participate in a community of practitioners" (Lave & Wenger, 1991, p. 29). The participation allows group members to immerse themselves in experiences of practice without taking on the full responsibility of experts in the field. As novices experience what it means to be community members, they slowly move towards full participation in a sociocultural context to gain expert knowledge and skills within the community of practice. Lave and Wenger (1991) argued that learning and social practice were inseparable, and LPP was a critical condition both for learning itself and for defining the specific content to be learned. Many traditional views of learning are associated with traditional schooling; Lave and Wenger (1991) stated that learning could be examined on a larger scale when viewed as LPP and not constructed with social

institutions. Lave and Wenger (1991) acquired this idea of LPP from examining the apprenticeships of tailors in Libera who became experts in their trade despite their lack of formalized education.

Lave and Wenger (1991) described learning as a theory that learners, activities, and surroundings must work in tandem for the learning to occur. They further stated that this learning occurs due to legitimate peripheral participation, or LPP. Members immerse themselves within a community and participate in its practice during this process. LPP often occurs within a CoP, within a group learning environment, in which members share a common purpose, work together to accomplish a task, and serve as resources for one another. A CoP facilitates learning for its members through the LPP as members gain new understandings, allowing them to move closer to being an expert in the community.

The community of practices is often changing. Therefore, it is difficult to argue that a novice moves to experts by learning solely from one individual, like with the apprenticeship example. Lave and Wenger (1991) argued that "mastery resides not in the master but in the organization of the community of practice of which the master is part" (p. 94). This means that novice faculty could not learn from listening to or working with one expert but learn from partaking in the activities of a CoP. CoPs provide a flexible framework that suits not only education but a variety of contexts, including business, government, and organizational designs.

Assumptions and Bias

Many higher education faculty graduate with little to no pedagogical preparation (Gehrke & Kezar, 2017; Jensen, 2011; Prevost et al., 2018). After being an instructional designer not just for engineering but for a whole college, I can attest to having to teach

faculty members the best pedagogical practices. Many faculty that come in for help are great at knowing their content however they arrive with little to no educational pedagogical training. This researcher assumes that faculty of the community of practice will only be doing this program because their department chairs have told them to or they were asked by their colleague to participate in the study.

There is a continued need to undertake a critical lens on the relationship between faculty and students in pedagogical approaches. These relationships can be influential for the students to learn the subject areas but also for the faculty to know and understand their own teaching abilities. In doing this research, I plan to expand the need for this approach in engineering curricula and classrooms.

Given that this research comes from my close connection with the grant and individual faculty, my bias comes from what the connection between me and some of the engineering faculty has already established. I am, however, neutral toward the students in this study since I have no real connection to them or previous knowledge of having certain faculty members. More to the point, my work with the faculty, not including those in engineering, has motivated me to try and not let those perspectives come between me and the research.

There are other elements that I have to identify first. Many of my previous experiences in education have left me feeling like there is no change for any higher education faculty and the need to establish connections with students. In these situations, it is more about me knowing how much to push the faculty into accepting a different perspective. My work with online courses allows me to see how vulnerable engineering faculty members are to trying different aspects of teaching. Many of the faculty do not

want to explore different options because they are also afraid of the failure of the students and themselves.

Significance

A primary objective of this research was to analyze if faculty participation in the community of practice transferred knowledge to their own classroom and to find out from the students if the relationships with the faculty have improved. Since many faculty members are from different educational backgrounds, it was imperative to see if the students could note any improvement and if the faculty could transfer what they learned.

This research is a new aspect of engineering education since we are looking at humanizing the curriculum and relationships with the students. Nursing faculty learned about humanizing nursing education through their context of nursing itself and their own professional development, and allowing this practice to be transferred over to engineering allows the study to show that having a relationship with students increases their community and that they need to fit into the engineering programs. Students being in the middle of decisions will allow the faculty member to think about the curriculum and whom they are teaching and ultimately put out in the workforce.

The reason for this study for me is because it was interesting to note that while the faculty members are taking these workshops to help better their teaching, I kept wondering about the students and if they are noticing a difference. Many workshops include looking at the faculty as their primary research topic however very few look at the impact of students. Students for this study would be a primary example to note if the faculty is transferring the knowledge or practices they receive in the CoP to the students

or if they actually need these workshops. Having to interact and see about the relationships from a student perspective is what drives me to do this dissertation.

Definitions

Throughout the review of the research literature for this study, I used and encountered various terms that may be interpreted differently depending on the context or experience of the reader. To clarify within the context of this dissertation, my working definitions are as follows.

Human-Centered Design (HCD): According to Landry (2020), HCD is a problem-solving technique that puts real people at the center of the development process, enabling you to create products and services that resonate and are tailored to your audience's needs (p. 1). HCD has four stages in order to complete the design process, first is to clarify, second is to ideate, third is to develop, and fourth is to implement.

Humanistic: This dissertation will use humanistic theory to connect the community of practice and the relationships with the students. Humanistic theory for this dissertation is a perspective that emphasizes looking at the whole person and the uniqueness of each individual.

Caring Science: "Caring Science is a transformative theory-guided practice of human caring and love has been influential in the promotion of nursing excellence and professional leadership" (Watson, 1989, p. 30)

Educational theory: For this dissertation, educational theory will be defined as a study area that seeks to understand how people learn, how people apply what they have learned, and how to improve the efficiency of educational programs.

Conclusion

Following this chapter, a review of relevant literature outlines central ideas with the humanistic and Caring theories, how they will tie into engineering education, and the theoretical framework that grounds my research. Chapter three details the methodology, including a rationale for the convergent parallel research design inspired by the National Science Foundation grant. Chapter four explores the major themes that came about from my research. Chapter five presents the finding and discussion of ethos findings. It will also explore my connection to the work and the limitations of the research design. The chapter will conclude with an eye toward future research and unanswered questions during this study.

CHAPTER TWO

Literature Review

Chapter Overview

This chapter outlines the framework for my primary and secondary research questions and aligns with the relevant academic literature. As a reminder, my primary research question is:

- How does an in-person community of practice influence faculty and student classroom interactions?

The secondary questions in this study are:

- Are the skills and strategies taught in the community of practice transferable to the classroom?
- What are the most significant changes, if any, in student-faculty relationships after engineering faculty participate in a community of practice training?

This dissertation explores themes that are not yet explored in literature. Therefore the literature review will take a look at different aspects to weave together where there is a gap. The gap that this literature review is trying to explore are the themes regarding the intersection between caring science, engineering education and student-teacher relationships. The themes that are explored weave together the overlap in this topic area to help answer the dissertation question.

The following sections provide a review of the literature to review my research—first, a brief history of caring science, the connection to human-centered design theory (humanistic) and the student-faculty relationship in general higher education classrooms. Next, I evaluate engineering education and how throughout the

history of engineering education there has been a push factor to have faculty become not just have the content but also have the pedagogy behind teaching. There will also be a brief history of engineering education throughout the country since this school is starting this educational process here. Lastly, I discuss learning in a community of practice for the faculty and how it aligns with professional development.

Caring Science History

Nursing has centered around the concept of caring since Florence Nightingale established the profession of nursing in 1859. Nightingale's (1859) nursing establishment was structured to benefit patient recovery as a caring-healing model. During Jean Watson's 1975-1979 engagement in teaching at the University of Colorado, Watson began the journey for her theory of human caring. For many nurses Jean Watson was the first nursing philosopher to create the caring science theory behind making patients the center of care. "It was my initial attempt to bring meaning and focus to nursing as an emerging discipline and distinct health profession with its own unique values, knowledge, and practices" (Watson's Caring Science & Theory, 2023, p. 1). Watson emphasized that to practice caring science in the way she designed it, one has to truly experience the model both in reading, studying, and learning and interact with the ideas (Watson's Caring Science & Theory, 2023).

In 1985, Jean Watson emphasized the caring ideal in her report that caring is a moral essential for nursing that enhances and preserves human dignity (p. 3). Some other nursing theorists have described caring as the core or essence of nursing, and this concept of caring has had a "profound influence on nursing philosophy, education, and research" (Morse et al., 1990, p. 1). Watson (1985, 1989, 1999) and Swanson (1991, 1999) have

been writing about caring literature for years and they are some of the most well-known nursing authors regarding caring. In 1979, Watson published her first book, *Nursing: The Philosophy and Science of Caring,* and continued to write about her theory of caring. She stated, “Nurses can help preserve humans by practicing, researching, and educating from a caring perspective” (Watson, 1985, p. 6). Therefore the theory of human caring is based on the fact that DNA does not transmit a caring attitude but instead depends on the profession's culture.

In 1991, Dr. Kristen Swanson refined Watson’s theory by creating a broad definition of caring. Swanson (1991) defined caring as “a nurturing way of relating to a value toward whom one feels a personal sense of commitment and responsibility” (p. 165). Dr. Madeleine Leininger (1993), another nursing theorist, wrote about caring as necessary for human growth and development. However, she went on to say that caring as a nurse must be culturally sensitive, meaning that the individual’s culture defines nursing care.

Watson (1989) proposed a philosophy of caring that includes ten curative factors that nurses can use with patients to restore and promote health. She believed the causative factors would cause positive change and promote health in both the patient and the nurse. Watson (1989) described the nurse’s role as both expressive and instrumental, meaning that the expressive role is the human-to-human connectedness, and the instrumental role is when the nurse acts professionally to promote health.

These ten curative factors include:

> Forming a humanistic-altruistic value system, installing faith-hope, cultivating a sensitivity to self and others, developing a helping-trusting relationship, using

problem-solving for decision-making, promoting teaching-learning, and promoting a supportive environment.

These curative factors also align with the human-centered design approach that some engineers use while developing their designs. Caring science helps inform my study since this was the base on which the collaboration between engineers and nursing approach their students in the classroom. Human-Centered Design has four design stages to ensure that the development of the design comes from a humanistic approach. These four phases include inspiration, ideation, implementation and validation, all of these phases but the stakeholder as the center catalyst for the design. When comparing the HCD stages and the caring science researchers have started to notice similarities.

Human-Centered Design

Human-Centered Design, like most theories, can be defined in many different ways. Dym et al. (2005) defined design as a systematic, intelligent process in which designers generate and evaluate concepts for devices or systems whose forms and functions achieve the stakeholder's objectives while satisfying constraints. Walton (1991) defined it "as the art of applying the scientific theory and principles to the efficient conversion of natural resources for the benefit of humans to satisfy perceived needs and desires" (p. 24). Jonassen (2000) also developed a classification system of problem-solving tasks that can be used to determine the type of cognitive processes it might engage. Design, in addition, has been characterized by many different design process models (Bennett, 2006; Ullman, 2003).

Given the vast definitions and models of design, it is not surprising that human-centered design has also been defined in various definitions and models.

Examples of these different design models, all of which are classified as "human-centered," include user-centered, participatory, inclusive, active, and client-centered designs, to name a few. One definition of human-centered design was given by IDEO (2015):

> Human-centered design (HCD) is a unique approach to problem solving, one that can occasionally feel more like madness than method–but you rarely get new and innovative solutions if you always know precisely where you're going. The process is designed to get you to learn directly from people, open yourself up to a breadth of creative possibilities, and then zero in on what is most desirable, feasible, and viable for people you're designing for. But because the goal is to have a big impact in the world, we have to then identify what, among that constellation of ideas, has the best shot at really working. You'll diverge and converge a few times, and with each new cycle you'll come closer and closer to a market ready solution. (p. 13)

Krippendroff (2006) described human-centered design methods that all share three features. The first feature they design methods; the second, they are concerned with how stakeholders attribute meanings; and finally, the third, they design proposals empirically testable (p. 230). Krippendorff's (2006) methods might appear evident if they have design experience. However, these human-centered design methods are essential when considering how students experience and understand human-centered design. In this study, I will be defining human-centered design as the process in which the students are the center of the course and how the faculty member designs the course with the idea that the stakeholders are the students.

Human-Centered Design Process

Krippendorff (2006) explained that while user-centered and human-centered design are often referred to as the same design models, user-centered design focuses on the product's end-user. In contrast, human-centered design focuses on the stakeholders more broadly than the stereotypical user. The human-centered design methods are based on ISO (International Standards Organization) 13407 which is a standard established by the ISO for how user research should be involved in designing products (IDEO, 2023 IDEO.com)

IDEO's (2015) human-centered design process has three main phases: inspiration, ideation and implementation. IDEO is credited with inventing the term design thinking and its practices. Starting in 1978 IDEO began practicing human-centered design, evolving into using design thinking to describe the elements of the practice to their users. (IDEO, 2023 IDEO.com) These phases would be expanded later to include the validation phase of the design process. The goal of the inspiration phase is to research and understand the needs of the stakeholders in which they are designing their product. The ideation phase includes brainstorming the solution and making a prototype. The implementation phase delivers the completed work to the stakeholders. After IDEO's (2015) process, the fourth phase is the validation phase, where the product is tested with real users.

Many different ways and processes, from the hearing phase to the creation phase, focus on the stakeholders. IDEO (2015) suggested two different methods for the design process: participatory and empathic. Participatory design is where the team co-designs solutions with people in the community for their real-life problems (IDEO, 2015).

Empathic design is designing the product from the user's perspective and doing things that make the team feel and understand what their stakeholders are experiencing (IDEO, 2015).

Inclusive design is another method for design work; however, this is created by user-centered design (Clarkson et al., 2003; Keates & Clarkson, 2003). Inclusive design aims to allow the most significant number of people to use the designed product and does not exclude people from using it unnecessarily (Keates & Clarkson, 2003). There are two ways in which the engineer can approach this method, top-down or bottom-up. Top-down takes the design with the users with the least ability and extends it to the broader population, or bottom-up takes the design for a general population and removes exclusionary aspects to make it more accessible to a larger audience (Clarkson et al., 2003). The strength of this approach is that it considers all users when implementing a design

Human-centered design and empathic and inclusive design are where the intersection between caring science and this method align. Similar to caring science where the nurse has empathy with their patients, the engineers have empathy with the stakeholder in the design process. Like caring science and inclusive design, nurses and engineers must consider the best course of action for all populations. Caring science and human-centered design are both people-facing methods that are similar. If we were to incorporate this into the classroom, nursing faculty use caring science to help build a relationship with their patients and students, whereas engineers use empathy for their relationship building with stakeholders and students alike. Human-centered design can

also be impacted by will also affect the student-teacher relationship within a classroom since the student is the main stakeholder in that course.

Student-Faculty Relationship

What is taught and how it is taught influences students' performance and learning in the classroom. In a positive faculty-student relationship, Payne (2005) stated, "emotional deposits are made to the student, emotional withdrawals are avoided, and students are respected" (p. 111). Historically, Moos (1979) and Goodenow (1993) suggested that faculty who show personal involvement with students show those students that they are respected. These feelings of respect motivate and engage students toward increased positive productivity and academic achievement (Rimm-Kaufman & Sandilos, 2010).

The research continues to stress the importance of teaching, caring for their students, and believing that these students can learn and hold high standards (Rimm-Kaufman & Sandilos, 2010). According to Payne (2005), "Relationships begin from one individual to another. First in all relationships with students is the relationship between each faculty and student, then between each student and each administrator, and finally among all those players, including student-to-student relationships" (p. 111). The relationship between a faculty member and a student is a fundamental practice upon which learning is learned. Some students' success and failure in a course rely on the likeability of their faculty. Kohn (2006) suggested that most students do not fail due to their cognitive abilities but because they feel unwelcome, detached, or alienated from the educational community. Senge (1990) stated, "When people genuinely care, they are actively committed. They persevere, even in the face of frustration and setbacks, because

what they are doing is what they must do" (p. 148). Relationships foster achievement, autonomy, and altruism, which leads the students to become more curious, self-directed, and empathic (Brendro et al., 1990; Tomlinson & Eidson, 2003). Tomlinson and Eidson (2003) also suggested that faculty expectations can be compelling and influence a student's attitudes and actions, leading to their success or failure in the classroom.

Starting in 1970, Brophy and Good asserted that many faculty treat students differently based on preliminary perceptions and expectations. Students pick up on these perceptions, which can affect their motivation toward learning, their behavior in the classroom, and, more importantly, the relationship between faculty and students could become strained (Brophy & Good, 1970). Therefore, faculty order better performance from students with higher expectations and less from those they see to be less competent. Smey-Richardman (1988) similarly explained that students for whom faculty have low expectations have fewer opportunities to interact and participate in classroom activities.

Positive individual relationships between faculty and students are a basic foundation for successful education performance. According to Borba (1989), "We all need to feel a sense of connectedness to another human being – particularly to those whom we consider to be important and significant" (p. 163). Therefore, students must feel comfortable in the learning environment, if they are going to learn or achieve higher standards. Culture in a classroom has been shown to help enhance student performance where the instruction given is challenging. Students who feel challenged are less likely to be bored or disengage with the material (Borba, 1989). Caring for students is another importance in the relationship between faculty and students. The characteristics of caring go well beyond knowing the students to include patience, trust, honesty, and courage

(Stronge, 2002). Stronge (2002) suggested that praising students, reinforcing positive behaviors, and establishing trust helps to build caring and respectful faculty-student relationships. Student-faculty relationships are the pinnacle for students to flourish and succeed in higher education. In order for students to feel that relationship faculty have to practice pedagogical teaching techniques and human-centered design. In order for the faculty to build this relationship they need to be an effective faculty member for their courses.

Faculty Effectiveness

Developing a positive and supportive relationship with the students is essential, but to fully achieve academic outcomes faculty must demonstrate effective pedagogy. Successful faculty who know their students not only know their learning styles and needs but also their personalities might affect performance in the classroom (Stronge, 2002). Effective faculty are not just good with their knowledge of the subject; they work to understand their students' personalities and needs and develop and maintain a positive, supported relationship (Good & Brophy, 2007; Larrivee, 2008). Awareness of the differences between students and identifying these differences helps faculty become more effective (Marzano, 2003).

Faculty who prepare a positive classroom environment for their students by ensuring clear routines, procedures, and expectations allow students to have respect and trust in their faculty members (Stronge & Hindman, 2006). Marzano (2003) warned that ineffective faculty might impede their students' learning. One study in Dallas, TX in the 1990s showed that students assigned to effective teachers for three years in a row scored 49 percentile higher on state standardized reading tests than children assigned to three

ineffective teachers in a row (Sanders & Rivers, 1996). Effective faculty are described within the literature with words such as idea, dutiful, competent, expert, flexible, reflective, and diversity-responsible (Tichenor & Tichenor, 2005). However, they are also described as caring, fair, respective, and dedicated individuals with a sense of humor who interact with students (Cruickshank & Haefele, 2001). Effective faculty do not just see the academics of the classroom but also see their students as human beings with their unique personalities and learning styles. Faculty effectiveness is an important aspect to the student-faculty relationship however students also have to have the motivation in the courses in order to succeed at the content and school overall.

Student Motivation

The start of school has students excited to learn new and exciting things; however, after a few short years, the excitement often falls victim to lack of interest (Steinmayr et al., 2019). The value of school then gets drawn into question since school becomes less and less "fun" the longer and higher students get into school. American high school students in a 2020 survey stated that they often feel stressed and bored while in school (Moeller et al., 2020). Research demonstrates that motivation decreases as students progress from elementary through secondary grades (9-12) (Harter, 1981; Gottfried et al., 2001; Lepper et al., 2005; Otis et al., 2005). Jackson and Davis (2000) suggested that student motivation and engagement are more comparable with the relationship between student and school. Stronge and Hindman (2006) added that a high level of this motivation and excitement for learning comes from a faculty that expresses high levels of motivation and achievement in their students. While faculty cannot understand all their students' problems, good communication relationships can allow the faculty to acquire

enough information to assist and motivate those struggling students (Stronge & Hindman, 2006). Successful faculty effectively strive to motivate students to want to learn and achieve.

Research has shown that academic achievement and student behavior are influenced by the quality of the faculty and student relationship (Agyekum, 2019). The relationship between students and faculty can positively impact the student's motivation and respect for that faculty. Students motivated to learn typically enjoy increased academic achievement (Marzano, 2003; Shalaway, 1989). When a successful faculty makes the classroom environment engaging, and students are meaningfully engaged in challenging learning opportunities and experiencing success, learning increases, and misbehavior decreases (Agykum, 2019; Danielson, 2002; Stronge, 2002). Through inappropriate behavior or withdrawal, students lack educational success within their learning environments (Rimm-Kaufman & Sandilos, 2010).

Student motivation should be at the forefront of the success of students. Faculty can also help motivate students to be successful students in higher education. "Faculty can effectively motivate most students by encouraging them to be responsible for their learning, maintaining an organized classroom environment, setting high standards, assigning challenging tasks, and providing reinforcement and encouragement during said tasks" (Stronge, 2002, p. 18). Faculty can and should bring out motivation by selecting activities that students will want to participate in because they are interested in the content or the students just enjoy the tasks. The research shows four categories of motivation, though some could be intertwined. These four categories are (1) the *pleasure* the student experiences in the lesson of a subject; (2) the *relevance* of the subject; (3) the

confidence student has in learning and achieving for the subject; and (4) the *effort* the student puts in or interest they have for the subject (den Brok et al., 2005, p. 21). These four categories can help the students become more motivated within the classroom.

Students may need to realize the influence of their own efforts on having school's success. Reinforcing effort can help teach students a valuable lesson – the harder you try, the more you can succeed. Marzano et al. (2001) stated that similar to the valuable lesson, providing recognition for accomplishing specific goals increases achievement and energizes motivation. Students are highly motivated to achieve more, are better behaved, and are optimistic about themselves and others. These students are also creative, couscous, and confident (Agyekum, 2019; Shalaway, 1989; Sornson, 2001). Student motivation is one of the most important aspects of allowing students to succeed in higher education faculty feedback is also another aspect that helps student-faculty relationships.

Faculty Feedback

One of the more effective strategies to help increase student achievement and student motivation is for the faculty member to promptly provide helpful feedback on how well students are doing (Yarborough & Fedesco, 2020). Feedback can also allow for the student-faculty relationship to flourish as it builds a connection between students and faculty members. As Brookhart (2008) suggested, "Feedback to a student says, 'somebody cared enough about my work to read it and think about it!" (p. 1). One of the main purposes of timely feedback is that it helps improve students' performance in that subject area. Feedback is one of the most powerful tools for increasing outcomes, stated Stronge (2006). At the same time, Danielson (2002) described feedback as information about the assessment results to reinforce positive behavior and encourage needed change,

if any. Hattie and Timperley (2007) defined feedback as information that learners receive from their faculty about their performance that may cause them to take self-corrective action and guide them to attaining their goal. Effective feedback lets students know what they are doing well or how to improve.

Positive feedback can allow the students to become more confident and flourish in school while giving frequent negative feedback; students will tend to develop feelings of inadequacy and inferiority (Hattie & Timperley, 2007). Formative feedback is critical to students' learning because it informs them about what they have done correctly, what is going well, and what needs improvement. In 2008, Brookhart explained the need for a "double-barreled approach" (p. 2) addressing motivational and cognitive factors. The cognitive benefit is the information students need to understand their learning level and how to increase that learning. The motivation comes from developing the feeling that they have control over their learning. Students who receive feedback are, on average, outperformed students who do not receive feedback (Kluger & DeNisi, 1996). Kluger and DeNisi (1996) also learned that while, on average, student performance improves with effective feedback, ineffective feedback can also harm the student's performance and cause it to decline.

In 2012, Kramer-Simpson studied how students read, interpret and use faculty feedback. She found that students who understand the faculty feedback gave them the flexibility to determine how best to address the revisions, often in ways the faculty member suggests. She also found that in order for the students to understand the feedback given, faculty members must communicate the commentary clearly and help students understand the comments coherently. One area that Kramer-Simpson (2012)

found was when the comments were given throughout the homework and not just in one area. “Teachers may consider repeating comments not only to re-emphasize the point they are making, but to provide new dimensions of understanding the concepts” (Kramer-Simpson, 2012, p. 97). It might be an unnecessary task in many faculties eyes but these repetitive comments help students build better understanding. Praise also played a role in students' understanding. Praising according to Kramer-Simpson (2012) affirms students strengths, and helps students build upon those strengths. “Praise must be considered not only viable but an essential part of providing feedback to students” (Kramer-Simpson, 2012, p. 99). Overall Kramer-Simpson (2012) found that students who receive feedback in a timely manner, constructive and praise provoking were able to increase their understanding of the material.

Hattie and Timperley (2007) recommended four levels of student feedback: task performance feedback, task processing feedback, self-regulation feedback, and personal feedback. Feedback about the quality of work and strategies and processes used produces a more improvement gain. Task performance feedback is a great benefit when it corrects students’ misconceptions rather than when it points out the need for more information. The more specific task assigned, the more feedback and thus a stronger connection to improvement. The feedback that falls into the category of self-regulation, students tend to accept the feedback more, act on the feedback, and seek future information (Hattie & Timperley, 2007). Suppose the motivation surrounding the feedback is lacking (timely manner, no student motivation, or a fruitless relationship), students will not self-regulate their feedback and not do anything with it (Camp, 2011). Personal value feedback does help boost students’ self-esteem; unfortunately, it does not improve results because this

type of feedback is not formative. Some examples of this personal feedback are specific examples to the students, “your work is very creative and innovative,” or “it is clear that you take pride in your work.” This type of feedback also can backfire on the student since it might cause students to view intelligence as a fixed mindset and not have a personal growth mindset in the feedback given (Konold et al., 2004). Feedback can help strengthen students-faculty relationships by allowing students to seek information from that faculty member. Feedback given in a timely manner can allow for the student to start motivating themselves to reach out to the faculty member for further insight into what was given. This motivation and feedback helps strengthen the relationship between students and faculty by allowing the students to build that relationship outside of the classroom. Feedback and motivation are not the only ways that can help strengthen the relationship, faculty members can also help by differentiating the course content for all different learning styles.

Different Learning Styles

Many faculty tend to follow the same pattern as how they were taught in school (Lezotte, 1992). Students are more than one size fits all when it comes to learning. Heim (2007) confirmed that "a lock-step learning environment may lead to students falling out of step and not regaining their footing" (p. 6). Students within the same age differ widely in their readiness to learn, learn at different paces, and need different patterns of learning and thinking (Camp, 2011; Goodlad, 1976). In 2001, Barr and Pareet confirmed that students learn best in different environments and in different ways. Gardner’s (1983) Frames of Mind, divided the traditional notion of intelligence into eight categories. These categories are verbal-linguistic intelligence, logical-mathematical intelligence, spatial

intelligence, bodily-kinesthetic intelligence, musical intelligence, interpersonal intelligence, intrapersonal intelligence and naturalist intelligence. All of these intelligence listed above accordance to Gardner (1993) posed however most people demonstrate an especially high ability in one or two intelligences. It is unwise for faculty members to try to individualize every lesson or module to these intelligences, but teaching to the middle is also not wise. Teaching to the middle will have the faculty ignore the needs of the high-flying students and confuse the lower-functioning students (Tomlinson, 2000).

The best practice is differential learning, so learning on either end of the spectrum can be reached through various teaching methods and activities. Tomlinson (2000) showed that students become more successful when they are taught based on their readiness level, interest, and learning profiles. When students are disinterested in something, this can often result in lower achievement than students with interest (Alexander & Murphy, 1998). Marzano (2003) stated, "For teachers to be effective, they must be aware of the differences between students and must take a personal interest in each student" (p. 8). Stronge (2002) went on deeper by saying that effective faculty recognize differences among their students and plan academic activities and improvement opportunities to accommodate those differences in the faculty's instruction. Students who are more actively engaged with the subject matter are likelier to perform than students who are not. Faculty members need a large inventory of instructional strategies to engage their variety of students (Garcia-Reid et al., 2005). Faculty need to have their differentiated strategies on hand whenever the time arises. Silver and Hanson (1998) came up with a practice of differentiating learning by splitting it into interpersonal, mastery, understanding and self-expression teaching wheels. The teacher uses this

method to plan and deliver instruction to touch all four learning styles and challenges students to master basic material (Silver et al., 2000, p. 23).

Being a successful faculty member means differentiating instruction following the needs of your students. The ongoing challenge by many faculty members is how to do this effectively without individualizing the lesson plans for their students. *Differentiated instruction* is a teaching philosophy based on the basis that teachers should adapt instruction to meet students' varying readiness levels, learning preferences, and interests (Tomlinson, 2000; Tomlinson & Edison, 2003). Differentiated instruction is a way for faculty members to think about teaching and learning that values the students individually and can be translated into classroom practice through many different ways. In order to create the best learning experience for all students, the faculty needs to differentiate instruction. If schools teach students successfully, faculty must become more flexible and dynamic. They can not continue to teach the way that they were taught. Differentiation helps students build the relationship between faculty and themselves because it allows them to learn the way that they can understand the material. Differentiation is related to the community of practices since in order for the novice in a community to become the expert, experts must find a way to teach to all community members to allow the change to grow between members.

Student-Faculty Relationship: Summary

A student-faculty relationship is the main factor that will try to answer the central question in this paper. Research shows that to have a successful relationship with students, there are things that faculty members need to do in their classrooms. As explored, faculty effectiveness, student motivation, a positive environment feedback, and

differentiation of course materials help guide and nurture the relationship between faculty and students. Each of these factors is important in the community of practices as well since the main goals of a community are having each member work together (feedback and relationship building), achieve the tasks set in the classroom (learning objectives, relationship building), and have each member serve as a resource for each other (feedback, motivation, and effectiveness). Each of these factors can be seen as an integral part of a community of practice in a classroom.

Engineering Education

Most of the faculty members in engineering need to get the opportunity to learn about the pedagogical practices that many educational faculty are taught. Engineering education is a new discipline within engineering that empowers faculty members to learn about the pedagogical best practices to become the best faculty members themselves. Since engineering education is a newer discipline, it is essential to look at the history of engineering itself.

The nation's first engineering program, civil engineering, was established in 1802 at the United States Military Academy in New York (as cited in Grayson, 1993). One of the primary purposes of establishing engineering was to reduce the nation's dependence on foreign engineering and artillerists in times of war (Army West Point, 2023). This engineering program was not the only one starting in the 1800s; many countries were also beginning to develop engineering programs (Continental, 2006). However, until the Morrill Act[1] of 1862, higher education became more accessible for many Americans.

[1] The Morrill Act or Land Grant Act gave each U.S. senator and representative 30,000 acres of land which was to be used to provide for college in each state. The colleges were to educate citizens in agriculture, home economics, mechanical arts (i.e., engineering), and other professions practical for the times. (National Archives, 2022).

This act accelerated the nation's need for higher educational institutions throughout the last half of the century, simulated by engineering efforts such as the transcontinental railroad, electric power, the telegraph and phone, and the steam and combustion engine (Lightcap, 2010). The first engineering society was established in 1852, the American Society of Civil Engineers (ASCE, 2023). The first engineering education society was founded in 1893, called the Society for Promotion of Engineering Education (SPEE) (American Society for Engineering Education, 1894), but is now known as the American Society for Engineering Education (ASEE). After World War II, the growth of similar engineering educational societies increased. Society of Promotion of Engineering Education (SPEE) (1910) established in 1910 created the first periodical called the *Bulletin,* which was dedicated to technical education (American Society for Engineering Education, 1910), which nearly a century later is now known as the *Journal of Engineering Education* (Lohmann, 2005).

During World War II, the world of engineering and engineering education changed from a practical art to a research-based application of science and engineering (Wankat, 2004). In 1950, the National Science Foundation was created along with several others within existing Federal agencies; Federal funding transformed the American higher educational system into a research-based institution of high learning (National Science Foundation, 2023). ASEE issued a landmark study in 1955 called the Grinter Report (American Society for Engineering Education, 2023). "The ultimate goal of engineering education is the development of able and responsible men fully competent to practice professionally, especially those who will eventually lead the profession to new heights of accomplishment through creating practice or research" (Grinter, 1994, p. 30).

This report outlined a more research-based and science-based curriculum that still exists in most U.S. engineering programs.

Improving teaching was a continued concern for SPEE and ASEE, and the call to improve the pedagogical training of engineering faculty was heard back in 1901 (Wankat, 2004). In the summer of 1911, formal training started in an industrial summer school for engineering faculty, while more extensive training was held between the summers of 1927 to 1933 (Wankat, 2004). Grayson (1993) stated, "The summer programs concentrated on both the content of the subject and on methods of organizing and teaching it" (p. 138). As previously referenced, the Grinter report also called for postgraduate pedagogy training, "it is essential that those selected to teach be trained properly for this function" (Grinter, 1994, p. 35). Since 1927, these summer programs have been held concurrently with the ASEE annual meeting. It would not be until 1983 that ASEE again called for more faculty training in educational methods (Wankat, 2004).

In my career observations, students suffer when professors do not learn to teach until after their first class. Workshops for many universities are constrained by the time available for faculty members. A better approach would be to learn to teach in graduate school by taking courses in the College of Engineering on teaching methods. An engineering professor in 1972 pioneered the technique of taking teaching courses for graduate students. Unfortunately, few universities followed his lead (Wankat, 2004). In the 1990s, there was a significant shift in teaching and learning education through the *Scholarship Reconsidered*, a report by Earnest Boyer (1990). The reports significantly impacted scholarship by trying to teach and do a scholarly study to improve teaching and learning (Huber & Morreale, 2002; Wankat, 2004).

Developments since the 1990s have shown why every discipline taught in higher education needs to be concerned with the education of teaching and learning (Barr & Tagg, 1995). Every field has pedagogical content knowledge that is concerned with the question of how to teach the content of the discipline best. The one that is specific for the engineering professionals is Community of Practice Engineering Leadership. The topic is more believable when professional development is led by someone within the discipline (Barr & Tagg, 1995). Professors knowledgeable in education and engineering also tend to serve as gatekeepers to transfer educational concepts from other fields and apply them to engineering education (Wankat, 2004).

Engineering Education: Summary

Engineering education started in 1802 because the US wanted to avoid reliance on foreign-based engineers. However, it would not be until the Morrill Act that the country's engineering programs would start to spread and flourish. The first engineering education society was founded in 1893, called the Society for Promotion of Engineering Education (now known as ASEE) (American Society for Engineering Education, 2023). However, it would not be until 1983 that there was a call for more educational training for engineering faculty. The need for more educational training has started what is known as the community of practice, as many colleges help faculty members learn from each other to become better engineering professionals.

Community of Practice

The history of community of practice (CoP) thinking was started in the 1990s by Etienne Wenger and Jean Lave when they began working with artificial intelligence. While working with computers, Wenger realized that computers could store a lot of data.

However, it was impossible to capture or model this application of data storage within a single computer (Omidvar & Kislov, 2014). An attempt at solving this storage problem led Lave and Wenger (1991) to an anthropological study that studied various social groups within the United States. These groups include native African tribes, Mexican community midwives, and apprentice meat cutters. Studies involving these groups led to the formulation of the concept of a CoP. CoP is defined as a group of individuals bound by mutual interest and shared learning and practice (Lave & Wenger, 1991).

One of the primary essential factors of CoP thinking was that learning involves a socialization process in which newcomers to a group move from outside to full participation (Lave & Wenger, 1991). Eventually, these outside participants would become part of the shared practices, beliefs, and use of words and tools common to that group. New participants in the community would need time to assimilate into the community as a whole. Lave and Wenger (1991) used the term "legitimate peripheral participation (LPP)" (p. 29) to inform that this process is a normal part of group integration. Some communities have rules and bylaws that are more confined not to allow newcomers to be able to enter the community. However, in the apprenticeship example, Lave and Wenger (1991) viewed learning as not as simple as the relationship and interaction between the newcomer and the old-timers. Learning is broader; it is about changing a learner's identity as part of the learner's participation in a community of practice (Wenger, 1998).

Wenger's (1998) work on community of practice, he believed that there are two central pillars to a community of practices. These pillars are the negotiation of meaning and the development of practice. However, without the participation of both newcomers

and old-timers in a community, these pillars are just that. The community practices come out from the interaction and resulting tensions between the new and experienced community members (Guile, 2009). Practice is central to the community; it essentially brings the community together. Part of transitioning from newcomer to expert involves continuing to develop the practice of the experts in the community but also developing new practices that will ultimately replace some of what exists.

In the same way, novices developing into experts might replace previous experts whose practice might become obsolete or who might no longer need the community themselves (Lave, 1991). Some believe this process of transitioning from novice to expert defines a community of practice (Hoadley, 2000). It is the circle of life in the community of practice.

Wenger's (1998) work on the community of practices has developed over time; it has since moved from academia and theories of learning to start to take root in the world of business and knowledge management. His definition of community of practice has also changed throughout his work to become border and more inclusive of different types of communities. An increased interest in communities of practice as a development tool has grown in response to the poor quality of professional development for many professions (Johnson, 2001). Johnson (2001) went on to explain that many are moving away from traditional professional development because this practice removes the learner from the situation in which the participant needs to apply what they have learned. In contrast, a community of practice-situated learning occurs, and learners can progress at their own pace rather than everyone learning simultaneously. Wenger et al. (2009) also recognized the need for communities of practice to be situated in an online environment

where it is possible to expand different organizational boundaries and distances. While there are not empirical case studies, community of practices can be found historically in many apprenticeship relationships.

The definition of community of practice has been explained, allowing more communities to be included under a community of practice definition. While the communities are expanding, other new forms of community for learning are being developed and named. The consensus amongst the researchers is that there needs to be more consistency as to who these new communities are being named or referred to (Barab et al., 2004; Blankenship & Ruona, 2007; Hoadley, 2000). Andriessen (2005) noted his classification of different knowledge communities

> Since everyone prefers to have his or her concepts, many new terms are invented, such as the community of interest, a community of commitment, an interest group, a network of practices, a knowledge community, or a formal network…The final effect seems to be that different names are applied to the same phenomenon, and the same name appeases to refer to different phenomena. (p. 192)

As previously stated, definition has also evolved from an academic position to one that is more grounded in the world of business (Andriessen, 2005). However, Wenger et al.'s (2002) definition is still adequate when describing a community of practice.

While many researchers have begun to move away from the strict definition of a community of practice, there are still specific characteristics of CoPs that set them apart from other learning communities. For example, just because one is a member of a particular profession does not mean they are a part of the CoP (Hoadley, 2000).

Riel and Polin (2004) differentiated between CoPs and practice-based communities that come to light around members of a particular profession; physical proximity also does not mean that professions are members of a community of practice. CoPs are not just a group of people coming together at a particular time or in response to a specific need; to be successful, community members also have to build a shared history and culture experience (Barab & Duffy, 2000). One of the more significant differences between CoPs and other communities is that members of a CoP have a shared intent; they work together towards a common goal (Andriessen, 2005). Members rely on each other and work together to build their knowledge; no member needs to know everything in a CoP (Wenger, 1998). One study by Kensington-Miller (2014) claimed that participation in a CoP was important to novice faculty trying to incorporate new teaching methods. The novices in the study expressed that the CoPs provided a place for suggestions from other faculty members, supported self-reflection, and provided outside encouragement. In 2006, Mittendorff et al. examined three different groups to determine if each group met the criteria to be called a CoP and to identify their learning outcomes if they were established. The study showed that while the educator group shared domain knowledge and practice, they lacked the shared community. There were some collective learning outcomes, but learning within the community often resulted from individual efforts. The government policy group had no shared domain, practice, or community; this group had few collective outcomes. The last group was the nature conservation group. They did have a shared community and produced several learning outcomes. The study shows how the managers of these communities determine whether or not the group processes the characteristics of a CoP and how to help guide the community to develop learning

outcomes. Communities of practice benefit from having different members with different skill sets to ensure that all knowledge is expressed.

Negative Aspects of Community of Practice Model

The community of practice model is not without fault. CoP falls prey to the hoarding of knowledge by certain members, the formation of cliques, limitations on innovation, and exclusivity on who is considered a member (Blankenship & Ruona, 2007). Power struggles can also develop internally, influencing whether or not new members can transition to experts (Contu & Willmott, 2003). Wenger et al. (2002) agreed that there are several downsides to the community of practice model of learning. Often outsiders are not welcome if members are too possessive of their space and practice, or the new members might not understand the community language if it is too specific (Wenger et al., 2002). There can be issues within the community, such as previously mentioned cliques, but also include inflated status given to one or a few members or a lack of self-criticism that prevents the community from developing learners (Wenger et al., 2002).

One negative of the COP model is that Lave (1991), Wenger (1998), Brown et al. (1989) all dismissed formal education as a way of learning as cited in Fuller et al. (2005). Lave (1991) went so far as to say that legitimate peripheral participation does not occur in a school setting as it does with artisans, apprentices, etc. Students are not allowed to exist on the periphery and must act as full-fledged members of the school community, so to speak (Lave, 1991). This aspect relates to the question of how transferable are the skills learned in a community of practice if the faculty are not allowed to generally come into the community of practice.

Summary

In this chapter, the literature review looked at several topics related to human-centered design, caring science, student-teacher relationships and community of practices. Human-centered design and caring science explore the different ways in which an engineer should design their products to align to their stakeholders needs. The caring science looked at the history of the theory and why it is important to the nursing profession. Next, I explored the history of engineering education and why it is important to include it in the literature review for this paper. Engineering education is only a relatively new educational field and thus allowing the faculty members to create a community of practice will allow this field to flourish. The last aspect that was explored was a community of practice. I discussed the history of the community of practice, who the members are and why they choose to become members and why it is important for a community of practice to be established. The next chapter examines the methodology of this dissertation and why I choose to use a mixed method approach.

CHAPTER THREE

Methods

Chapter Overview

This convergent parallel design research study aimed to measure the transferable skills from an in person community of practice to the classroom. As a reminder, my primary research question is:

- How does an in-person community of practice influence faculty and student classroom interactions?

The secondary questions in this study are:

- Are the skills and strategies taught in the community of practice transferable to the classroom?
- What are the most significant changes, if any, in student-faculty relationships after engineering faculty participate in a community of practice training?

Community of practices throughout the professional development of higher educational engineering faculty has gained recognition in terms of research. To measure the transferable skills among engineering faculty to the students in their classrooms through the conceptual framework of community of practice by which survey, interviews and course shell observations of the faculty courses were conducted.

Research Design

To address the research, more than one method of inquiry was required. A convergent parallel design case study design was selected because it is the best design to describe the study's real-life situation and allowed for the “the research to collect both qualitative and quantitative data, analysis them separately and then compare the results to

see if the finding confirm or disconfirm each other (Creswell, 2014, p. 219). Qualitative research methodology has been defined as "a type of research that refers to an in-depth study using face-to-face or observation techniques to collect data from people in their natural settings" (McMillian & Schumacher, 2010, p. 489). Quantitative research methodology is to test these theories using variables (Creswell, 2014, p. 4). The instrument used to collect perception data from the faculty combined the grant's survey for faculty, and questions created for this research for the students. A survey is an appropriate method for data collection because, according to Schutt (1996), using a survey is an effective way to obtain qualitative responses needed to answer questions about the population being studied. Creswell (2014) stated that quantitative data is a reliable and valid source of data collection to gather statistical information when analyzing data in which the situations are similar. There were two sources of qualitative data. McMillian and Schumacher (2010) proposed that semi-structured interviews provide the opportunity that allows the interviewer to gain a better understanding of the perception of the topic and or the individual being interviewed without unstructured or structured questions. The semi-structured format was best suited for interviewing the selected respondents from the survey because of the primary goals of this study of making sure that the students are able to see the human-centered design skills taught in the community of practice.

The other source of qualitative data that was analyzed was in the form of observations of the faculty members' course shells for the faculty's D2L courses. These data were collected to provide insight into the relationship between the community of practice skills and the transferability to the students in the course. Creating these

qualitative and quantitative data sources will increase the validity and reliability needed to answer the research question (Creswell, 2014). Using convergent parallel design the qualitative results were discussed in a qualitative manner using different themes that were seen in both sections of the study.

Procedure

Between Spring 2023 and Fall 2023 semesters, faculty members participated in a Community of Practice (CoP) to help educate them on educational theories. In order to participate in the CoP the faculty members were asked by members of the grant team. These invites included emails to the faculty members that had done similar CoPs before, thus the grant members self-selected participants from the previous CoPs. The participants of the CoP consisted of one full professor, four assistant professors and five associate professors from different colleges within the same city. The participants' disciplines ranged from Civil, Biomedical, Electrical and Mechanical engineering. Each participant after completion of the two year term would receive an amount of money. This CoP consisted of six sessions during the summer months. Each of the sessions were three hours long held in the morning. The first part of the day was spent learning about the theories and how they manifest themselves in the classroom. The faculty members had an active learning experience from this lecture to implement these theories in their content during the second part.

Once the Community of Practice was over in the summer months the faculty members were then asked from the grant investigators for follow-up surveys, observations and interviews based upon what they did during the summer program or how their course changed based upon what they had learned. During the fall semester

2023 students were asked to participate in the research study about the transferable skills from the community of practice that the faculty members participated in.

Participants

I conducted research at a Jesuit university in the Midwest. Participants included twenty-two students total from both Spring and Fall 2023 semesters. Two faculty members were chosen from the CoP in the summer programing. Dr. Washington[2] is an assistant professor and Dr. Jefferson is an associate professor. Both are in the same department and reside at the same university. Student participants were not from the same between spring and fall courses but the faculty members remained the same between the semesters. Student participants were university engineering students ranging from junior year students to seniors who were enrolled in one or more of the faculty member's courses throughout the spring and fall semesters.

While the faculty members are not directly involved participants, it is important to explain the faculty members that were chosen. The faculty were chosen based on being in the same department at the university and participating in the CoP the same summer. The first chosen faculty member has worked at this university for four years and is an assistant professor. The second chosen faculty member has worked at this university for seventeen years and is an associate professor.

Setting

The university is located in the Midwest and is a four-year private university. There were two different faculty members whose students were surveyed and interviewed on the relationship between the faculty members and themselves. This university's student body population comprises 11,167 total students, with a breakdown of 7,528

[2] Names of the faculty members have been changed.

undergraduate and 3,639 graduate students. The College of Engineering has 959 undergraduate students and 207 graduate students. Women comprise 56% of the total undergraduate population, whereas undergraduate male students make up 44% of the population. In the College of Engineering, undergraduate males make up 70% of the total population, and women only 30% of the population. University-wide undergraduate students of color comprise 30% of the population, undergraduate students who identify as white 67%, and others (international and unknown) make up 3%. Within the College of Engineering, undergraduates who identify as a student of color make up 28% of the population, white undergraduate students make up 70%, and other students (international students and unknown) make up 2%. Therefore the number of undergraduates in engineering aligns with the number of the university as a whole when it comes to the students of color. During 2022-2023, the College of Engineering graduated 231 students with all engineering degrees. During the 2022-2023 academic year, the university graduated 2,396 students.

Instrumentation

The tools used for this research project were surveys, document observation, and interviews. Each instrument was built so students could give their opinions on the relationship between them and the faculty members in a safe space. Each instrument was crafted so that every student taking the survey and doing the interview questions could understand precisely what was being asked of them.

Survey

I employed a survey to assess the students' attitudes regarding the humanistic aspects of the faculty members' pre and post-community practice (see Appendix A).

“Surveys can be used in deciding policy or in planning and evaluating programs and conducting research when the information you need should come directly from people” (Fink, 2017, p. 5) Therefore when I needed to gather information directly from the students it was easier and more efficient to conduct a survey. The faculty members participated in a general teaching practice survey conducted by the grant’s principal investigator (see Appendix D). The grant’s survey was originally created by Carol Hurney, an Associate Provost for Teaching and Learning at Colby College called the General Teaching Practices Survey. This survey given to the students was adapted from the Hurney survey to have the students participate in a relatively similar one. The Likert scale survey consists of three main categories of questions, ranging from three to ten subsets of questions. Each subset of questions within the category consisted of two to six questions based on the category. Each of the statements for both the students and faculty aligns with the outcome of the grant. The grant’s survey is designed to reveal the faculty and students' level of humanistic relationships between both parties. Before the actual survey was sent out to the students a pilot survey was completed by a graduate student. With their feedback the survey was cut dramatically down as they stated many of the students would not know what I was trying to get out of the question or they would not understand the words that were picked. This pilot survey allowed me to refine some of the questions either the length or the words and cut most of the others.

The survey was sent out to all undergraduate students of four courses taught by both faculty members, which totaled about 54 students. Two surveyed courses were in Spring 2023 and two in Fall 2023. The courses for faculty taught a mixed classroom of upper-level students, including juniors and seniors, in the spring 2023 semester. There

were ten enrolled students to whom the survey went out. The second course in fall 2023 was a mixed classroom of sophomore and junior students. Sixteen students were enrolled in this course. The second faculty member taught a mixed upper-level course with juniors and seniors in the spring of 2023. There were thirteen students enrolled in the course. The fall 2023 course was also a mixed upper-level course with juniors and seniors; fifteen students were enrolled. All four courses had a lecture component and a laboratory component taught by a graduate assistant. The faculty members' lectures were scheduled for two days a week for fifty minutes. All courses were taught in a general classroom with tables and chairs, audio-visual hookups, and a lecture podium for the staff.

I emailed the Qualtrics survey to all students in both the spring and fall semesters of the faculty course to their approved student email address. Three weeks after sending out the initial survey, I sent a follow-up email to participants who had yet to respond or those that have started the survey but have not finished it as of yet. Fink (2017) explained the need to follow up with survey participants in order to get the data that is needed for a survey. I emailed the students who were from the Spring course 2023 to their personal email addresses to complete the survey. After about two months the survey was closed down. The results of the survey are discussed in chapter four however the students who participated in the survey were able to complete the survey with anonymity since there were no demographic questions asked. The only question that allowed the student to self-identify was what course they took with the professor. Students were asked to provide an email address when completing the survey for a gift card; however, this information was de-identified once the survey was closed and the results were being calculated.

Interviews

I created semi-structured interview questions to help align the transferable skills from faculty to students and to learn if there was a community established in the classroom (see Appendix B). These interviews were done individually with students who volunteered their willingness to participate in an interview online. They would do the interview on the survey, all interviews were voluntary. In total, there were six students from both faculty members in both semesters that were conducted. When the interview was conducted (see Appendix B), I sent a copy of the consent letter to the student's email before the interview started. “Informed consent entails information to the research participants about the overall purpose of the investigation and the main features of the design” (Brinkmann & Kvale, 2015, p. 93). I scheduled a semi-structured interview that was conducted via Microsoft Teams, to ensure that the interview was accurately documented and gave flexibility to the students. I had them each give verbal consent to the interview and the recording of the interview before any question was asked. A semi-structured interview is the interview that gets to the purpose of obtaining descriptions of the life world of the interviewee (Brinkmann & Kvale, 2015). The first interview lasted approximately fifteen minutes; each successive interview lasted approximately roughly the same time. All interviews were recorded using Microsoft Teams platform for online interviews, which allowed the recording and transcriptions on the application. The transcripts were read over and corrected based upon the audio recording of the answers and then they were coded for themes. Interview results for all participants were compared to the survey results using the predetermined categories of the grants’ survey using the convergent parallel design.

Document Analysis

I conducted the course shell analysis with the syllabus, the online content and assessments (formative and summative) for the students. “Online data is in more conventional documentary form but their analysis is greatly facilitated by the ease of access afforded by digital environments” (Punch & Oancea, 2014, p. 207). I was given access to the online data from the two courses from Spring 2023 and Fall 2023 for comparative analysis from both faculty members. The access given was from written consent from the faculty member to me via email. The consent was obtained by the faculty member emailing me that they approved me looking at their current Fall 2023 D2L (Desire to Learn) course and the course from Spring 2023. Both faculty members were aware that I was conducting research on their courses. I created a rubric based upon two factors, the first being the areas of what was taught within the community of practice in Summer 2023 that I observed and the second being the syllabus rubric created by Palmer et al. in 2014. Palmer et al. (2014) developed the rubric based on learning-focused course design, teaching and student motivation. Since these are also part of the literature for this dissertation it was easy to manipulate the syllabus rubric into a D2L shell rubric. The faculty member should use their D2L site to help with feedback, differentiation, best practices pedagogy, syllabus and motivation (see Appendix C). I was analyzing the content, assessment and syllabus on the learning management system (Desire to Learn (D2L) to ensure that I was able to see the before and after work of making the courses more humanistic or not. The rubric also allowed me to see from a top-down perspective if the faculty member was allowing a community of practice framework to be allowed within their classroom.

Data Analysis

Using a content analysis process, I analyzed the survey data and the course shells rubric. The Community of Practice framework will help with the data analysis because the interview will allow me to examine whether or not the members worked together in a shared condition and achieved tasks by working together on the first two factors of a CoP. The interview analysis will allow me to explore the third factor of a community, which is to serve as a resource to each member of the community. The D2L documents will explore the framework of transferable skills from the summer's community of practice into the faculty's online content.

The first source of data was the survey responses. The survey responses were first calculated from all student responses to determine what the main themes were based upon the ranking scale. Based upon the numbers that the students ranked the faculty members there was no remarkable standard deviation and therefore this was convergent parallel design. The main themes from the survey data were that of a) student-faculty relationships: b) feedback: c.) classroom climate and content; and d) pedagogy. These themes were explored from the survey data.

The second data source was the interviews of each of the students. The interviews were transcribed using the closed captioning provided by both Microsoft Teams. Again the four themes from the surveys were also looked at from the interview perspective.

The third source of data was the course content, assessment and syllabus review which was analyzed using a numerical rubric on how the faculty member transferred skills from the community of practice into their courses.

Following my proposal meeting and incorporating feedback from my committee,

my Institutional Review Board (IRB) application was drafted and submitted. The IRB application was approved in October 2023 along with a sample letter of informed consent that I shared with the students and faculty members in these courses. The IRB at my institution needed a letter of support from the research site, and with their support, I was able to start conducting my research. All students of both courses signed the letter of consent before I began my research. As per my IRB specifications, all names have been anonymized using pseudonyms throughout.

Summary

This research methodology was a case study to describe and compare pre and post courses and student-faculty relationships based on the learnings in a community of practice. The survey primarily used a Likert scale to measure the perceived relationship between student and faculty, however, since the students ranked their faculty members highly the numbers in the survey did not have enough of a standard deviation to make it a mixed method methodology. The students' responses to the survey were analyzed to determine the main themes that could be generated from both the survey and interview data. Content analysis was used to analyze the qualitative data collected to answer the main and sub-research questions. Chapter four provides data analysis and research findings from the survey and interviews. Discoveries from the data, interpretations and limitations are provided in chapter five.

CHAPTER FOUR

Results

Overview

This chapter outlines the results of the survey, interviews and document analysis of this research. As a reminder my research question is:

- How does an in-person community of practice influence faculty and student classroom interactions?

Some of my secondary questions in this study are:

- Are the skills and strategies taught in the community of practice transferable to the classroom?
- What are the most significant changes, if any, in student-faculty relationships after engineering faculty participate in a community of practice training?

The purpose of this study was to determine if faculty members who participated in a summer Community of Practice (CoP) workshop transferred this knowledge to the classroom to see if the impact affected the students from semester to semester. This chapter goes into detail about the results that were obtained through the analysis of the survey and interview data. The coding process generated four core themes: a) Student-faculty relationships, b) Feedback, c.) Classroom climate and content, and d) Pedagogy. All themes are applied to chapter two's literature review and respond to the research question about the student-faculty relationship, and the transferable skill from a community of practice.

This chapter is broken down into three parts. The first part is an analysis of how the surveys connect to the four themes and how students ranked the associate and

assistant professors. The third part of this chapter relates to the analysis of the interviews and what students verbalized based on the four themes. The last part of this chapter discusses the data analysis and how faculty members used the learning management system in accordance with building a student-faculty relationship.

The associate professor throughout chapters four and five will be referred to as Dr. Jefferson and the assistant professor will be referred to as Dr. Washington. These names have no association with the names of the faculty members; they were created to keep privacy for the faculty members.

This study is a snapshot of a specific group of students at a specific university during a specific school year. However, the results of this qualitative study can be added to the growing body of research to inform the nationally funded grant.

Survey

The first phase of the research was conducted through a 40-question survey based on a survey given to the faculty members on their learnings from the community of practice. Gathering data through this survey offered insight into the four themes of student-faculty relationships, feedback, classroom climate, and pedagogy of the faculty members. The survey questions are available in the appendix of this study (see Appendix A). The survey was broken down numerically to show the difference between semesters. The number that is in the middle of the table corresponds to the ranking that the faculty received by the students. All the time is equal to five, more than average equates to four, neutral equals three, two corresponds to somewhat below average and one is none at all. The bold numbers that are in the tables are the average of the responses of the students that completed the survey based upon the numbers for the ranks.

The survey population was completed by 22 college students. Thirty students started the survey, however, seven students chose to start the survey but did not complete it; therefore, their answers will not be integrated into the findings. Twelve students completed the entire survey for Dr. Jefferson. Seven students were from the Fall 2023 course, and five from the Spring 2023 course. Ten students completed it for Dr. Washington: six from the Fall 2023 course and four from the Spring 2023 course. The students who participated Dr. Washington's survey was more likely to have been in the 3000-level course completed in Fall 2023. The same could be seen with the Dr. Jefferson's course at a 4000 level completed in Fall 2023. The survey was given anonymously; therefore, many demographic markers can not be discussed.

Student-Faculty Relationships

Throughout the survey, students were asked questions about their relationship with faculty members. All 22 students responded that they had a good relationship with the faculty member (see Tables 1 & 2). Based on the written responses, many students were satisfied with the relationship. None of the students surveyed indicated that they had a poor relationship with the faculty member. The upper-class students in Dr. Jefferson's courses were able to respond to the question "How would you consider your relationship with this faculty member?" in a more verbose way than could be seen in Dr. Washington's students.

Table 1

Students responses to open ended survey questions in the beginning of survey

How would you consider your relationship with this faculty member?		
STUDENTS	**FACULTY**	**RESPONSES**

Spring 2023 Student	Dr. Washington	I have felt very valued by this faculty member, and I believe that he wanted me to succeed. He showed interest in each student want was willing to work with us to help us learn best.
Fall 2023 Student	Dr. Washington	We have a good relationship. I believe, he is always nice to me.
Spring 2023 Student	Dr. Jefferson	We had a small class so it was a more personal connection than with most other professors, and he took in interest in each student.
Fall 2023 Student	Dr. Jefferson	I would consider my relationship with this faculty member good. When answering questions, he makes sure that I understand the topic. He is good at not making you feel that the question you ask is a 'bad' question. During lab sessions, he also gives his full attention when you ask a question or troubleshooting a circuit and is willing to dedicate extra time to make sure that the question is answered or circuit is working.

During the last part of the survey, the students were also asked again about their relationship with this faculty member (see Table 2). The students responded with the same sentiment when asked this question at the beginning of the survey. All students in Tables 1 and 2 are the same four students. Each of these students answered the question in the beginning and at the end.

Table 2

Students responses to open ended survey questions in the end of survey

In your own words, please describe your relationship with the faculty member?		
STUDENTS	**FACULTY**	**RESPONSES**
Spring 2023 Student	Dr. Washington	This faculty member acted as a mentor for me and did what he could to help me succeed.
Fall 2023 Student	Dr. Washington	I believe we have a good relationship.

Spring 2023 Student	Dr. Jefferson	He often made class engaging by going over examples and drawing on the board, and engaged students by trying to lead us to the answers instead of giving the answer. This made class engaging and fun to learn in.
Fall 2023 Student	Dr. Jefferson	During lecture, I think that this faculty member actively engages with students during lecture to make sure that students understand the content. The faculty member uses Powerpoints to direct the conversation in addition to using visuals and asking questions to students. He stops in between slides to make sure that students questions are answered. The topics covered in lecture are relevant in the engineering field. For co-op/internship experience, I remember learning about these topics. In addition, he makes sure that students are up to date with technologies by reading research articles that correlate with the topics being learned.

The faculty members' relationship could also be analyzed with the student's responses to the questions about the faculty members' engagement with the students' lives and content. Questions on the survey indicating the students had a higher-than-average relationship with their faculty members would be those in question four blocks about the connection between the content and the student's lives. It was seen in the survey data that Dr. Jefferson's are more likely to have a connection to the Spring 2023 course than the Fall 2023. Students who took Dr. Jefferson's Fall 2023 course observed that the faculty member did have a more than average connection with the content; one student did indicate that the faculty member was somewhat below average when it came to having the content help establish a more faculty-student relationship. The students who took the Spring 2023 course with Dr. Jefferson reported that the professors mainly related the content to the student's lives. The students who took the Fall 2023 course from the Dr.

Washington also had the same results as the Dr. Jefferson, some of the students indicated that the faculty member was more than average/all the time when connecting content with the students' lives. However, one student indicated a neutral result for these questions. Students who took this professor in the Spring of 2023 indicated a more than average/all the time to the content questions.

Question one is also a good indicator of the student-faculty relationship when asked, "Does the faculty member exhibit excitement when you show up to class?" Students who took the Fall 2023 course from Dr. Jefferson scored the faculty member as all the time/more than average. Only one of the Fall 2023 students had a neutral ranking for this question. Three students who took the entire Spring 2023 course gave a neutral ranking for that question. Dr. Washington's ranking on this question was the opposite, whereas the students who took the Fall 2023 course had more neutral rankings when asked this question than the Spring 2023 course.

Feedback

The theme of feedback gave more information based on the answers given. Feedback is defined for both surveys and interviews as information given to students to help improve their performance on course work. Students in Dr. Jefferson's courses were more significant than Dr. Washington's rankings. Students who took Dr. Jefferson's course were more positive with their ranking on feedback. One student who took the Spring 2023 course ranked the faculty member as neutral; however, when asked if the feedback builds upon the assignment the same student ranked the professor more than average.

Constructive Feedback. Students who took the Dr. Jefferson courses were more willing to say that this faculty member did not give constructive feedback, nor did the feedback build upon for a final project or paper. Nine students in both Spring and Fall 2023 Dr. Jefferson's courses ranked the feedback question as all the time and more than average, while three ranked neutral. Students ranked the feedback built upon a final project or paper below the average of most of the other questions for both faculty members. Six of the 12 students between Spring and Fall 2023 ranked Dr. Jefferson neutral to not at all (see Table 4). According to the students, feedback was less constructive than they had thought for Dr. Jefferson. Dr. Washington's constructive feedback was different from Dr. Jefferson's in that their students ranked them as providing more constructive feedback of all six of the fall 2023 students ranked the faculty member as all the time or most of the time. Students also ranked Dr. Washington used D2L in an organized manner to help with the feedback whereas Dr. Jefferson's ranking dropped from Fall to Spring semesters.

Verbal Feedback. Students did rank Dr. Jefferson as giving more feedback to the student throughout the process than just at the end. Three students who took the survey in Spring 2023 ranked the faculty member as more than average / all the time with providing feedback on multi-part assignments, and the remaining four students stated that the faculty member was neutral on only giving students feedback at the end of the project. Students who took the survey in the Fall 2023 course resulted in four students stating that the faculty members were more than average / all the time with providing feedback. Three of the students also stated that Dr. Washington did not only provide feedback at the end of the project but seven students who participated in Dr.

Washington's courses ranked the faculty member as more than average / all the time when providing feedback on multi-part assignments. Seven students who took the courses stated that the faculty member only gave feedback at the end of the project; however, three students ranked the faculty member as waiting to give feedback at the end. Three students ranked the faculty member as neutral with the feedback at the end. Students who participated in Dr. Washington's course thought that while the faculty member did give feedback, some would rank the faculty member as only providing the feedback at the end. Students could rank the faculty members as giving feedback throughout the course and projects. Table three and four shows the responses for all feedback questions as it relates to the students.

Table 3

Students Ranking on Feedback Questions

Students Ranking Feedback Questions for Dr. Washington (Scale 1-Not at all to 5- all the time)			
	How often do you see this faculty member use D2L... - To give constructive feedback for assignments.	How often do you see this faculty member use D2L... - In an organized manner for easy access to content, assignments, tests or feedback.	The frequency with which your faculty member... - Provide you with feedback on multi-part assignments as you work on them
Spring 2023 Students n = 4	2 All the Time 1 More than Average 1 Neutral **4.25**	2 All the Time 1 More than Average 1 Neutral **4.25**	3 All the Time 1 Neutral **4.5**
Fall 2023 Students n=6	2 All the time 4 More than Average **4.33**	2 All the Time 4 More than Average **4.33**	1 All the Time 3 More than Average 2 Neutral **3.83**

Table 4

Students Ranking on Feedback Question

Students Ranking Feedback Questions for Dr. Jefferson (Scale 1-Not at all to 5- all the time)			
	How often do you see this faculty member use D2L... - To give constructive feedback for assignments.	How often do you see this faculty member use D2L... - In an organized manner for easy access to content, assignments, tests or feedback.	The frequency with which your faculty member... - Provide you with feedback on multi-part assignments as you work on them
Spring 2023 Students n=5	3 All the Time 2 Neutral **4.20**	4 All the Time 1 Neutral **4.6**	4 All the Time 1 Neutral **4.6**
Fall 2023 Students n=7	3 All the Time 3 More than Average 1 Neutral **4.29**	2 All the Time 5 More than Average **4.29**	1 All the time 2 More Than Average 4 Neutral **3.57**

Classroom Climate and Content

Students did not answer survey questions specifically about classroom climate; however, the survey produced a ranking based on the classroom climate with interactions between faculty and other classmates, along with the content the faculty members used. Classroom climate is defined for both interviews and surveys as the social, emotional and physical environment of a certain classroom. Students ranking in the question 6 section showed the most variability with the rankings for Dr. Jefferson and Dr. Washington (see Tables 5 & 6). Students in the Dr. Washington courses ranked this faculty member as

above average, with all ten students ranking the faculty member as more than average / all the time with the questions about "activities to determine students' prior knowledge to improve course material" and "instruction to clarify how course content is organized." Tables five and six show the breakdown of the questions and the ranking that all the students say throughout the survey.

Table 5

Students Ranking on Classroom Climate and Content Questions

Students Ranking Classroom Climate Questions For Dr. Washington (Scale 1-Not at all to 5-all the time)				
	Activities to determine students' prior knowledge or student experiences in other course to improve course material	Instruction to clarify how course content is organized (e.g., major concepts, examples)	Selecting engagement strategies for use during class (e.g., students talking with other students, students working with course content)	Instruction to provide risk taking opportunities for students
Spring 2023 Students n=4	3 All the Time 1 More than Average **4.75**	4 All the Time **5.00**	3 All the Time 1 More than Average **4.75**	2 All the Time 2 More than Average **4.5**
Fall 2023 Students n=6	4 All the Time 2 More than Average **4.66**	4 All the Time 2 More than Average **4.66**	3 All the Time 1 More than Average 1 Neutral 1 Somewhat Below Average **4.00**	2 All the Time 1 More than average 1 Neutral 1 Somewhat Below Average 1 Not at all **3.33**

Table 6

Students Ranking on Classroom Climate and Content Questions

Students Ranking Classroom Climate Questions For Dr. Jefferson (Scale 1-Not at all to 5-all the time)				
	Activities to determine students' prior knowledge or student experiences in other course to improve course material	Instruction to clarify how course content is organized (e.g., major concepts, examples)	Selecting engagement strategies for use during class (e.g., students talking with other students, students working with course content)	Instruction to provide risk taking opportunities for students
Spring 2023 Students n=5	3 All the Time 2 Neutral **4.20**	4 All the Time 1 Neutral **4.60**	3 All the Time 1 More than Average 1 Neutral **4.40**	2 All the Time 2 More than Average 1 Neutral **4.20**
Fall 2023 Students n=7	1 All the time 2 More than Average 1 Neutral 2 Somewhat Below Average 1 Not at All **3.00**	2 All the time 3 More than Average 2 Neutral **4.00**	2 All the Time 5 More than Average **4.29**	3 All the Time 1 More than Average 1 Neutral 2 Somewhat Below Average **3.71**

The course content was also a theme that resulted in the students stating that both faculty members were ranked more than average or all the time when "demonstrating real-life application of key concepts." In that same regard, students in all four courses also consider both faculty members more than average / all-the-time ranking when asked about content relevant to students' lives. Twenty-two out of the twenty-three students

ranked as having an above average student life connection. This leads to the students ranking the faculty members about their content and how it can help foster that student-faculty relationship. Twenty of the twenty-three students ranked both faculty members as having the content that helps establish a more robust student-faculty relationship. Two students, one from each Fall 2023 course, ranked both faculty members as neutral or below average. The somewhat below-average ranking was against Dr. Jeffersons, whereas the neutral rating was for Dr. Washington.

Content and classroom climate were also of notable importance in question 12-2 when asking the student to rank how the faculty member tells "the students how they are going to use the class time in a way they do." All students in Dr. Washington's course ranked them as more than average / all the time about explaining class time. At the same time, Dr. Jefferson's rankings were on a different note. Six out of the 12 students indicated neutrality on this question. The six students were equally those who took the Spring 23 and Fall 23 courses.

These questions and answers tell the story that prior to participating in the CoP, these faculty members already displayed a high ranking based on the survey results from students participating in Spring 2023. Connection to the content is a theme that was brought into the literature and how to structure a good lesson plan for the courses came about in the community of practice. Both of the faculty members in accordance with the survey results were doing this before the community of practice. The one question where both of the faculty members were seen as declining was the risk-taking opportunity for the students, however, that could be a result of the age of the students or the established

relationship between student and faculty for the spring courses. The fall courses tended to have students new to the content or classroom set up of both faculty members.

Content and classroom climate are the third themes seen throughout the survey; however, they can be seen much more appropriately in the interviews. Students could capture the climate and the content when discussing the course versus how they rank the faculty members on a survey. Theme four discusses the pedagogy that the faculty members used throughout their courses.

Pedagogy

The fourth theme seen throughout the survey is pedagogy and how the faculty members can express teaching methods throughout their classes. Pedagogy for both interviews and surveys is defined as the method and practice of teaching. How do the faculty members teach their courses? The questions about pedagogy were more about strategies used throughout the course to help the students with interactions between their classmates and the content. Pedagogy is something that the faculty members might need to realize that they are doing. However, the students could rank the faculty members positively as doing good pedagogy practices.

Survey data suggests that students have ranked Dr. Washington above average with different pedagogical techniques and more neutral for Dr. Jefferson. The question asked the students to rank the faculty members' use of active learning strategies during class; seven of the ten students in both courses ranked Dr. Washington more than average and all the time when doing active learning techniques. Dr. Jefferson was the opposite regarding the ranking; six out of twelve students ranked the faculty member as neutral to somewhat below average with active learning technique—most students ranked Dr.

Jefferson as part of the Fall 2023 course. Students were also asked to rank the faculty member on immediate feedback; the results were flipped. Dr. Jefferson received more than average / all-the-time rankings than Dr. Washington, who received many neutral and somewhat below-average rankings. Students who participated in Dr. Washington's Fall 2023 were the ones who ranked the professor lower (see Tables 7 & 8).

Table 7

Students Ranking on Pedagogy

Students Ranking Classroom Pedagogy Questions For Dr. Washington (Scale 1-Not at all to 5- all the time)			
	Utilize active learning strategies during class (e.g., think-pair-share, minute papers, problem solving exercises)	Use strategies that help you practice new skills	Use strategies that give you immediate feedback on your learning during class
Spring 2023 Students n=4	3 All the Time 1 More than Average **4.75**	2 All the Time 2 More than Average **4.50**	2 All the Time 1 More than Average 1 Neutral **4.25**
Fall 2023 Students n= 6	2 All the Time 1 More than Average 3 Neutral **3.83**	2 All the Time 4 More than Average **4.33**	2 All the Time 1 More than Average 2 Neutral 1 Somewhat below average **3.66**

Table 8

Students Ranking on Pedagogy

Students Ranking Classroom Pedagogy Questions For Dr. Jefferson (Scale 1-Not at all to 5- all the time)			
	Utilize active learning strategies during class (e.g., think-pair-share, minute papers, problem solving exercises)	Use strategies that help you practice new skills	Use strategies that give you immediate feedback on your learning during class
Spring 2023 Students n=5	1 All the Time 2 More than Average 2 Neutral **3.80**	2 All the Time 2 More than Average 1 Neutral **4.20**	2 All the Time 2 More than Average 1 Neutral **4.20**
Fall 2023 Students n=7	2 All the Time 1 More than Average 3 Neutral 1 Somewhat Below Average **3.57**	3 All the time 1 More than Average 3 Neutral **4.00**	1 All the Time 3 More than Average 3 Neutral **3.71**

The theme of pedagogy can be seen throughout the whole survey, with students ranking the faculty as more than average / all the time on most of the questions. Question 6-3 (see Appendix B) references "selecting engagement strategies for use during class," for both faculty members, twenty of the twenty-three students gave their faculty members a more than average / all-the-time ranking (see Tables 5 & 6). Of those twenty students, twelve gave the faculty members the ranking of all the time. Students ranking the faculty members based on their pedagogical skills are very high and therefore only sometimes need more explanation or look-through.

One issue that Dr. Jefferson has regarding pedagogy, according to the student's ranking is doing activities to determine students' prior knowledge or experiences in other courses to improve the course material (see Tables 5 & 6). Six of the twelve students ranked the faculty member below average or neutral. Out of those six, four of the

students were in the Spring 2023 course. Unlike Dr. Jefferson, Dr. Washington's ranking was to have seen more than average / all the time.

For both faculty members, the rankings went down after the community of practice. While these rankings did not significantly go down there were still more neutral or somewhat below average from the spring to fall semesters. This might mean that the faculty members did not implement the theories or techniques that were used in the community of practice or it can indicate that the relationships between the students and faculty members were or are stronger in the spring semester than the fall. One major outcome about the survey results was the use of active learning strategies. It looks like from the data that students ranked the both faculty members as using active learning more in the spring semester than fall.

Interviews

Six students chose to do a follow-up interview based on their survey responses. The demographics of the six students were four male-presenting students and two female-presenting students. One student was a junior, three were seniors, and two were students that recently graduated. None of the students had the questions before the interview, and their responses were genuine based on the questions.

In the interview, students had many positive aspects to tell me about their teacher, and none of the students gave a negative review. Based on the student surveys, the relationship between students and faculty members was positive. Student’s responses in the interview were aligned with the themes that resulted in the survey. Reminders of the themes are 1) Student-faculty Relationships, 2) Feedback, 3) Classroom Climate and Content, and 4) Pedagogy. All students who participated in the survey volunteered to do

the survey, and as such, their names have been changed to pseudonyms. For this analysis, Dr. Washington is the assistant professor, and Dr. Jefferson is the associate professor, as mentioned in the above survey results.

Student-Faculty Relationship

All six students who participated in the interview responded that they had a good relationship with the faculty. Steve, who graduated in May 2023, responded that "Dr. Washington always knew what, like we were involved in what we were interested in... So for me personally, my girlfriend was a dancer at Butler, so he would talk to me about Butler basketball games all the time." Steve would go on to state throughout his interview that he considered Dr. Washington to be a great mentor for him in finding a job in the real world. Steve's body language and voice throughout the interview would suggest that this student had a stronger bond with Dr. Washington than others who were interviewed with the same faculty member.

John, a junior, took Dr. Washington's Fall 2023 course. His interview was very straightforward, and from the first answer, it was perceived that the student-faculty relationship between John and Dr. Washington had a "normal" student-faculty relationship according to him. "I don't think that I went to office hours like once, but other than that, you know, it was all pretty much, you know, professor-student type of relationship." Unlike John, and similar to Steve, Maxwell, a December 2023 graduate student, felt a more student-faculty relationship that Dr. Washington was able to produce. Maxwell, like Steve, also took the Spring 2023 course. While the body language or voice was different from Steve's, the sentiment that Dr. Washington was able to nurture a good student-faculty relationship with Maxwell that could be observed throughout his answers.

Steve's body language was more open with not having crossed arms during the interview, his tone would change based upon the answers given and overall his nature was not trying to fight for words his examples were very natural and fluid based on the questions. “My interest was and where I was coming from into this class, and so I think he worked to learn more about me when related that some to the content material and directly what we were doing in the class.” Students who took either Dr. Washington or Dr. Jefferson’s Spring 2023 were able to articulate a more student-faculty relationship than the students who took the Fall 2023 course.

Students who took Dr. Jefferson’s course, much like Dr. Washington’s students, were also able to voice their opinions on their student-faculty relationship. Cathy, a co-op[3] senior, took Dr. Jefferson’s Fall 2023 course. She explained throughout the interview that the relationship between her and Dr. Jefferson was established not in the classroom but during lab times since that is where the interactions between faculty and students were often more one-on-one. Her fellow students, Michelle and Carl, also had the same sentiment when asked the same questions. Cathy's relationship with Dr. Jefferson was seen as a positive one since the faculty member was able to connect with her on a personal level compared to other students. “Having him in the lab setting really helped me personally…I feel like that’s how I started to be more comfortable. Asking him questions because he was around, like asking how we are doing.” Cathy would also go on to explain a time when she and Dr. Jefferson were able to find a connection outside of the classroom. “He mentioned that he went backpacking recently, and I actually go

[3] A co-op student goes to school for five years and spends the last year and half in a co-op with a company. Co-op students choose to work full time or complete college credits at the same time of working full time.

camping a lot and have been buying gear to go backpacking soon. So I ended up talking to him after class about that at one point."

Michelle, a co-op senior, also took Dr. Jefferson's Fall 2023 course. She described the relationship between her and Dr. Jefferson as very similar to Cathy's; however, she was not able to have a personal connection as Cathy did. The only connection that Michelle was able to make with how Dr. Jefferson tried to have a more personal connection to their students was she stated that a survey was sent out at the beginning of the course to try to get to know us outside of as students like kind of what was our favorite food or favorite food. Michelle's body language and voice throughout the interview indicated that while she did not see much past the average student-faculty relationship, the way that she answered the questions made it seem like there was more. The body language was very open and not closed off, she was using her hands to articulate her relationship instead of crossing them over her chest. Her voice would also become happy in a sense when describing her relationship. She had more personality when talking about Dr. Jefferson than when we were discussing homework or labs. This vibrant energy radiated that the relationship was not an average student-faculty relationship that is often stated. These interviews with the students shed light on the impact of training and relationships since human centered design was one of the established aspects of the community of practice and this interview alluded to Dr. Jefferson seeing the student as a whole person and not just a student. Michelle's answers may have given the impression that Dr. Jefferson was able to take the training of human centered design and incorporate it into how they interact with students in their classrooms.

Carl, a senior student who also took Dr. Jefferson's Fall 2023 course, expressed his relationship with Dr. Jefferson is different from that of other students since he also has him for another course (senior design) in which he works closely with the faculty member. Carl's relationship, while different, was still able to convey the same sentiment throughout his interview as his classmates. "I found that we've talked a little bit more, but not necessarily during class time." Carl's description of his relationship would not again go outside a historical student-faculty relationship, but he was able to come up with quick examples of how Dr. Jefferson was trying to build a connection with him outside of the classroom.

All students in both faculty members' courses were able to build a connection with the faculty member. While many would have described their relationship as being a more student-faculty relationship, it was observed throughout the interview that all students were able to come up with connections made by each faculty member outside of the classroom and how the students were able to voice their opinions about the faculty members in a positive way. Students were also able to say that they did want a more personal relationship with the faculty members; however, in order to do that, the faculty member would have to reach out in a more personal manner.

Feedback

During the survey, all students ranked the faculty members in a positive ranking; however, after conducting the survey, it was seen that, for the most part, the faculty members would only give feedback to the students right away during labs or at midterm. For some of the students, the assignment feedback was given out by the TAs who were helping with the courses. While every student interviewed was able to say that they

received feedback, it was not until Carl's interview that it was discovered that for all homework assignments, the TAs were given the feedback to the students on the assignments. Students were given immediate feedback during the labs when the faculty members joined them. Feedback was not just written feedback; during the lectures, students often asked questions, and therefore, the faculty members were able to give feedback based on the questions.

Dr. Jefferson's students said that when asking a question to the faculty member for feedback on a question, he would, according to all three of the students interviewed, not just give the answer to the question but instead turn the question around to the students. Carl stated that there were two ways in which Dr. Jefferson answered the question, the first being that if it had something to do with the lab, they would point the students to resources, and the second being that if it is a technical question based upon your need to understand something then the faculty would start from the basic foundation and build up to the question. Michelle and Cathy would also go on to describe Dr. Jefferson's answers to questions as asking questions back to the students so that when the answer was actually revealed, the students would have answered their own questions. "Sometimes his responses to the answers were more questions to try and like, get someone to, like, talk through it with him."

Dr. Washington's students were able to explain that the faculty member would answer the questions in class and did not challenge the students with questions back. However, John stated "He just tried to answer the question based on the best of his ability, and then you're usually like to follow up with, did I answer your question or checking to make sure that made sense to the student. Students who took Dr.

Washington's course would highly encourage the question since Maxwell would say during his interview that Dr. Washington would say that if you have a question, someone in the class would also probably have the same or similar question.

Both faculty members would give students feedback on major assignments/labs on D2L; however, when asked if the faculty members would adapt their courses based upon the needs of the students, all six students surveyed unanimously agreed that either of the faculty members would adapt their course or course schedule to help the students with their assignments. An example of this could be found in Dr. Washington's Fall 2023 course, where the original schedule is quite different from the one that the students used throughout the semester. Note this is Figure 1 and Figure 2 where the labs went from five labs at the beginning of semester to three labs at the end of class.

Figure 1: Revised Lab Schedule for Fall 2023

Week of:	Monday	Tuesday	Wednesday	Thursday
Aug 27rd	**FIRST DAY**	LAB -1		LAB -1
Sept 3rd	**LABOR DAY**	LAB 0		LAB 0
Sept 10th		LAB 1		LAB 1
Sept 17th		LAB 1		LAB 1
Sept 24th		LAB 2		LAB 2
Oct 1st		LAB 2		LAB 2
Oct 8th		LAB 3		LAB 3
Oct 15th		PREP TIME	**MIDTERM**	**NO LAB**
Oct 22th		LAB 3		LAB 3
Oct 29th		LAB 4		LAB 4
Nov 5th		LAB 4		LAB 4
Nov 19th		LAB 5	**Thanksgiving**	
Nov 26th		PROJECT		PROJECT
Dec 3rd		PROJECT		PROJECT
Dec 10th				

Figure 2: Original Lab Schedule for Fall 2023

Week of:	Monday	Tuesday	Wednesday	Thursday
Aug 27rd	FIRST DAY	LAB -1		LAB -1
Sept 3rd	LABOR DAY	LAB 0		LAB 0
Sept 10th		LAB 1		LAB 1
Sept 17th		LAB 1		LAB 1
Sept 24th		LAB 1		LAB 1
Oct 1st		LAB 2		LAB 2
Oct 8th		LAB 2		LAB 2
Oct 15th		NO LAB	MIDTERM	NO LAB
Oct 22th		LAB 3		LAB 3
Oct 29th		LAB 3		LAB 3
Nov 5th		LAB 3		LAB 3
Nov 19th		NO LAB	Thanksgiving	NO LAB
Nov 26th		PROJECT		PROJECT
Dec 3rd		PROJECT		PROJECT
Dec 10th				

Both of the faculty members, according to the students, adapted their courses as shown in Dr. Washington's course so that the students could grasp and understand the material better. This is a starting point for how the faculty members are taking in what they learned from the workshop and implemented it in their courses.

Feedback from both faculty members was not given in the traditional way of giving homework; that was given to the TAs of the course to give that feedback. However, giving feedback based on the questions that the students were not able to answer themselves was something that both faculty members were able to do in their classrooms. Dr. Jefferson would not just give the answer but make the students work for the answer, and in Dr. Washington's case, they would give the answer but then follow up, making sure that the students understood where it came from and if it answered the original question. Dr. Washington and Dr. Jefferson’s students were in sync when they all stated that the faculty member would adapt their courses to the feedback that they received from the students.

Classroom Climate/Content

Classroom climate was a theme that was more of a focus during the interviews than it was seen in the survey questions. For the most part, the students who were interviewed were able to give a response on how the content was explained to them and the overall climate of the classroom. The climate of both of the faculty classrooms was one that was not off-setting to attend the class. All students interviewed were able to give a good description of what the climate was like in the classroom.

"Big focus on working together in a group, getting student input on where they're coming from and their own thoughts," stated Steve. This quote was just one of a few when asking students to describe the climate of the classroom. John was able to explain how the climate of the classroom environment was when the students were working on in-class problems, "the faculty member would end up playing jazz or something soft or walk around if anyone had any questions during problem-solving in class." The classroom climate described above helped John at least to be more comfortable with asking questions to Dr. Washington and working with his fellow classmates. Playing music was not something that the Spring 2023 students had noticed nor talked about in their interview. This suggests that the implementation of playing music was something that was learned in the workshop to help students feel more comfortable with the faculty members.

Dr. Jefferson's students answered that the overall climate of the classroom was a bit different than Dr. Washington's students. Cathy and Maxwell both described the overall climate as being challenging or intimidating since "Dr. Washington is very forward about how difficult the class was, but quickly, everyone kind of warmed up to

each other.” Michelle stated, “I felt that he was very conversational both outside of lecture and during lecture.” Dr. Jefferson’s students did not mention if the faculty member would play music or walk around like Dr. Washington’s students, but just hearing about the classroom, students were able to positively describe it.

The overall climate of the classroom was that of typical student-faculty interaction, with a little music thrown in to help center the students when doing problem-solving activities. The content was adjusted to talk about real-world issues that all the students might see during their jobs. “Dr. Jefferson connected stuff to real-world problems often, especially in hospital settings” stated Steve. “Dr. Washington's project felt it did not feel like just a project in class like do ABC, but it was a real-world way to figure it out” stated Maxwell. Much of the projects or the content used for the course were real-world or outside problems that these students were going to discover once out of college. Students taking these courses often used words like real-world, identifying real problems, or future use. Dr. Washington and Dr. Jefferson both were able to point the students to help further motivate them to look outside the content in that class to the world around them.

Pedagogy

Both of the faculty members participated in very similar pedagogy strategies throughout their courses. While the students did not know that they were giving the faculty members a base for having a good pedagogy, nonetheless, the students were able to give examples of good pedagogy for both faculty members. These, like the ones in the survey, surround think-pair-share activities, allowing the students to solicit their own

answers to a problem and giving them the freedom to fail during the lab section to better understand the material.

Maxwell stated the following about working with groups:

> We would typically, for a lot of projects, break into groups of like two or three and have that individual work. I think with the main idea that if one person doesn't understand something, then we could help each other out.

This sentiment about breaking into small groups to work on in-class problems or lab work allowed the students to use themselves to get the correct answer rather than use the faculty member. Many teachers use the strategy of think-pair sharing to help individual students get an answer and then allow for better communication and collaboration skills during class time. Every student that was interviewed for Dr. Washington's course would allude to the group work when it came to the question of how Dr. Washington facilitates problem-solving. Steve stated that, "Dr. Washington was very try it out, like having a debugging mindset, he would ask us things like, 'what have you tried, how, what have you seen or what paths have you gone down'." Therefore, Dr. Washington would use a few pedagogical tools to help the students solve the problem, not just give them the answers.

Dr. Jefferson's students also described the faculty member as having a more think-pair-share mentality when it comes to small group work within their course. Michelle stated that Dr. Jefferson's approach to problem-solving was to ask more questions to the question at hand. This allowed the students to answer their own questions and not just give them the answer. This allowed the student to feel empowered when asking and answering questions throughout the course since students were not relying on

the professor to solve their problems. Cathy stated that a “couple of times where the faculty member would put up questions on the board and then kind of just give us time to work in a small group of four to try and solve the problem and talk it through with each other.” Cathy went on to explain that Dr. Jefferson would be circling the room to help those students in need, and once the time was up, the faculty would then ask the large group what the answer would be.” Dr. Jefferson might not have known it at the time, but they were not only helping the students solve the problem by not giving the answer, but they were also building a relationship with students in the course.

How to teach is a question that many faculty get asked when they are teaching or wanting to teach students. The faculty members that the students described do have some good pedagogical tools that they use to help facilitate their courses; however, students in both classes also do give the idea that this was a lecture-based class with a lab course built in. The classroom setting, while lecturing, allowed the faculty members to use some of their tools to ensure that the students were not just getting the information on the course but they were also allowing the students to ask questions, figuring out the answers themselves, and getting the content into their minds so that they were able to remember it and not just pass the test.

Document Analysis

Due to the limited use of the learning management system D2L, the data analysis resulted in non-results. Both faculty members did not change the way that they use D2L from semester to semester; therefore, no results can be taken from the D2L sites. Faculty members do use D2L but as more of a repository for their lecture notes, homework, and turn-ins for the student's assignments. The lab schedule however did come from D2L

showing that this was a repository for the faculty members to update their class schedules.

Conclusion

The four themes are reflected both in the survey data and the interview with the students. It can be concluded that Dr. Washington is able to build a more personal relationship with the students compared to Dr. Jefferson. However, during the interviews, the students pointed out where the faculty member was not just a faculty member but the professor made an attempt to get to know the students on a personal level. Both of the faculty members adapted their courses based upon the feedback that the students gave which allows the students to see that the faculty member values their feedback within the course. Course content and climate also were affected from semester to semester which can be seen with the interviews. Students were able to notice that the climate in the classroom was not just a lecture based course but the faculty members wanted to have that communication throughout the semester.

The faculty members who participated in the community of practice might not have realized that what they do throughout the semester has really good pedagogical practices. The students tended to notice how the faculty members answered questions, were around during the lab times and held office hours for all types of schedules. These practices allowed the students to feel that connection and allowed a more cohesive student faculty relationship. While the results are not huge they do however tell the story of growth for both students and faculty. Chapter five concludes the research with the summary of what was learned from the survey and interview data. It will also try to answer the research question that was proposed, after engineering faculty members have

completed an in-person community of practice (workshop), do the changes in classroom practices related to students impact the student-faculty relationships?

CHAPTER FIVE

Conclusion

Overview

In this chapter, I relay my interpretation of my findings and discuss the implications and limitations of my study on transferable skills from a community of practice to students before and after the community. The literature and my understanding of relationship building inform the significant themes I assigned to those surveys and interviews. As a reminder, my primary research question is:

- How does an in-person community of practice influence faculty and student classroom interactions?

The secondary questions in this study are:

- Are the skills and strategies taught in the community of practice transferable to the classroom?
- What are the most significant changes in student-faculty relationships after engineering faculty participate in a community of practice training?

This chapter is a summary and reflection of my findings with the survey data and interviews conducted. Many of these findings were minor but made up a more significant finding based on the students' interactions with the faculty members. Limitations to the study are also discussed as there are limitations to the data collected and the leading community of practice. Lastly, this chapter discusses how this fits into the greater research area, and future research that should be conducted will conclude the chapter.

Summary of Findings

After data collection, the findings of this study showed minor changes in both Dr. Jefferson and Dr. Washington after participating in the community of practice. Three changes were noticed in the student-faculty relationship: the classroom climate, the feedback, and overall student-faculty relationships. Many of the skills taught in the community of practice were transferable to the classroom based on the survey and interviews. The feedback from the students was the most significant change for both faculty members. No significant changes were noticed in the student-faculty relationship; however, there was still a change in the perception of the relationship between students and faculty.

Classroom Climate

Students who took Dr. Washington and Dr. Jefferson's courses in Spring 2023 did not speak to or rank the faculty members as having a good classroom climate. The majority of the students said that it was a regular classroom atmosphere. Regular classroom in the students' view was the faculty member lectured, they would have small groups to discuss the problem that they were working on during that class period and the faculty member would answer students' questions. However, the students who took the Fall 2023 course noticed that Dr. Washington was playing music during work time, allowing the students to express themselves by requesting music in Dr. Washington's case. However, Dr. Jefferson still had that lecture-based course but encouraged the students to ask questions when they needed help understanding a concept. The music aspect of Dr. Washington's course is a significant change in the climate of the classroom since before the community of practice the faculty member would not try to create a

classroom where other student learning could be done such as playing music. One aspect that Dr. Jefferson sends out a questionnaire to the students at the beginning of class to get more personal information on them to start to build a connection. This questionnaire was only talked about with the students after the community of practice.

This classroom climate is essential to note because faculty members were taught to teach students with different learning styles and treat them as human beings during the community of practice. Dr. Washington uses the music to build a more student-faculty relationship outside of just the lecturing. When asking the students for music requests, it shows that they want to understand the music that the students listen to better. This allows the professor to start building a personal connection with the students. The professor sending out the survey to the students does show that they want to see the students as humans; however, the students still need to describe how he used that information. It was more of a passing comment, and the student made it seem that while the faculty member does give the survey, however she did state that Dr. Jefferson really did not do much with the information.

Classroom climate did not have a significant impact when it came to different learning styles for the students. Many students in surveys and interviews pointed out small group discussions as the active learning strategy; however, that was the only one. Students only expressed a lecture when getting the information for the course. Allowing the students to express their learning styles in the classroom helped garnish a better relationship between students and faculty members. Using more of the active learning styles also enhanced the relationship.

Students ranked both faculty members as needing to be more transparent in the classroom, suggesting that the students feel that they are not seen as equal in the eyes of the faculty members. When looking at the survey and interview data, the students felt that, in both semesters, the faculty member needed to show the students how the class would run during that day or lecture. As the learning during the community of practice suggests, treating students as human allows them to have more open communication with the faculty members and allows the students to feel that they have a say in their learning. Neither of the faculty members allowed the students to have that say in their learning and, therefore, the students felt that there was not a free-flowing conversation between the faculty and them.

Classroom climate, while not the most important finding, allowed an answer to the question of the skills transferred between a community of practice and the classroom. The CoP the faculty members participated in showed that they should be more transparent in their course design, allow for more learning styles, and make the students feel they are part of the course. Some of the faculty members attempted to use different strategies to have a better student-faculty relationship; however, most of the data suggests that they just used what they were already familiar with which suggests that they did not change their practices.

Feedback

One area in which the data suggested that both faculty members had a significant change with the community of practice was feedback and giving more time to the students to complete their labs. As previously mentioned, students in Dr. Washington's Fall 2023 course needed help with the first couple of labs instead of the professor

continuing since they are on a deadline for what they must cover in the course. The faculty member changed the lab schedule to allow more time to complete the labs. Feedback was an area that was seen as becoming more significant to the study since students in both faculty members' courses said differently from the faculty members based upon feedback that was given. This changing of the schedule was talked about with all the students interviewed for both sections. There was definitely a change in the schedule based upon the student feedback.

Both faculty members from the survey after the community of practice needed to work on their immediate feedback to the students since the courses in the Spring were able to rank the faculty members high with the immediate feedback; however, in the Fall courses, this ranking dropped. Feedback from Dr. Jefferson and Dr. Washington was also different when it came to how they gave it when answering questions, suggesting that the faculty members' pedagogy was something they already had. When answering questions, Dr. Jefferson would try to spark inquiry with the students, allowing them to answer their questions. Thus, the feedback was a more open-ended conversation, allowing a better understanding of the students and building that relationship. When giving feedback in the form of answer questions, Dr. Washington would answer the question and thus did not have the opportunity to have the open-ended discussion like Dr. Jefferson.

One theory the faculty members learned during the community of practice was constructivism. The professor practiced constructivism by allowing the students to interpret the information given and apply it to their questions. Dr. Washington answered questions in a historical classroom style, checking in at the end to ensure that the question was answered. Both faculty members would adapt feedback or discuss homework

feedback with the whole class, allowing the transfer of skills used in the community of practice to their classrooms.

Feedback is typically talked about when it comes to grading assignments. However, the feedback that helped establish the student-faculty relationship was seen in how the faculty members responded to the feedback given by the students in the classroom about the assignments. Both faculty members switched their schedule of assignments around based on the feedback given. This allowed for a more natural student-faculty relationship since the faculty were now taking the student's information in and not just taking it to the side. We can see that Dr. Jefferson applied this concept when having that open-ended discussion based on the student's questions. This concept can also not be seen in Dr. Washington's classroom since they were answering the students' questions and not allowing them to interpret the information themselves.

Student-Faculty Relationships

One area that the data suggested was that most of the students who took the survey generally had positive aspects to say about the faculty members, and the interviews also concluded this fact. Students who were interviewed often described their relationship with faculty members as being that of average student-faculty relationships. However, that is not the case. Students wrote highly about the faculty and how much they had a relationship with faculty members. It was noticed that the students who took the spring courses could articulate a better relationship with the faculty, but that did not negate the sentiments that the fall students shared. The student-faculty relationship did change after the faculty members participation in the community of practice by allowing themselves to be more open to their students, asking students for personal information

about themselves and allowing them to be more available during office hours. The main themes from the written descriptions of the student's relationships with the faculty members were relatable, comfortable, pleasant, and real-world experiences.

Students from both semesters described the faculty members as being approachable. Therefore, this approachability was built into the faculty members before the community of practice and persisted after the community ended. Students in the interview described the faculty as being open during office hours and lab times. These instances allowed for a natural relationship to form with all students. Again, this is not a skill that was transferred from the community to the faculty member; this was something that the faculty members did before and after the community. Significantly, the faculty members in the Fall 2023 courses tried to be more open with the students about real-world applications to the course and their personal lives. They allowed themselves to be seen more often in the labs than previously seen. This humanistic approach to the students is a fundamental building block on which the community of practice was founded.

Students during the interview would describe their faculty members, especially Dr. Jefferson, as being in a professional relationship; however, after coding the interviews, the words and body language of the students made it seem that while they thought it was a professional relationship, was more of a deeper student-faculty relationship than typically seen in the relationship between students and faculty. Many students described the faculty members as knowing their names, making them feel comfortable in the classroom, during office hours or labs, building a connection with mutual interests, and allowing the students to come and talk with them about after

college. These descriptions sound like something other than an average relationship with the faculty member, regardless of how the students feel.

While the student-faculty relationship can be seen as more than the average, it needs to show if this was achieved by doing the community of practice or if this was just the faculty members' nature during the courses. The students interviewed and described the relationship mainly from the Fall 2023 course after the community of practice. However, those students in the Spring 2023 course also talked highly about the faculty members. The community of practices helped the faculty members put names to theories; however, that does not mean that this was the sole reason for the change in the student-faculty relationship.

Becoming an expert in the field was something that the community of practice pressed upon as a viable community. Without the students (novice) thinking that they were moving towards becoming an expert the community of practice model would not have worked. However, after hearing about the relationships between students and faculty members, all six students interviewed stated that they feel that after taking courses with Dr. Jefferson and Dr. Washington they were moving towards becoming an expert in their field.

Much of the student-faculty relationship can be seen in both semesters of the courses taught by the faculty members. Thus, the transferable humanistic skills from the community of practices probably only went as far as the community of practice. Many of the techniques the faculty members were doing were already in their arsenal, and thus, they were already doing them. The community of practice helped foster more techniques to build relationships with students, but the faculty members of this study were already

doing most of the work therefore it can be noticed that the community of practice did not actually have a huge impact on the faculty members The community of practice allowed the faculty members to get more pedagogical knowledge and holistically realize that the students are human, however, to say that the skills they learned transferred into their student-faculty relationships was not seen based upon the data. This data set was a small sample and there was not anything to compare it to.

Overall Impact

The last significant finding is that, unfortunately, based on the results from the students surveyed and interviewed, there was not much impact on the classroom. The two faculty members who were chosen to have their students report on the faculty relationships and changes in the course were already doing the work before the workshop. The chosen faculty members were based on their same department, the difference in faculty ranking, and how they interacted with the workshop materials. However, after the data was gathered, it seemed the faculty members were already doing the work to improve their student-faculty relationships and classrooms based upon the topic of the community of practices.

The faculty members who attended the Summer 2023 workshop to increase their teaching scores based upon what the students have given them, would have been a better sample for the data collected in my thinking. However, it was unknown at the time of selection for this study that some of the participants in the CoP were there to increase their student scores. Many faculty members who participated in the CoP were there to learn more about the teacher's theories or wanted to solidify how they were teaching in their courses. To say that the community of practice workshops impacted the faculty

members significantly would be a lie since, according to the data gathered, the two faculty members chosen were already doing the work, and this CoP had little to no effect on the faculty members themselves.

Literature Connection

The results from this data can confirm the literature that in order to establish a well-working student-faculty relationship, the students need that feedback, whether it be immediate or constructive, on a homework assignment. As previously stated, “Feedback to a student says, ‘somebody cared enough about my work to read it and think about it!’” (Brookhart, 2008, p. 1). This sentiment was seen throughout the surveys and interviews by students, saying that the faculty members' feedback helped them with their homework assignments, questions about the course, and the overall relationship with the faculty members.

Another aspect that can be confirmed is the need for a better student-faculty relationship by the faculty effectiveness. The students interviewed stated that the faculty members knew what they were talking about and how they could apply it to the real world. Thus, the students could generate a relationship because the faculty members not only lectured them about the topics but ensured that they aligned with outside work. Dr. Washington effectively communicated with the students on aspects that would help them outside of the academic world. Faculty effectiveness also was demonstrated by the personality of the faculty member. All six interviewed students felt comfortable talking with the faculty members during class, labs, or office hours. Effective faculty supports the students in achieving their goals and staying motivated in the course.

Payne (2005) and Kohn (2006) both stated that student-faculty relationships are vital to the students' learning experience however, one aspect that this work will add to the literature is that of classroom climate and how the classroom environment can also help bridge the gap between students and faculty. The faculty members' classrooms were open, curious, communicative, and respectful. Students generally felt comfortable asking faculty members questions. The students also benefited from the respect that the faculty showed them in the classroom, that this was a classroom with experts and novices, and by the end, we would all be on the same level. This goes to the community of practice goals, where the novice will transition to the expert in the room. Classroom climate helps the faculty members strengthen the relationship between students and themselves based upon the way the data is trending.

Limitations

This study came with limitations, the most significant being timeliness, sample size and the limited use of the learning management system (D2L). Many of the limitations were due to the shortness of which the research was collected. These limitations were not unexpected, but they were a limitation on the study that did not result in a confidence of answering the research question. One of the other limitations was that of data analysis or lack thereof. The data analysis through D2L did not have a result since the faculty members used D2L as a management tool and not one that would help build the relationship between students and faculty.

Timeliness

The time limitations for this study refer to the shortness of data collection and the overall study. It would have been better if the study had been longitudinal with the

students since it was difficult to determine if the students had a significant change in the faculty members from one semester to the other. It would have been better for this study if the faculty members followed at least two semesters before the community of practice and two after the community of practice to see if the theories and skills learned in the community of practice were observed over a more extended period.

The data was collected over three months after the graduation of some students. The interviews were conducted within a month and, therefore, I felt rushed, and I needed to get into the relationships more for a better comparison between the classes. The survey was sent out in the middle of the fall semester, so the email addresses of the students who graduated in the spring semester became inactive emails. The survey time would have been better distributed before the end of the course in Spring 2023 and Fall 2023. The students who did take the survey only had about two months and two emails to do so, resulting in a quick collection of data, which made more students take the survey not applicable.

Sample Size

The number of students who took it needed to be minimal compared to the course catalog the faculty members teach. Collecting students on only two courses per faculty member was also a limitation since the faculty members teach more students in a given year. It would have been helpful to have more students to survey and get interviews to understand the transferable skills better. All faculty members participating in the community of practice would have been a better comparison regarding student and student-faculty relationships. This study was conducted with two faculty members over

two semesters. The study is believed to apply to other situation and faculty members within the CoP.

Data Artifacts

Using more ethnographic techniques could have improved the collection of data artifacts. One technique would have been observing the course a few times in the semester to see how the faculty interacts with the students instead of just getting the students' perspectives. However, observations could not be obtained since this study occurred after the Spring 2023 courses were complete. Observations throughout all four courses multiple times a semester would have helped establish the transferable skills learned during the community of practice.

Faculty interviews are the last limitation to understanding how the faculty members felt that they answered these skills to humanize the students in their classrooms. While they are not the focus of the study, it would have been interesting to see where they felt that they humanized the students compared to how they felt or reacted to the change. Faculty interviews should have been conducted after the Spring course and before the Fall course to see how they would have changed based on the community of practice.

D2L

One of the biggest limitations that this study had was the non-use of D2L in a way that seemed that faculty would not have established a better student-faculty relationship. The way that both of the faculty members used D2L was in a repository way for their lectures, notes or submitting assignments. Neither of the faculty members used D2L to help with student-student interactions such as a discussion board or welcome announcements from the faculty members. While these courses were a face-to-face

interaction the D2L site could be used for more interaction with the students and the organization of the site would have allowed the students to get comfortable with the materials in an organized way instead of having to find where the faculty member put that information. The main use for D2L that would have helped the faculty members and the relationship was the feedback they did for the students assignments. Written feedback was generally given to the students' homework assignments using D2L in the overall feedback box.

D2L when used to help students in the course can be done in a way where the material, discussions, announcements or assignments submission can help build that relationship with the students. This can be done by allowing the students to not have to search for certain information or lectures, all pertinent information is on the D2L course site whereas the students have one place to go for all information. The instructor uses their site to communicate with the students about updates on assignments, labs or tests. Students often feel that having an organized D2L site whereas they do not have to ask the faculty members about where to find certain information helps establish this relationship.

Recency Effect

One potential limitation that was previously unknown is the recency effect. Turvey and Freeman (2012) describe the recency effect as a cognitive bias in which more recent ideas or arguments are remembered more vividly than earlier ones. In the context of this study, students who were taking the faculty members' courses in Fall 2023 were the most recent to interact with them. As such, their responses to survey and interview questions may have been skewed or disproportionately influenced by these fresh experiences and impressions of the faculty member. Conversely, students who took the

courses in Spring 2023 may only recollect positive aspects, as negative memories have likely faded over time. This recency effect could impact the objectivity and balance of data collected from students regarding their perceptions of the faculty members.

Implications to the National Grant

This study will inform the grant work from the grant's group and use this data as the starting point for when they will research the students for these faculty members. The implication of this work will allow the team to check against the faculty members' own survey ranking. Many people often rank themselves less than on surveys, whereas this data would either support the ranks of the faculty members or they would show that the students are actually ranking the faculty members higher than the faculty members did. Another impact that this research will have on the grant is for more pre-data analysis since for much of the survey data it was seen that the rankings of some questions were actually dropping after the Community of Practice. How do faculty members continue with their relationship building skills after participating in the CoP when it is noted that their skills were better than before? The data is trending towards that a six week CoP does not have the same impact on faculty if it was a yearly program per say.

My research agenda is to continue to help with the grant in their work to help educate faculty in educational theories to become better teachers and grow student-faculty relationships using human centered design. The interviews with students affirmed that they only see their relationship with the faculty as professional. However, for me, it was more of a personal relationship that they did not classify as such. For this research study, it would be fascinating to follow up with the Fall 2023 students again

after graduation to see if their relationship with the faculty changed from the fall to the spring semester, allowing for that longitudinal study to be done.

Sharing Results

The data gathered from the students will be declassified and shared with the grant team. After the original grant ends, the members of the team will start to look at the students who were instructed by all the faculty members that took the community of practice workshops. These results and data will be looked at in a future grant meeting so that the members of the team can see and look at the different ranks that the students did in the survey and interview.

The results of this study will be combined with the data collected from the faculty members to complete the overall picture of the grant by giving a voice to the students after the faculty members gave their own rankings on the similar survey. The results will allow for the grant team to see if the faculty members ranked themselves the same as what the students thought. The results will also be turned into a conference paper to be presented at the ASEE in 2025. This dissertation will be put online in the Digital Commons at Hamline.

Final Thought

One of my goals during the dissertation process was to contribute to the conversation around student-faculty relationships and how a community of practice could help with that. If this community of practice model is the best way to teach faculty members, then that would be amazing. However, since this study was so short and did not allow for much student feedback on their relationship, it is hard to tell if any transferable skills were considered after the community of practice ended.

This study, while essential to get the student's feedback, did not allow for the best results since it was a concise study, and I still do not know if the faculty members came in with the relationship-building toolbox before doing the community of practice or what the students were able to tell me about what changed. This study still has many questions that should be researched more upon the community of practices for teaching faculty how to build. Research suggests that much of the engineering education has not had time to focus on the best practices being taught to the faculty members. However, the students of this dissertation have made it clear that they do believe that their faculty members have best practices and are good teachers. Steve said it best in his last response in his interview, “I’m sure you can tell, but I was a big fan of the class and really value Dr. Washington as both a professor and mentor!”

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APPENDIX A
Student Survey Questions

Thank you for your participation in this research study. Please take some time to answer the following questions. To allow access to an interview please include your name in the survey. All responses will be coded to de-identify your data in the study database. Faculty members of interest will not have access to the responses.

For all items in this construct, please respond to the items below by indicating the frequency with which you engage in each process—5 point scale: not at all (1) – all the time (5)

Emotion Sub-Scale 5 point scale – Not at all (1)—All the time (5)

- Does the faculty member exhibit excitement when you show up to class
- I am curious to see new techniques that my faculty member uses to teach
- I would consider my faculty member innovative
- Faculty member makes me feel included a robust discussion
- I have a good relationship with this faculty member
- [open ended]: How would you consider your relationship with this faculty member?

Content Sub-Scale – Not at all (1) –All the time (5)
How likely are you to see this faculty member choose …

- Content that is relevant to the students' lives
- Content that helps establish a more faculty-student relationship

Learner Sub-Scale– Not at all (1) –All the time (5)
How often do you see this faculty member use …

- Awareness of common student misconceptions in the course to design their instruction
- Awareness of a variety of learner characteristics or cultural background to design their course (e.g., culture, language, disability/ability, first generation)
- Awareness of what motivates students to learn
- Awareness of the life situations of their students to design their course/curriculum (e.g., working, family, access to technology)

Instruction – Not at all (1) –All the time (5)
How often do you see the faculty member design…

- Activities to determine students' prior knowledge or student experiences in other course to improve course material
- Instruction to clarify how course content is organized (e.g., major concepts, examples)
- Selecting engagement strategies for use during class (e.g., students talking with other students, students working with course content, students practicing disciplinary skills)

- Instruction to provide risk taking opportunities for students

Technology – Not at all (1) –All the time (5)
How often do you see the faculty member…

- Use D2L to give constructive feedback for assignments.
- Use D2L to build upon final projects / papers
- Use D2L to support collaboration (student to student)
- Use D2L in an organized manner for easy access to content, assignments, tests or feedback.

Assessment of Learning – Not at all (1) –All the time (5)
How often do you see the faculty member…

- Ensuring that their students know which course assignments/exams map onto course learning outcomes
- Assigning assignments/exams that are relevant to students' lives
- Assigning assignments/exams that give students ownership over course content

Strategies for delivering content/skills – Not at all (1) –All the time (5)
How often do you see the faculty member…

- Use visual depictions to make concepts visible to you
- Use strategies to help you learn the disciplinary language
- Demonstrate real life applications of key concepts

Strategies for student engagement – Not at all (1) –All the time (5)
How often do you see the faculty member…

- Utilize active learning strategies during class (e.g., think-pair-share, minute papers, problem solving exercises)
- Use strategies that help you practice new skills
- Use strategies that give you immediate feedback on your learning during class
- [open ended]: in your own words describe your relationship with this faculty member?

Strategies to increase transparency – Not at all (1) –All the time (5)
How often do you see the faculty member…

- Explain why they have opted to use particular assignments
- Explain why they have opted to use class time in the way we do (e.g., explain objectives)
- Explain what they hope you will learn in this course (e.g., knowledge, skills)

Strategies to assess learning – Not at all (1) –All the time (5)
How often do you see the faculty member…

- Provide you with examples of quality work before beginning a major assignment
- Provide you with feedback on multi-part assignments as you work on them (e.g., drafts,
- progressive due dates)
- Provided feedback only at the end of the project

- Provide you with grading rubrics/criteria before you complete assignments
- Provide you with the opportunity to develop grading rubrics/criteria with the faculty member

Interview Questions:

- If you would like to or can expand upon your answers please indicate if you volunteer to do an interview. All interviews are voluntary and you do not have to participate.

Thank you for completing the survey. Please pick one (1) of the following e-gift card choices either Amazon or Starbucks. Include your name and email address in which to send the e-card.

APPENDIX B

Student Interview Questions

Content/ Learner / Instruction / Technology / Assessment

1. Can you describe the overall climate of the classroom throughout the semester based upon your response in the survey?
2. Do you or your classmates ask questions during class?
    a. How would you describe the faculty members' response to those questions?
3. In what ways does the faculty member facilitate problem solving in class?
    a. How are you engaged in this process?
4. How if at all does the faculty member encourage your knowledge beyond the bounds of the class?
    a. Can you describe your relationship with the faculty member?
5. Can you describe a time when the faculty member made a connection with you based upon your life?
6. Have you ever observed the faculty member adapt their course based upon feedback they received?
    a. If yes, explain how?
7. Can you describe the most challenging moment in the faculty member's course?
8. Can you tell me a time when the faculty member tried to build a connection with you? Or a missed opportunity for a connection?
9. How often did the faculty member give you feedback and how much did it influence future assignments?
10. Can you give me an example of when the faculty member encouraged your motivation for the content of the course?

General

1. How comfortable are you to talk to the faculty members outside of the classroom on personal related issues?
2. What value do you place on the faculty members' office hours?
3. After experiencing this course would you say that you are moving towards becoming an expert in the field?
4. Do you feel that you had a connection with the faculty member? How do you think they could cultivate a better relationship with you?

APPENDIX C

D2L Document Analysis

Course/Module: [Course/Module Name]

Content Page Title: [Page Title]

Evaluator's Comments: [Additional comments or observations]

Rubric Criteria:

1. Layout (3 points)

Score:

0-1 point: The layout is cluttered, disorganized, or visually unappealing, making it difficult for students to navigate or engage with the content.

2 points: The layout is somewhat organized, but some elements (e.g., headings, images, text) could be improved for better visual appeal and content organization.

3 points: The layout is well-organized, visually appealing, and effectively guides students through the content. It enhances the overall learning experience.

2. Student-Focus (3 points)

Score:

0-1 point: The content appears to be designed without considering the needs and preferences of students. It lacks clarity and relevance to the course objectives.

2 points: The content partially addresses student needs but could be more engaging and directly related to the course objectives.

3 points: The content is clearly tailored to meet the needs of students. It is engaging, relevant, and directly aligned with the course objectives, promoting active learning.

3. Welcome Messages (2 points)

Score:

0-1 point: No welcome message is present, or it is generic, impersonal, and lacks a warm or inviting tone.

2 points: A personalized and enthusiastic welcome message is prominently displayed, creating a positive initial impression, and fostering a sense of community among students.

4. Feedback (4 points)

Score:

0-1 point: Feedback on assignments or assessments is absent or minimal, and what is provided lacks clarity or constructive guidance.

2-3 points: Feedback is present but could be more comprehensive, providing clearer guidance and suggestions for improvement.

4 points: Feedback is comprehensive, specific, and constructive, facilitating students' understanding of their performance and offering suggestions for improvement.

5. Rubrics (2 points)

Score:

0-1 point: No rubrics are provided for assignments or assessments, making it unclear how student work will be evaluated.

2 points: Rubrics are provided for assignments or assessments, but they could be more detailed or explicit in outlining grading criteria and expectations.

6. Discussion Boards (2 point)

Score:

0 point: The discussion board is not utilized or lacks engagement, hindering student interaction and collaboration.

2 points: The discussion board is actively used to facilitate meaningful student discussions and collaboration.

7. Accessibility (2 points)

Score: [ ]

0-1 point: The content lacks accessibility features (e.g., alt text for images, proper heading structure, readable fonts, keyboard navigation), making it challenging for students with disabilities to access and understand.

2 points: The content is designed with accessibility in mind, ensuring that it is usable by all students, regardless of their abilities.

8. Learning Outcomes Alignment (2 points)

Score: [ ]

0-1 point: The content does not clearly align with the stated learning outcomes of the course, causing confusion about the purpose and relevance of the materials.

2 points: The content is directly aligned with the stated learning outcomes, providing a clear path for students to achieve the desired educational objectives.

9. Use of News Feed (2 points)

Score: [ ]

0-1 point: A news feed is absent or underutilized, missing opportunities for timely updates and communication.

2 points: A news feed is effectively used to provide timely updates, announcements, and relevant course information.

10. Syllabus (3 points)

Score: [ ]

0-1 point: The syllabus is incomplete, lacking essential information such as course objectives, schedule, grading policy, and contact information.

2 points: The syllabus is present but could be more detailed or organized, providing clearer information on course expectations and policies.

3 points: The syllabus is comprehensive, well-organized, and clearly outlines course objectives, schedule, grading policy, and contact information, serving as a useful roadmap for students.

Overall Score (out of 25):

Evaluator's Overall Comments:

[Provide an overall assessment of the content page, including strengths and areas for improvement. Highlight any specific recommendations or observations.]

APPENDIX D

Recruitment Material

[Your Higher Education Institution Letterhead]

Consent for Student Interviews Based on Survey Responses

October 2, 2023

Dear [Student's Name],

I hope this message finds you well. I appreciate your participation in the recent survey conducted at the University and I would like to invite you to further contribute to our research by participating in a follow-up interview. Your insights and experiences are crucial to our understanding of student-faculty relationships and will help me improve the educational experience at our institution.

Survey Participation:

You previously participated in a survey conducted by Lisa Chase, and your responses indicated that you may be willing to share your perspectives in a more in-depth format.

The purpose of this interview is to gain a deeper understanding of your experiences as a student at the University particularly in relation to your interactions with faculty members. I am interested in hearing your thoughts, feelings, and perspectives on these interactions.

Confidentiality:

Your participation in this interview will be kept strictly confidential. Any information you provide during the interview will be anonymized, and your name will not be associated with your responses. The interview data will be used for research purposes only. These interviews will be recorded using Microsoft Teams or Otter.ai. The transcripts will also be done using the same technology. The recordings and transcripts will only be seen and used for the purpose of this dissertation.

Voluntary Participation:

Participation in this interview is entirely voluntary. You are under no obligation to participate, and your decision will not affect your relationship with the University. If you choose to participate, you may also withdraw from the interview at any time without any negative consequences.

Benefits of Participation:

If you do decide to participate in this study you will receive a $10 Amazon, Starbucks or Target e-gift card participating in this study. You will have the option to select at the end of the survey.

Risks and Discomforts:

There are minimal risks associated with participating in this interview. Some questions may ask about your personal experiences, which could potentially be uncomfortable or emotional. If you feel distressed during the interview, you may choose to skip questions or discontinue your participation.

Consent:

I have read and understood the information provided in this consent form. I voluntarily agree to participate in the interview described above. I understand that my participation is entirely confidential, and I may withdraw at any time without penalty.

Participant's Name: _____

Participant's Signature: _____

Date: _____

Thank you for considering our invitation to participate in this interview. Your willingness to share your experiences is invaluable to our research efforts.

Sincerely,

Lisa Chase

Subject: Request for Consent to Access D2L Course Sites

Dear [Faculty Member's Name],

I hope this email finds you well. As part of our ongoing efforts to enhance the learning experience at University I would like to request your consent to access your D2L course sites (S23 and F23) for the purpose of conducting a review.

Your participation in this initiative is highly appreciated, as it will allow me to gain valuable insights into the use of the D2L platform and ensure that it aligns with the educational goals and needs of both faculty and students.

Here are some important details regarding this request:

Purpose: The primary purpose of this review is to better understand how D2L is being utilized in variome courses, who it helps with the student-faculty relationship and how it bridges the community of practice framework to faculty skills.

Access: I will require temporary access to your D2L course sites to review the content and settings. Rest assured that any information accessed will be treated with the utmost confidentiality, and all access will be for review purposes only. No grades will be accessed during this time.

Timeframe: The review will take place during Fall 2023 semester, and I anticipate that it will require a limited amount of time to complete.

Your Consent: To proceed with this review, I kindly request your consent. If you are willing to participate, please reply to this email with your confirmation, or if you have any questions or concerns, feel free to reach out to me at email. If you choose not to participate, I completely respect your decision, and it will not have any negative repercussions.

Your cooperation is vital to the success of this endeavor, and I am here to support you throughout the process. I understand that your course materials and activities are important, and I will take every precaution to ensure that they remain secure and confidential.

Thank you for your dedication to enhancing the educational experience at the university, I look forward to your response and the opportunity to work together on this important initiative.

Best regards,

Lisa Chase

Subject: Invitation to Participate in Student Survey and Interview

Dear [Student's Name],

I hope this email finds you well. At the University, I am committed to continuously improving the student experience, and your insights are invaluable in helping me achieve this goal. I am excited to invite you to participate in a comprehensive research project that includes both a survey and an interview.

Part 1: Student Survey

Survey Title: Student Survey
Survey Duration: Approximately 15-20 minutes
Survey Link:

The survey is designed to collect information about your experiences as a student in some courses that you took in either Spring 23 or Fall 23. Your responses will remain anonymous, and your input will play a crucial role in shaping the future of our institution.

Please take a moment to complete the survey by clicking on the provided link. Your participation will result in a $25 Amazon, or Starbucks, e-gift card for the survey and a $10 e-gift card for the interview, and your honesty is greatly appreciated. Your responses will help me make informed the transferable skills from a faculty community of practice to the students.

Part 2: Student Interview (Optional)

In addition to the survey, I am also offering the opportunity to participate in an interview, if you consent during the survey. Interviews will be conducted by experienced researchers and can be scheduled at a convenient time for you. This is an opportunity to share your thoughts and experiences in more depth, providing me with richer insights.

If you are interested in participating in an interview, please reply to the survey question, and I will arrange a suitable time for the interview. Your interview responses will be kept confidential.

Your participation in both the survey and interview, if you choose, will contribute significantly to the success of this research project. Your feedback is invaluable in helping me make informed decisions that will benefit current and future students.

Sincerely,

Lisa Chase