A Case Study of an Innovative Pharmacy Curriculum and Leadership Behaviors

by

Lindsey Rose Edwards Moseley, PharmD, MEd

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Approved by

Ellen B. Hahn, Chair, Professor of Educational Foundations, Leadership and Technology
Francis Kochan, Professor Emeritus of Educational Foundations, Leadership and Technology
Jane Teel, Associate Clinical Professor of Educational Foundations, Leadership and Technology
Kimberly B. Garza, Associate Professor of Health Outcomes Research and Policy, Harrison College of Pharmacy

Abstract

Change is constant in higher education, and innovation is central to change. Facilitating innovation requires the influence of leaders. Transformational leadership is a prominent leadership construct which has been shown to facilitate innovation within organizations. Previous literature on transformational leadership and innovation is abundant but inconclusive. Additionally, there is little scholarly work on innovation as a mindset. Therefore, the purpose of this study was to explore the transformational leadership behaviors and innovative mindsets of curricular leaders within the context of curricular reform (i.e., organizational change). To showcase this alignment, a new conceptual framework was proposed.

This study was a qualitative case study of innovative curricular reform and organizational change with a pharmacy program. Three research questions shaped this study. The case study participants were faculty curricular leaders with no formal authority who led curricular change. Data were collected via one-on-one interviews, researcher reflection, and curricular artifacts. Data was analyzed thematically, and overall findings were generated.

Research findings indicated that all transformational leadership qualities and behaviors were expressed by curricular leaders. The most significant transformational leadership behaviors displayed by participants included encouraging commitment and curiosity, trusting others, and assuming administrative responsibilities. Further, innovation as a mindset is an internalization process that occurs from being willing to address issues within an organization or team. Results showed that curricular leaders internalized innovation through a willingness to take risks, being inquisitive, and expressing awareness of themselves and others. As a result of these findings, the proposed conceptual framework was refined. The updated framework provides clarity regarding the relationship and alignment between the categories of innovation and the behaviors of

transformational leadership. Results from this study indicate that a leader's transformational qualities and behaviors are closely linked with the ways they internalize innovation as a mindset. A transformational leader has an innovative mindset.

Results from this study provide specific qualities and behaviors related to a leader's behaviors and mindset that others can emulate or that programs can use for leadership development. This case study confirms previous findings that transformational leadership qualities and behaviors are relevant for achieving organizational change. Additionally, leaders do not need to be at the top of an organization nor have formal authority to be effective in leading innovative change.

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Chapter 1: Introduction

Change is inevitable in all workplaces and fields and is a necessity for organizational vibrancy. While change may occur to varying degrees and differing timelines depending on the context, it is ubiquitous. Facilitating and sustaining this change requires creativity and innovation. Leadership is one of the most important factors influencing innovation within an organization (Mumford & Licuanan, 2004), as leaders are needed to empower employees, foster creativity, and stimulate new ideas.

Transformational leadership is a type of leadership that has been repeatedly observed to have a positive influence on innovation (Hsiao & Chang, 2011; Jung et al., 2003; Matzler et al., 2008). Transformational leaders are important in the promotion of innovation because they create visionary goals, facilitate personal investment among employees, and motivate followers to embrace and embody changes that inspire improvement. Transformational leadership behaviors are important in facilitating organizational growth during transitional phases (Conger, 1999). There are four interrelated behavioral components that define transformational leadership, each important for the process of inspiring transformation among followers: inspirational motivation, intellectual stimulation, idealized influence (also known as charismatic leadership), and individualized consideration (Avolio et al., 1999; Bass, 1990). The alignment between transformational leadership and innovation is not only intuitive, but it has also been firmly demonstrated empirically. Therefore, transformational leadership was intentionally chosen as the lens for which to explore curricular innovation in the current study.

Despite the natural and well-defined connection between transformational leadership and innovation, a high degree of variation is found in the literature. This suggests that the relationship is not always consistent (Rosing et al., 2011). This discrepancy is likely due to the

influence of different factors on study outcomes. Examples include the study variable(s) (e.g., creativity versus innovation), the level of analysis (e.g., individual versus team versus organization versus multi-level), the type of task (e.g., research versus development), and an assortment of organizational factors (e.g., climate and centralization) (Rosing, et al., 2011). Due to this ambiguity, the present study will consider a specific case of innovation (including its contextual factors) and propose a conceptual framework that integrates innovation with transformational leadership. The context of the case is an innovative pharmacy curriculum and the curricular leaders who lead the change.

Statement of the Problem

Multiple questions justify the need to study innovation and leadership in pharmacy education. First, innovation is an organizational necessity, yet it is a challenge. Second, leadership facilitates innovation, yet the linkage between these two concepts is not well understood. Third, gaps in the literature make the case of pharmacy curricular reform relevant. Each of these problems are explained in more detail in subsequent paragraphs.

Innovations in higher education are not as naturally pervasive as other settings, despite outside pressures such as funding, technology advances, practice advances, and globalization (Brennan et al., 2014). Success and survival of organizations, however, depends on innovation (Mumford & Licuanan, 2004). Accreditation drives change at institutions of higher education. Accrediting bodies set standards specific to a given profession for organizational operations and student performance. Because accrediting bodies drive the need for change, they ultimately drive the need for innovation. Accrediting bodies determine what graduates should know and what processes must be completed at the time of graduation. Additionally, standards are revised periodically to mirror changes in practice or policy, and programs must react to these changes by

revising their processes and curricula. Accrediting bodies, however, do not dictate how competency is achieved. This allows programs the autonomy to decide the most meaningful approaches which fit their context. As a result, educational innovations are important in maintaining accreditation. This is especially true in healthcare training because of the rapidly evolving world of healthcare practice (Irby et al., 2010; Olsen et al., 2020). The case in this study reformed their curriculum because of evolving accreditation standards and, therefore, the pharmacy program serves as an exemplar on educational innovation.

As discussed, educational innovations are required to adequately respond to accreditation changes and advancements in healthcare practices. Innovation is founded on the positive influence of leadership (Bland et al., 2000), especially transformational leadership (Jung et al., 2003; Lee et al., 2020). This is because leaders manage and influence the factors that are essential for success and, thus, drive the organizational vision. Leadership is, therefore, a critical factor in achieving innovation. While it is evident that transformational leadership is a determinant of innovation, the behaviors and mechanisms connecting them are not explicit in the literature (Crossan & Apaydin, 2010; Mumford & Licuanan, 2004). Further, studies have not explored which transformational behaviors facilitate innovation. Most studies evaluate transformational leadership and innovation as entire entities and do not explore the components of each. As a result, a conceptual framework is needed to better understand the link between innovation and transformational leadership.

Gaps in the literature surrounding innovation, leadership, and pharmacy education are also evident. Since 2017, less than forty scholarly works (estimated) have been published on innovation and transformational leadership in higher education settings; of those forty works, less than three have been in the context of academic pharmacy. Similarly, less than ten articles of

the forty concern curricular innovation. Additionally, studies on transformational leadership tend to focus on the upper levels of management rather than the leaders in the middle who are closer to the operational realities of the organization (Sheehan et al., 2020). They also tend to focus on the effects that leaders have rather than their attributes, which contributes to a lack of conceptual clarity of transformational leadership (Stock et al., 2022). This is an important distinction because it is integral to understanding the behaviors that allow leaders to be transformational.

Leaders are not always at the top of an organization. Because middle and lower-level managers have more direct interactions with the frontline workforce, they have more influence on how employees feel and act on the job (Hu et al., 2012). Therefore, leadership is a collective movement rather than an individual one (Bommer et al., 2004). This suggests that engaging all levels of management is necessary to coordinate the execution of organizational goals, as was the case in this study.

Additionally, the bulk of empirical research on transformational leadership investigates its link to individual innovation rather than team or organizational innovation (Bono & Judge, 2017; Gong et al., 2009; Jaiswal & Dhar, 2015; Jung et al., 2003; Shalley et al., 2004). Although the link between leadership and individual innovation is evident, the case being explored in this study involves individual, team, and organizational innovation. Further, there are other categories of innovation that have not been thoroughly explored in the literature, specifically, innovation as a mindset.

Purpose of Study

This study was designed to explore innovation and transformational leadership within the context of organizational change. This exploration will be conducted using an exemplary case. The case includes the successful creation and implementation of a highly innovative curriculum

at the Harrison College of Pharmacy at Auburn University (AUHCOP), which is in the southeast United States. One purpose of this study is to share AUHCOP's unique curricular revision processes. The curriculum was completely revised in response to shifting accreditation standards (see Accreditation Council for Pharmacy Education, 2015). With the next iteration of pharmacy standards earmarked to be released in 2025, the results from this study will inform future curricular innovation.

Additionally, leadership and innovation were chosen as the concepts to frame this study largely because they are both critical phenomena within the case being explored. The program has a history of innovative curricula, and in the most recent revision, leadership was described as essential when considering their "radically different" curricular approach (Wright et al., 2018, p. 228). While the context of this study is curricular innovation, the setting (pharmacy education) and participants (mid-level leaders) provide unique insights into the relationship between leadership and innovation. This study is largely exploratory and descriptive in nature.

Current literature on leadership and innovation, while robust and growing, is fragmented and lacks a cohesive body of evidence. Most studies in this area explore mediating factors (Hughes et al., 2018). Mediating factors are the facilitators that allow for one element (such as leadership) to have influence on another element (such as innovation). This study will explore the intersection and alignment of innovation and transformational leadership in a new manner not utilizing mediating factors.

Another purpose of this study is to explore the relationship between transformational leadership and innovation through the development of a novel conceptual framework. The Transformational Leadership and Innovation Framework (TLIF) was developed after extensive

research on these topics. The framework is described briefly in this chapter and in more detail in Chapter 2.

Overview of the Case

The focus of this case study, as described, is the connection between curricular innovation and transformational leadership behaviors. The case is a pharmacy program (AUHCOP) and includes the period of curricular design, implementation, and maintenance of the Practice-Ready Curriculum (PRC) from 2013 to 2023. This time frame started when the innovative curriculum was being designed (starting in 2013) and continued when the curriculum was first implemented (starting in fall semester 2017) and then maintained (starting in fall semester 2018 and continuing to present day in 2023). The innovative curriculum, described in detail in Chapters 2 and 3, began in a rolling fashion starting with the first-year pharmacy students in 2017, second-year pharmacy students in 2018, and third-year pharmacy students in 2019. As the curriculum was phased in, the legacy curriculum was phased out.

The participants in the case study include the faculty responsible for overseeing the design, implementation, and maintenance of the PRC. Curricular leaders were involved in different phases of PRC reform. The study participants are termed curricular leaders in this paper for purposes of generalization but are termed “Course Coordinators” or “Learning Community Chairs” within the organization. All participants are faculty of varying ranks within the college of pharmacy.

The participants of this case study (i.e., the curricular leaders) were unique. First, they became leaders within the organization because they agreed to lead curricular reform, yet most did not have an administrative position nor authority over other faculty. Rather, they had typical faculty appointments and, therefore, were considered mid-level leaders. While organizational

leaders at AUHCOP provided oversight of the curricular reform, the curricular leaders supplied significant brainpower and leadership, ultimately leading the change. Additionally, the curricular leaders were mostly clinical pharmacy faculty, with a few exceptions.

The PRC was considered innovative because it was competency-driven and integrated (Irby et al., 2010; Novak et al., 2019; Pinder & Shabbits, 2018; Riley & Riley, 2017). These approaches to curriculum design have not been widely used in pharmacy education, making this case unique and novel. While traditional courses in higher education typically have one Instructor of Record, and that person is the sole teacher for the course, the courses within the integrated pharmacy curriculum at AUHCOP are team taught. In addition, coordination and oversight of the courses occurred by the curricular leaders and not by the faculty teaching teams. The content of the PRC was divided into disease-state or concept-based units. A teaching team teaches a unit, and there are multiple units per course. Thus, there are multiple teaching teams per course. While the teaching team provides instruction, it is the curricular leaders (who work with others) to maintain oversight of the courses. The course structure of the PRC is further detailed in Chapter 2.

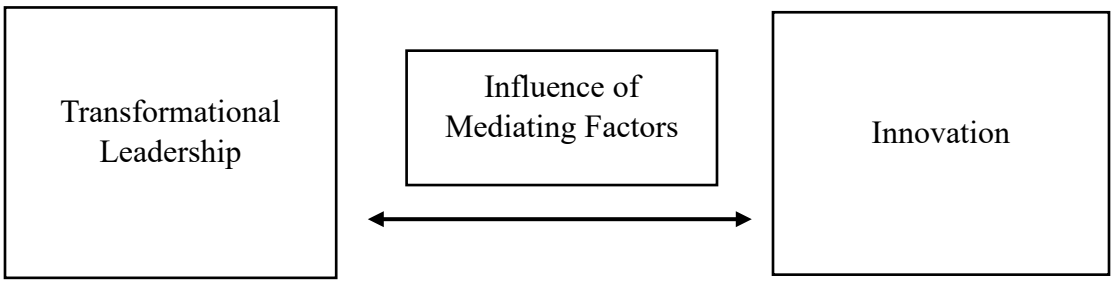
Conceptual Framework

This study proposed a conceptual framework for innovation and transformational leadership. While there is considerable scholarly work on these two topics and how they intersect, no studies are known to align the components of each topic with one another. Based on a review of the literature on this topic, a new conceptual framework for the intersection of innovation and transformational leadership was conceptualized and, thus, becomes the conceptual framework utilized in this study.

Studies that have assessed the intersection of innovation and transformational leadership have frequently done so through exploration of mediating factors, meaning the things that link the two topics together or exert influence. Figure 1 shows how these studies are typically designed with the mediating factor as the intermediary between the two phenomena of transformational leadership and innovation. Typically, mediating factors fall into one of four categories: team/organizational factors (e.g., knowledge sharing); follower attributes (e.g., creative ability and learning orientation); relationship attributes (e.g., identification with leader, trust in leader); and leader attributes (e.g., empowerment and task support). A majority of studies are also hypothesis testing, meaning quantitative in nature. The focus on quantitative methods may be impeding the ability to consider the contextual variables that influence the dynamic.

Figure 1

Frequent Design of Current Studies on Topic

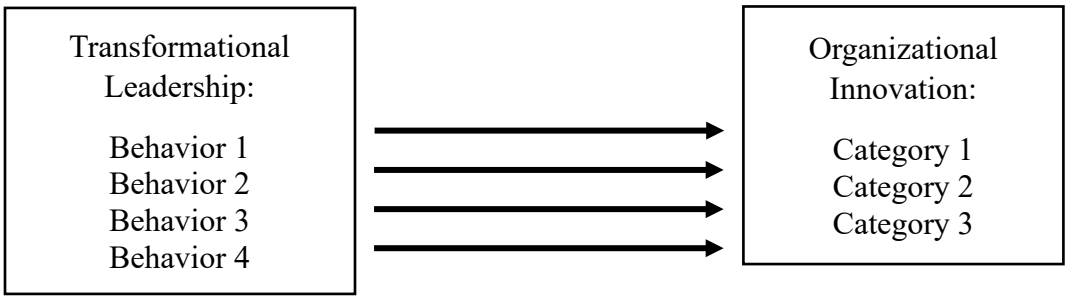


This study is novel in that it evaluates the linkage between the two phenomena of transformational leadership and innovation with a novel framework without the use of mediating factors. Figure 2 depicts the conceptualization of the framework for this study. The conceptual framework designed for this study is termed the Transformational Leadership and Innovation Framework (TLIF). Figure 2 serves as an outline for the more detailed version of the TLIF that is discussed and illustrated in Chapter 2. Figure 2 considers the alignment of individual

components of innovation and transformational leadership, unlike other studies on this topic. Because a new framework is being proposed, analysis of qualitative data will help to refine it. For this study, no hypotheses were tested. One aim of this study, however, is to refine the TLIF for utility and application in future studies. An updated TLIF is described in Chapter 4, related to research question three.

Figure 2

Proposed Framework of Present Study



When comparing Figure 1 and Figure 2, it is evident how the framework for existing studies (Figure 1) differs from the present study (Figure 2). In Figure 1, the focus of most studies on innovation and transformational leadership is mediating factors, meaning the factors that cause innovation to influence transformational leadership and vice versa. However, for this study, mediating factors are not a focus. What became relevant for this study is more granular; it is the alignment of individual components of the two topic areas (innovation and transformational leadership). Illustrated in Figure 2, the components (e.g., defining characteristics) of each topic are listed, and their alignment will be considered as a component of this study.

Innovation in Pharmacy Education

Like medical education, innovation in pharmacy education is often defined by the curricular structure. The curriculum in this case study is innovative because it is competency-

driven, meaning defined by the outcomes that should be achieved by the time of graduation, and integrated, meaning concepts are cohesively combined throughout the program. Curricula that is competency-based (or competency-driven) and integrated is considered innovative (Irby et al., 2010; Novak et al., 2019; Pinder & Shabbits, 2018; Riley & Riley, 2017). These concepts (e.g., curricular innovation, competency-based (or -driven) education, and integration) will be further defined and explored in Chapter 2.

Most studies on curricular innovation within a healthcare context appear in medical literature; very few examples are available in the pharmacy literature. Key examples of educational reform in medical and pharmacy education which describe the transition to a competency-based (or competency-driven), integrated curricular model include: Genes to Society Curriculum (Wiener et al., 2010), The Matrix approach (Jarvis-Selinger & Hubinette, 2018), LEARN Curriculum (Fischel et al., 2019), and Practice-Ready Curriculum (Hornsby & Wright, 2020).

Research Questions

Three research questions guided this study:

RQ1: What are the key transformational leadership qualities and behaviors that curricular leaders demonstrate?

RQ2: How do curricular leaders embody innovation as a mindset?

RQ3: How can the proposed Transformational Leadership and Innovation Framework be refined as a conceptual framework? (The framework is conceptualized in detail in Chapter 2).

Research Design

The present study's method of inquiry is an exploratory descriptive qualitative case study. Case study research allows for an in-depth exploration of a specific case or phenomenon within a

real-life context (Yin, 2018). The phenomenon for the case in this study is the design and implementation of an innovative curriculum within a pharmacy program and the leadership behaviors that facilitated it. A case study also allows for the consideration of contextual conditions that are relevant to understanding the case (Yin, 2018). For this study for example, curricular leaders, who are faculty within the program and the culture of the organization, provide two contextual factors that are critical to exploring the phenomenon. This study is also qualitative in nature for two main reasons. First, qualitative inquiry allows for rich accounts of the case and all its context (Hancock & Algozzine, 2017; Stake, 1995). Therefore, context is important for both case study research as well as qualitative inquiry. As such, the context for the case will be explored and described in subsequent sections. Second, qualitative inquiry is a helpful research approach when a new theory or framework is introduced in the literature (Baxter & Jack, 2008). With the current study being the first time a new framework is presented (the TLIF), its exploration within a specific context will assist in further refining and describing it as a conceptual framework.

The researcher gathered data in an interview format with participants. The constructivist paradigm was central when gathering and analyzing data. As is characteristic of this paradigm, generating new understandings as a result of social interactions (i.e., participant interviews with the researcher) means the researcher "co-constructed" knowledge with the help of participant experiences and perceptions (Stake, 1995; Yin, 2016). Extensive details on the research methods of the current study are presented in Chapter 3.

Significance of Study

Academic programs must be innovative in order to thrive, which extends to the design of their curricula. Innovation requires leadership, yet leadership is not only displayed in the top tiers

of an organization. Mid-level leaders, like faculty in higher education, provide important guidance for an organization, as well. This study is designed to provide new insights into the leadership behaviors which facilitate innovation. It achieves this through the viewpoints of the leaders facilitating change, and not just followers' perspectives of their leaders' behaviors. Exploring the first-hand accounts of leaders is a unique approach, as much leadership research is from the perspectives of followers. Additionally, this study applies the concepts of innovation and transformational leadership in the new setting of pharmacy education. It also extends the knowledge of how innovation is facilitated by transformational leadership behaviors. The TLIF provides a new framework for this application and can be applied to various types of organizations.

The case being explored provides unique perspectives on curricular reform. The case is of a pharmacy program who reformed their entire curriculum in an innovative manner. While curricular innovation is not new, it is usually achieved at an instructor or course level; rarely is it completed on a curricular level, as was the case in this study. The program transformed three years of curricula over a period of several years. The pharmacy program in this case paved the way for other pharmacy programs interested in curricular reform.

The timing of this study is relevant to pharmacy educators as updated accreditation standards are to be released in 2025. Presently, the most current accreditation standards in pharmacy education were published in 2016. The goal is that the TLIF framework and additional insights garnered from this study will provide forward momentum to pharmacy programs seeking to evolve. As the academy looks to the future, extrapolating the findings of this study will help with the implementation of the next iteration of pharmacy standards.

Assumptions and Limitations

This study has the following assumptions:

1. Organizations need to be in a constant state of change, and thus innovative in order to thrive.
2. Resistance to curricular change is pervasive in academic institutions, including pharmacy education.
3. Pharmacy and medical programs have similar curricular and organizational structures.
4. Responses from participants during interviews were reflective of their honest and true perceptions of the phenomenon.
5. Participants were open to change due to their willingness to participate in the design, implementation, and/or maintenance phases of an innovative curriculum.
6. The curriculum in the case is unique, and few pharmacy programs in the United States have created and implemented a curriculum as innovative as the program in the case.
7. The case, which includes the organization, curricular leaders (i.e., participants), and the innovative curriculum, successfully implemented their curriculum and thus might serve as an exemplar which other pharmacy programs might desire to emulate.

This study has the following limitations:

1. The TLIF framework can be applied to a variety of organizations. The application of TLIF in the current study was specific to one case and only represents a single setting for which it can be applied.
2. In qualitative research, the researchers are the tool(s) for analysis. There was only one researcher in this study, which limited the scope of conclusions drawn from the data.

3. Case study research has several methodological limitations, which are presented in Chapter 3.

Key Terms

Case Study – An empirical method of research that investigates a contemporary phenomenon in depth and within its real-world context. The boundaries between phenomenon and context may not be clear (Yin, 2018, p. 15). Case study research typically relies on multiple sources of evidence to draw conclusions.

Competencies – Equivalent to outcomes, they include the knowledge, skills, and abilities a student should have at the time of graduation. Competencies should reflect the essential domains of competent practice within a profession.

Competency-Based Education (CBE) – An innovative curricular structure that is built from the essential domains of competent practice within a profession. Competencies are common in health profession training programs. Principles of CBE include a focus on programmatic outcomes, an emphasis on student abilities (rather than knowledge alone), a de-emphasis on time-bound training, and promotion of learner-centeredness (Frank et al., 2010).

Competency-Driven Education – An innovative curricular structure that is designed after CBE principles yet is time-bound and learners are not required to reach proficiency in order to progress in the program. Like CBE, competency-driven curricula are still driven by competencies that should be mastered at the time of graduation; it is also focused on learners' abilities and is learner-centered. Competency-driven education was coined by the leaders in the case in this study based on how they designed the innovative curriculum (see Wright et al., 2018).

Curriculum (plural is curricula) – A plan for teaching and learning that involves content (or subject matter), planned activities for delivery, intended learning outcomes, experiences for learning, and discrete tasks and concepts. It is also a reflection of the societal culture in which it is situated (Schubert, 1986).

Curricular Leader – This is a context specific term for this study. It includes the faculty in the 'middle space' of the organization who do not carry a traditional leadership title, like Assistant Dean, Associate Dean, or Department Head, for example, yet are leaders by way of facilitating curricular change. Curricular leaders lead curricular change through designing, conceptualizing, implementing, and maintaining an innovative curriculum and displaying leadership behaviors.

Health Professions Education – The training period for students enrolled in a professional program who are learning to provide patient care within a given profession. This includes, for example, medical and osteopathic education, pharmacy education, nursing education, dental education, physical therapy education, and occupational therapy education.

Innovation – "The intentional introduction and application within a role, group or organization of ideas, processes, products, or procedures…designed to significantly benefit the individual, the group, organization, or wider society" (West & Farr, 1990, p. 9). It is a multi-stage process whereby ideas are transformed for the purposes of advancing, competing, and/or differentiating an organization (Baregheh et al., 2009). For the purposes of this study, innovation can also be categorized as a process, outcome, and mindset (Kahn, 2018).

Innovation as a Mindset – It is a category of innovation that emphasizes the mindsets of individuals within the larger organizational context. According to Kahn (2018), it is the internalization of innovative processes by individuals who are supported by an organizational culture which encourages it.

Integrated Curriculum – An innovative curricular structure where the organization of material is intentional to connect or unify areas frequently taught separately (Harden et al., 1984). In health professions, it is considered "a fully synchronous, trans-disciplinary delivery of information between the foundational sciences and the applied sciences throughout all years" (Brauer & Ferguson, 2015, p. 318).

P1, P2, and P3 Student Pharmacists – This indicates the year for which students are enrolled in pharmacy school. P1 students are first-year student pharmacists; P2s are second-year student pharmacists; and P3s are third-year student pharmacists. Learners enter pharmacy school after successful completion of undergraduate pre-requisites.

Practice Ready Curriculum (PRC) – The title of the innovative curriculum designed and implemented by the organization within the case (Harrison College of Pharmacy, 2021; Wright et al., 2018). The curriculum is termed 'practice ready' because it was designed based on the competencies a pharmacy graduate should have at the time of graduation. In other words, at graduation, the idea is that the pharmacist is sufficiently ready to enter practice because the curriculum was designed based on real-world abilities of an entry-level pharmacist. The organization within the case often refers to its curriculum by its acronym, PRC. The PRC is considered an innovative curriculum because it is competency-driven and integrated (Irby et al., 2010; Novak et al., 2019; Pinder & Shabbits, 2018; Riley & Riley, 2017).

Transformational Leadership and Innovation Framework (TLIF) – The name of the conceptual framework proposed in this study. It aligns the two phenomena investigated in this study, transformational leadership and innovation, in a new manner. Conceptualization of the framework is based on a synthesis of relevant literature. The purposes of research question 3 was to refine the framework for future application.

Transformational Leadership – This is a leadership construct that was first conceptualized in the 1970s in a book titled *Leadership* by James Burns (Burns, 1978). It has been further refined and studied since its conception. There are four interrelated behavioral components that define transformational leadership, each important for the process of inspiring transformation among followers: inspirational motivation, intellectual stimulation, idealized influence (also known as charismatic leadership), and individualized consideration (Avolio et al., 1999; Bass, 1990).

Summary

Innovation is important because it facilitates change which in turn stimulates educational improvements. Simply *having* an innovative curriculum is not enough; programs and individuals within the organization must *embody* innovation. Often, it takes a transformative leader to personify innovation in this manner. The purpose of this study was, therefore, to explore innovation and transformational leadership within the context of curricular reform (i.e., organizational change). While previous literature on these two phenomena is abundant, this study seeks to explore their relationship in a new way. The TLIF framework was conceptualized to align these two constructs in a meaningful and innovative manner. The application of the framework in this study is within a single case of curricular innovation within a pharmacy program.

The study will explore three research questions within the context of this innovative case. One question relates to leadership; one question relates to innovation, specifically innovation as a mindset; and one question relates to the relationship between leadership and innovation through the TLIF framework. This study is unique to pharmacy education and, therefore, provides new insights in this context. The study participants are leaders who facilitated curricular reform.

Chapter 2: Literature Review

This chapter explores curricular innovation and transformational leadership. The alignment between innovation and transformational leadership led to a novel conceptual framework, which is described in this chapter. The development of this framework was a result of extensive research. There are four major sections of this literature review: innovation, transformational leadership, intersection of innovation and transformational leadership, and details of the case. The conceptual framework for this study, which aligns innovation and transformational leadership in a unique way, is discussed in the third section of this chapter after each phenomenon is first discussed and defined in detail. The context for these discussions is pharmacy education.

Innovation and Change

Change is inevitable and can feel uncertain. Conforming to change is an expectation of living in society. As Fullan (1993) suggests, education is the one societal enterprise that fundamentally contributes to this aim. In big and small ways, the forces of change are met with the equal desire to maintain the status quo. Because of this dissonance, implications for educators are immense as "every teacher has the responsibility to help create an organization capable of individual and collective inquiry and continuous renewal, or it will not happen" (Fullan, 1993, p. 50). Regardless of personal or professional factors, this is a heavy expectation for educators to understand, accept, embody, and facilitate. This is because fundamental change is not supplemental; rather, it alters structural and cultural dynamics of an organization and the broader society. The challenge of change is further compounded by the complexity of overcoming educational problems, reviving antiquated systems and practices, and focusing on sustainability. Among the basic lessons of change described by Fullan (1993) are the notions that change is a

journey not a blueprint, problems are our friends, one-sided solutions do not work, and perhaps most importantly, every person is a change agent. This paper will explore organizational change by way of curricular reform.

Innovation can spark change. Not only does innovation create ideas, but it is defined by the intentional implementation of those ideas to solve problems (Lee et al., 2019; Rosing et al., 2011). It differs from creativity, which is limited to idea generation, and it does not include the implementation, enculturation, and socialization of those ideas. Creativity is the generation of new and novel ideas as a typical first step, whereas innovation is the intentional utilization of ideas as a next step (Lee et al., 2019; Raj & Srivastava, 2016; Rosing et al., 2011). It is common to incorrectly interchange the terms innovation and creativity because they are not always distinguished in the literature (Hughes et al., 2018). An innovative person is understood to be creative, whereas a creative person is not necessarily innovative if their ideas are not implemented. This study will focus on innovation.

Innovation has been studied in many different fields (e.g., business, market development, education, etc.) and contexts (e.g., social dynamics, individual, team, and organizational levels, etc.); however, there is not a uniform definition of innovation that is collectively accepted. In a content analysis of organizational innovation, sixty definitions of innovation were found across various disciplines (Baregheh et al., 2009); the authors proposed an updated, integrative definition of innovation as "the multi-stage process whereby organizations transform ideas into new/improved products, service or processes, in order to advance, compete, and differentiate themselves successfully in their marketplace" (p. 1334). The work by Baregheh et al. (2009) does not, however, include individual-level innovation, which is an important factor for this study. Therefore, drawing on the work of Kahn (2018), the current study will explore innovation

based upon the following categories: processes, outcomes, and mindsets. The distinction between these three categories of innovation is important as the literature on innovation is heavily focused on organizational outcomes or outputs. There has been some focus on innovation as a process, yet there has been little focus on innovation as a mindset. Table 1 provides a summary of innovation, including definitions, examples, and applications as it relates to academic settings.

Table 1

Innovation Defined: Emphasis and Applications

Category of Innovation	Strategic Focus	Emphasis	Curricular Application Examples
Process "Of innovating"	Ways and means	Emphasis is on organizing innovative ideas such that they generate new products or processes	The organization of committees who design and review curricular plans, as well mechanisms in which new ideas are collected
Outcome "An innovation"	Ends	Emphasis is on the output that is developed or implemented. It is the *outcome* of the *process* (Quintane et al., 2011)	The implementation of a curricular plan within the learning environment and the subsequent learning that occurs among students
Mindset "The innovator"	State	Emphasis is on the internalization of innovative processes by individuals who are supported by an organizational culture which encourages it	The influx and acceptance of new curricular ideas by faculty who feel supported and encouraged to think differently and more expansively

Note. Crossan & Apaydin (2010); Kahn (2018), p. 459

Innovation as a Mindset

Innovation as a mindset is a characteristic of individuals and not representative of an organization in its entirety. Prior research has linked growth to mindset, such as an entrepreneurial mindset (Ramadani et al., 2020) and displaying self-efficacy (Gumusluoglu & Ilsev, 2009). Limited literature exists, however, related to innovation as a mindset, especially in educational literature. This study hopes to shed light on the innovative mindsets of leaders. According to Kahn (2018), innovation as a mindset "addresses the internalization of innovation by individual members of an organization where innovation is instilled and ingrained along with the creation of a supportive organizational culture that allows innovation to flourish" (p. 458). Therefore, having an innovative mindset requires an internalization process. Research conducted over eight years on the mindsets of innovators suggests that there are five skills that distinguish innovative leaders (Dyer et al., 2019). The five skills include 1) associating, which is the ability to connect unrelated topics together and make sense of it, 2) questioning, which is showing a passion for inquiry by asking questions that challenge accepted wisdom;, 3) observing, which includes carefully watching the world unfold around them, 4) experimenting, which is implementing new ideas, and 5) networking, which is testing ideas within diverse groups.

This study will explore how innovation was embodied as a mindset by curricular leaders in relation to research question two. As will be explained in subsequent sections, this study assumes that the curriculum in the case, the PRC, was innovative from a process and outcome standpoint. For the organization in the case, designing its curricula was considered a *process*, implementing it and assessing it was considered an *outcome*, and leading curricular change required individuals with an innovative *mindset*.

Sustaining Innovation

It is important to consider the sustainability of an innovation, particularly in the context of education which can be slow to adapt. Sustaining curricular innovation is perhaps more challenging than planning it (Robins et al., 2000). After change is initiated, it is natural to retreat to previous familiar ways and processes. As the adage goes, old habits die hard. While innovation solves old problems, new initiatives also bring an assortment of new issues. Thus, the cycle of innovation continues. In a literature review on sustaining organizational change, Buchanan et al. (2005) explored prominent theories from influential scholars, including Lewin, Senge, and Kotter to name a few. While these theories converge and diverge in different areas, the one thing that is consistent among all theories is the influence of leaders (or managers) and their impact on organizational goals, values, purposes, and challenges. In other words, leadership is a critical piece in sustaining innovation.

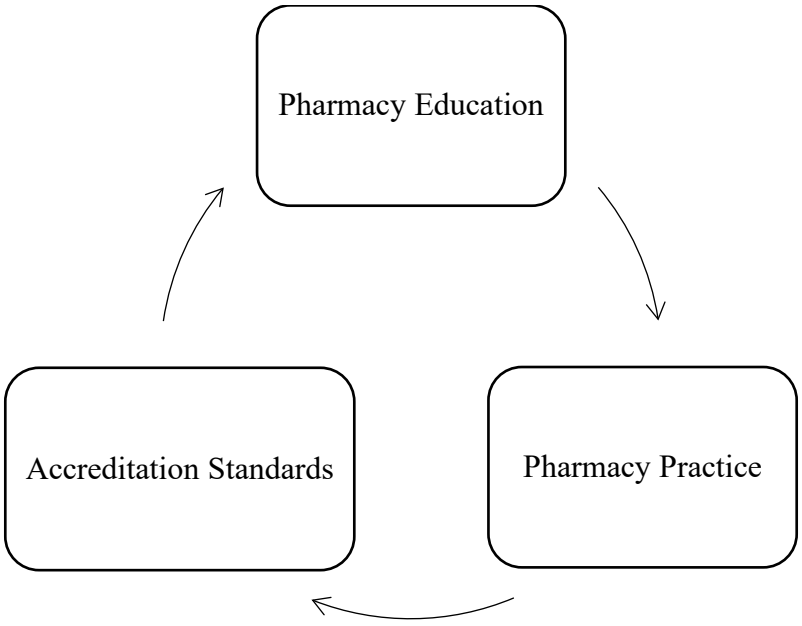
Curricular Innovation and Pharmacy Practice

While innovation is essential in solving problems and infusing new ways of thinking, implementing an innovative idea can be challenging. While the word "innovation" may be found in academic mission and vision statements, problems and errors can prevent innovative ideas from full fruition (Patel, 2017). The presence of these problems does not indicate a lack of innovation, but rather exemplifies the struggles to solve them (Patel, 2017) or the tensions that arise during implementation (Tekian et al., 2020). Within health professions education, there are many factors to consider and balance for successful implementation of innovative ideas: context, environment, stakeholders, technology, cost, pace of implementation, appropriateness, and available resources. In simple terms, solving a complex problem often requires a complex solution.

Pharmacy Practice. In pharmacy, there are three major influences that shape the profession: practice, education, and accreditation. The term *practice* relates to pharmacists providing pharmacy-related services to patients and the influence of the healthcare system. The term *education* relates to the training period for pharmacy learners. The term *accreditation* includes the standards set by the national accrediting body for pharmacy schools and colleges. These three entities exert influence on each other; therefore, their relationship is cyclical. Accrediting bodies set standards for educational programs; the standards should mirror practice. Realities of practice influence accreditation standards and, thus, what is taught to trainees. Figure 3 is a depiction of this influence. Subsequent sections will explore the current accreditation standards in pharmacy and how they shape what is taught in school.

Figure 3

Influences of Practice, Education, and Accreditation



History of Pharmacy Education and Practice. The history of pharmacy education and practice transformation in the United States is significant and storied. Since the nature of training

matches the realities of practice (see Figure 3), it is important to consider how pharmacy has evolved over the last century. There are four major eras of pharmacy practice during this time: Soda Fountain Era (1920-1949), Lick, Stick, Pour, and More Era (1950-1979), Pharmaceutical Care Era (1980-2009), and Post-Pharmaceutical Care Era (2010-present) (Urick & Meggs, 2019).

During the Soda Foundation Era (1920-1949), curriculum standards were focused solely on the needs of pharmacists in retail settings. Dispensing and commercialism were the top priorities of pharmacists. Areas of focus in pharmacy school included pharmacology, botany, and compounding (Urick & Meggs, 2019). Curricula of the time did not include any instruction on diagnosis, treatment, nor management of disease states. In 1932, the Accreditation Council of Pharmacy Education, the accrediting body for pharmacy schools, was founded and thus created the first national standards for pharmacy degrees (Accreditation Council for Pharmacy Education, n.d.). Pharmacy practice started transitioning away from compounding prescriptions in favor of premanufactured drugs (Urick & Meggs, 2019).

During the Lick, Stick, Pour, and More Era (1950-1979), provision of patient care services replaced dispensing as the highest priority of pharmacists (Urick & Meggs, 2019). There was significant discussion during this era regarding the optimal training time for pharmacists, which ranged from four to six years. The first Doctor of Pharmacy (PharmD) degree was awarded in the 1970s. Computers were also invented during this era, modernizing aspects of dispensing and clinical services.

The Pharmaceutical Care Era (1980-2009) was the third era. The six-year-minimum PharmD degree became the standard in the United States during this time (Urick & Meggs, 2019). With the acceptance of the doctorate degree, which is considered a terminal degree like a

Doctor of Medicine (MD) degree, pharmacy became universally recognized as a clinical profession. Post-graduate residency became more popular as graduates sought additional clinical training (Scheckelhoff, 2014). In the early 2000s, the federal government recognized the need for patients to optimize medication use and thus expanded Medicare to include coverage of medication therapy management services, a task performed largely by pharmacists (Urick & Meggs, 2019). The role of pharmacists as immunizers expanded greatly, as patients sought vaccination in community settings.

The current era, the Post-Pharmaceutical Care Era (2010-present), is characterized by continued practice and education transformation (Urick & Meggs, 2019). The shifts from product-oriented practice to patient-oriented practice facilitated new norms and expectations in pharmacy (Crass and Romanelli, 2018). The pursuit of post-graduate residency training has become more popular and varied as pharmacists desire more clinical expertise (Scheckelhoff, 2014). Residency training is typically a pre-requisite for clinical roles that include direct patient care; however, it is not required for community practice. Pharmacists' impact on vaccination services and medication optimization continued to expand significantly; however, being recognized as providers (i.e., having the ability to bill insurers for clinical services) has been slow to gain traction on a national level (Urick & Meggs, 2019).

Curricular Advancement. Since the early 2000s, expansive work in reforming medical and pharmacy curricula has occurred with the goal that graduates contribute to the 'triple aim' of improving population health, enhancing the patient experience, and lowering costs for all (Berwick et al., 2008; Bodenbeimer & Sinsky, 2014). More recently, the triple aim has evolved into a quadruple aim with the inclusion of improving the work life of health care providers (Bodenbeimer & Sinsky, 2014). Medical programs have historically led the way with

implementing innovative curricular advancements, with pharmacy programs gaining traction more recently (Pinder & Shabbits, 2018). The goal of this expansive work is to train graduates who are ready for contemporary practice. Continued focus on developing innovative pharmacy curricula is therefore needed, considering additional initiatives are in the spotlight: training a diverse landscape of learners, embracing new technologies, and offering expansive learning experiences (Carter et al., 2011; Crass & Romanelli, 2018).

As a result of past curricular advancements and the need to sustain curricular innovation, there has been movement in health professions education towards more innovative curricular design. Innovative curricula are defined as competency-based (or competency-driven) and integrated (Irby et al., 2010; Novak et al., 2019; Pinder & Shabbits, 2018; Riley & Riley, 2017). Competency-based and integrated curricula are innovative strategies because the intent is to promote learning in a student-centered manner with a real-world focus, ensuring that students are prepared for the complexities of practice (Novak et al., 2019). These are two relatively new concepts in pharmacy education, which makes the case in this study unique.

The advancement of pharmacy education towards curricula that is competency-based and integrated is supported by The Carnegie Foundation for the Advancement of Teaching. The Foundation published an influential report in 2010 on the state of medical education. It proposed four themes for innovation in medical education: 1) Standardization and Individualization, 2) Integration of Formal Knowledge and Clinical Experience, 3) Habits of Inquiry and Innovation, and 4) Formation of Professional Identity (Irby et al., 2010). These pillars also apply to pharmacy programs, and other health professions programs. The report recommends the four themes remain central when designing innovative curricula. Each theme is defined below.

1. Theme 1: Standardization and Individualization: Medical education should be standardized regarding learning outcomes and competencies, while also providing learners with greater flexibility for individualizing their learning experiences (Irby et al., 2010). Individualization encourages educators to acknowledge the diversity in interests, needs, backgrounds, experiences, and skills among learners.
2. Theme 2: Integration of Formal Knowledge and Clinical Experience: Medical education should integrate basic, clinical, and social sciences with clinical immersion in a "much more balanced manner" and early in educational experiences (Irby et al., 2010, p. 224). Integration also applies to the acceptance that providers should embrace a variety of professional roles such as leader, advocate, investigator, collaborator etc. Integration provides a more holistic approach to patient care.
3. Theme 3: Habits of Inquiry and Innovation: Medical education should promote thinking among learners that encourages investigation, discovery, and innovation. "Habits of mind and heart" help to advance practice and facilitate health outcomes on many levels (Irby et al., 2010, p. 225).
4. Theme 4: Formation of Professional Identity: Medical education should facilitate the "thinking, feeling, and acting" like a professional (Cruess et al., 2014). Students should grow to embody their identity as a provider, which goes beyond simply behaving like the professional they are training to become.

These four themes represent a call-to-action within health professions education, which includes pharmacy programs. To truly impact and advance health care, educational programs must use these four aims as a springboard for innovative and practical solutions. Further, this is only achieved with collective and continued efforts focused on sustainability. The following

sections will explore the alignment between two of the four themes in the report as it relates to how curricular innovation is defined. Specifically, theme 1 (standardization and individualization) is aligned with competency-based education and theme 2 (integration of formal knowledge and clinical experience) is aligned with curricular integration. Additional exploration of theme 3 (habits of inquiry and innovation) and theme 4 (formation of professional identity) is beyond the scope of this paper.

Competency-Based Education as Innovative Curricular Design. The Carnegie Foundation Report describes traditional medical curricula as inflexible, overly long, and not learner-centered (Irby et al., 2010, p. 225). In addition, when students enter professional school, their prior knowledge and expertise is often disregarded. The excessive emphasis on fact mastery and the de-emphasis on making connections disengages learners from truly understanding the holistic nature of providing suitable care for patients. The recommendation to overcome these challenges is for increased emphasis on standardization of outcomes/competencies, and individualization and flexibility in learning processes and structures (standardization and individualization are theme 1 in the Carnegie Foundation Report). As Frank et al. (2010) articulate, a competency-based curriculum "has the potential to transform contemporary medical education" (p. 638).

Competency-based education is an innovative curricular structure (Novak et al., 2019; Pinder & Shabbits, 2018; Riley & Riley, 2017) and meets the call by the Carnegie Foundation to standardize and individualize the learning experience. A competency-based curriculum means that foundationally, the program has agreed to the learning outcomes expected of students at graduation; therefore, the focus shifts from instruction alone to the outcomes intended to develop the whole learner (Gervais, 2016). As a result of being outcomes focused, learning has a purpose

and knowledge builds in a cumulative manner. There are five key reasons that make competency-based education innovative: the focus on curricular outcomes, the emphasis on abilities, the de-emphasis of time-based training, the promotion of learner-centeredness, and the assessment structure (Frank et al., 2010; Harris et al., 2010). Each theme will be explored in the subsequent paragraphs.

Focus on Curricular Outcomes. A focus on outcomes ensures that all graduates are competent in fundamentally important areas of practice (Frank et al., 2010). Outcomes, or competencies, must be explicitly defined within the context of that profession as it relates to the students' abilities at graduation. Internal and external stakeholders should be utilized to help develop programmatic outcomes. To assess progression, outcomes need to be disseminated, taught, and assessed during the educational period. Defined outcomes also promote pedagogical alignment in a backwards fashion, as curricular elements should contribute to the outcome or be removed (Frank et al., 2010). In addition, a focus on outcomes ensures the quality of education is evaluated more meaningfully. For example, judging a health professions program by the contributions its graduates make to improving the health of patients in a sustainable, economical, and adaptable manner is more profound that than evaluating it by surrogate markers like process outcomes (i.e., entry into residency programs) or interim measures (i.e., exam performance) (Asch & Weinstein, 2014).

Emphasis on Abilities. Competency-based curricula emphasize abilities over knowledge, meaning what a graduate can do rather than what they know. Traditional health professions curricula over-emphasize knowledge to the detriment of other abilities, like skills, attitudes, and critical thinking (Frank et al., 2010). Creating competencies written in present tense that define current practice ensures students are focused on their "realized ability" rather than solely on the

knowledge they need to acquire (Gervais, 2016, p. 100). Due to the focus on abilities, competency-based curricula start with the end in mind.

De-Emphasis of Time-Based Training. A de-emphasis on time-based training is the third component marking competency-based curricula as innovative. Traditional education has focused on time spent completing an aspect of training, rather than the necessary abilities to provide appropriate care (Frank et al., 2010). Within a contemporary competency-based structure, the focus is on trainees' skills rather than training time. As a result of this, educators must acknowledge and accept that learners may progress through the curriculum at different rates. While this may seem radical to consider, it provides a more flexible and accommodating environment for students (Frank et al., 2010).

Promotion of Learner Centeredness. Competency-based education is more learner-centered than traditional curricula. It promotes learner engagement by emphasizing the students as the centerpieces of their learning experiences (Frank et al., 2010). Programmatic expectations should be discussed with students at the beginning of the program, thus allowing them the opportunity to gain an adequate understanding of what they are working towards. Learner-centeredness moves instructors away from singularly focusing on their teaching to acknowledging the vastness of students (Killen, 2000). This requires instructors to relinquish control of their desires to filter or structure what students are learning and how they are learning in favor of less direct teaching approaches. If students know the expected outcomes from the beginning and can move through content at varying rates (Killen, 2010), they are able to take individual responsibility for their progress towards competence at a personalized pace.

Assessment Structure. Lastly, the assessment structure marks the final innovative component of competency-based curricula. Frank et al. (2010) provide steps for planning a

competency-based curriculum: 1) identify the abilities needed of graduates, 2) explicitly define the required components of competencies, 3) outline milestones along the development path, 4) design educational activities and instruction, 5) select assessment tools to measure progression, and 6) conduct program evaluation. As this list illustrates, competency-based assessments are directly mapped to the desired outcomes, and therefore serve as mechanisms to evaluate individual student performance and facilitate authentic evaluation of individualized learning (Harris et al., 2010). Assessments in the competency-based context promote equity and emphasize the provision of formative feedback. This is achieved in a myriad of ways: by providing multiple opportunities for students to learn the concept or to demonstrate competence, by only assessing information students have had the opportunity to learn, by assessing learning based on a continuous comparison to oneself, and by articulating the specific elements that determine satisfactory performance in advance (Cleary & Breathnach, 2017; de Villiers, 2006; Frank et al., 2010; Harris et al., 2010; Iobst et al., 2010; Killen, 2000).

Teaching within a Competency-Based Curriculum. As previously mentioned, identifying desirable outcomes achieved at the point of graduation signifies the first step in designing a competency-based curriculum. Everything after this point must align with the competencies. At the point learning activities, pedagogical strategies, and assessments are developed they are considered the means to the end (Ho et al., 2009). They should clearly align back to the competencies, allow for the provision of substantial feedback or performance data, and ensure opportunities for meaningful student self-assessment (Riley & Riley, 2017). As will be discussed in a later section, curricular integration becomes important at this point as deliberate exposure and content repetition are important to consider as a mechanism to emphasize key areas and promote learner-centeredness.

The recommendations for how to teach within a competency-based framework are loose and ill-defined. Rather, what is important is the overarching goal of a learner-centered classroom for learning to be reasonable and desirable for students in a way that promotes their self-confidence and challenges them by new means. Learner-centeredness can be exemplified by a variety of teaching methods, including purposeful dialogue around the learning outcomes, expanding opportunities for practical hands-on experiences, and ensuring students strive to reach difficult goals (Killen, 2000). In each of these examples, the teaching focus was shifted away from teachers, whose role should focus on support.

In summary, a competency-based curriculum benefits students by endorsing career readiness and fostering holistic personal development. It is characterized by students having ongoing opportunities to learn the information, which reinforces the principle that assessments should determine how well information was learned, rather than the degree it was retained at a particular time. The role of the educator becomes less authoritarian and more collaborative.

Competencies in Pharmacy Education. A pharmacy program's competencies are driven by accreditation standards. The Accreditation Council for Pharmacy Education (ACPE) is the accrediting body for pharmacy colleges and schools within the United States and sets standards for pharmacy curricula. Standards equate to the competencies which deem pharmacists capable of entering practice upon graduation. ACPE's mission is to ensure quality in pharmacy education (Accreditation Council for Pharmacy Education, 2015). Both the U.S. Department of Education and the Council for Higher Education Accreditation have recognized ACPE since its inception. For pharmacy schools to achieve and maintain accreditation by ACPE, they must comply with the required standards. Standards are important in healthcare education, as a competent practitioner is required to deliver quality care. However, as healthcare evolves, the standards

must follow. Therefore, accreditation standards can drive curricular reform, and therefore curricular innovation, which was the case for the most recent pharmacy standards published in 2016 (hereunto termed "Standards 2016"). The conceptualization of Standards 2016 was prompted in part by needed changes in the healthcare system and expansion of the scope of pharmacy practice (Accreditation Council for Pharmacy Education, 2015).

Standards drive the development and implementation of pharmacy curricula and ensure a quality education for trainees. Standards 2016 represent the minimum expectation of pharmacy graduates and encompasses expectations for all four years of pharmacy education. Not all standards articulated in Standards 2016 directly relate to student learning nor development, as some are focused on programmatic or faculty expectations. Within Standards 2016, twenty-five standards are articulated with an emphasis on ensuring pharmacy graduates are "practice-ready" and "team-ready" upon graduation, meaning prepared to directly contribute to patient care in collaboration with other providers (Accreditation Council for Pharmacy Education, 2015, p. V). This contrasts with other professional programs, like medicine, whose goal for students is to be "residency-ready" upon graduation (Zellmer et al., 2013).

Standards 2016 are organized into three major sections comprised of twenty-five standards in total. The organization of pharmacy standards is represented in Table 2. Standards 2016, as compared to previous iterations, places increased emphasis on programs' commitment to critical educational outcomes and assessment of those outcomes. This shift has pushed programs to be more oriented on the product rather than the process, a characteristic of competency-based education. As such, Standards 2016 (specifically Standards 1-4) are heavily influenced by the educational outcomes expressed in a report from the Center for Advancement of Pharmacy Education (CAPE), titled *Center for the Advancement of Pharmacy Education 2013*

Educational Outcomes (Medina et al., 2013a). The CAPE 2013 Educational Outcomes are the "target toward which the evolving pharmacy curriculum should be aimed," thus containing the specific knowledge, skills, and attitudes graduates should possess at the end of their pharmacy school experience (p. 1). CAPE 2013 Education Outcomes drive pharmacy programs to be competency based, as the outcomes are meant to be achievable and measurable (Medina et al., 2013b). The intent of these outcomes is to guide curricular planning, implementation, revision, and assessment within colleges and schools of pharmacy, and thus should be the target for curriculum mapping. Further, CAPE 2013 Educational Outcomes placed importance on the inclusion of outcomes and assessment of multiple domains (cognitive, skills, and affective), aiming to train the whole student. As a result, Standards 2016 emphasized these three domains as well.

Table 2

Organization of ACPE Pharmacy Accreditation Standards

	Section I	Section II	Section III
Focus	Educational Outcomes	Structure and Process to Promote Achievement of Educational Outcomes	Assessment of Standards and Key Elements
Standards	Standard 1: Foundational Knowledge	Standards 5-9: Planning and Organization	Standards 24: Assessment Elements: Educational Outcomes
	Standard 2: Essentials for Practice and Care	Standards 10-13: Educational Program for the Doctor of Pharmacy Degree	Standard 25: Assessment Elements: Structure and Process
	Standard 3: Approach to Practice and Care	Standards 14-17: Students	

Standard 4: Personal and Professional Development	Standards 18-23: Resources

Note. Accreditation Council for Pharmacy Education, 2015

While Standards 2016 articulate the expectations of a pharmacy graduate to be practice-ready, colleges and schools of pharmacy have latitude for deciding the methods and structure for which to achieve these educational goals. Pharmacy programs also must make interpretations for how to define a practice-ready pharmacist. Intuitively, we must acknowledge that learning is life-long and does not stop at graduation. Considering that growth continues to occur after graduation and within an evolving and complex healthcare environment, critical thinking and lifelong learning that must also be instilled in graduates (Wright et al., 2018).

As of January 2022, the United States had 141 accredited pharmacy schools and colleges awarding professional PharmD degrees (American Association of Colleges of Pharmacy, 2022). Due to the expectations set forth by Standards 2016, pharmacy curricula must match the pharmacy practice of today and of the future. Curricula now-a-days should keep the end in focus, maintaining outcomes that match practice. An updated version of pharmacy's accreditation standards is expected in 2024.

Critiques of Competency-Based Education. The concept of competency-based curricula is not without challenges. Implicit within competency-based education is the assumption that all learners have the capacity to succeed. However, the necessity for students to make connections across subjects while carrying significant responsibility for their own learning can be a barrier to success (Killen, 2000). Additionally, some scholars question whether all trainees can meet the pre-determined standards. There are additional challenges on the teaching and coordination side. On this front, competency-based education may devalue traditional subject matter, challenge academic freedom, or create the perception that innovation is stifled in favor of a one-size-fits all

approach (Crass & Romanelli, 2018; de Villiers, 2006; Killen, 2000). Considering these challenges, cultivating faculty buy-in can be a barrier for programs wishing to structure their curriculum in this manner.

Integration as Innovative Curricular Design. Integration is the intentional organization of material to connect or unify areas frequently taught separately (Harden et al., 1984). While learning occurs best when connections are made, historically, medical and pharmacy curricula have taken a siloed approach that overemphasizes the basic sciences in the early years and clinical application and experiential education in the latter years. Contributing to this was the assumption that students should first master the basic sciences before transitioning to application and synthesis. With this approach, too often students struggle to see the relevance of the basic sciences, and therefore, fail to retain the information by the time they were expected to apply it. The Carnegie Foundation Report states that medical education does not establish adequate connections between formal knowledge and experiential learning, which contributes to a fragmented understanding of the patient experience (Irby et al., 2010).

On a practical level, problems facing practitioners rarely fall neatly into discipline-specific categories (Pearson & Hubball, 2012). Rather, problems are complex and dynamic, requiring a holistic approach to understand and solve them. Because of this, curricula designed to simultaneously combine the theoretical basis of science with application are most effective because they are more realistic to patient care and relevant to the learner (Husband et al., 2014; Pearson & Hubball, 2012). The goal of integration is for students to become integrative thinkers for themselves and to not blindly accept the integrations made by others. This type of learning is not spontaneous and requires an active process that must be facilitated by instructors. Therefore,

integrating a course or a curriculum is considered an innovative solution to promoting higher order thinking skills.

Considerations for Incorporating Integration. Curricular integration has been favored as a mechanism to increase retention, improve applicability, and aid in teaching efficiency (Brauer & Ferguson, 2015). Integration is defined and achieved in multiple ways. Relevant models in health professions curricula include horizontal integration, vertical integration, and spiral integration. Table 3 provides an overview and practical examples of these models. Spiral integration is the most ideal form of integration in health professions education because it combines both horizontal and vertical methods. Naturally, health professions curricula become more integrated over time as experiential learning in real-world settings become more prominent.

Table 3

Curricular Integration Definitions

	Horizontal Integration	Vertical Integration	Spiral Integration
Definition	Combination of once-separate courses typically in basic sciences and within the same academic year	Combination of basic and clinical sciences within the same academic year and sustained over time, rather than basic sciences preceding clinical application	Combination of horizonal and vertical integration with topics being revisited in increasingly complex ways
Aim	The least integrated model, the aim is to cross disciplinary boundaries	The aim is to connect theory and practice over time	The most integrated model, the aim is to mimic real-world practice and build in complexity over time
Level	Typically, inter-course level	Typically, intra-course level	Typically, curriculum level

Example	Sequential sequencing of related courses; combining anatomy, physiology, and biochemistry into one course	Organization of material into related body systems or disease states (e.g., pulmonary system)	Related to one body system (e.g., pulmonary), teaching normal physiology year 1, abnormal physiology year 2, then seeing the application in experiential settings year 3
Benefit	Reduces redundancy	Earlier clinical exposure and increased student confidence	Able to progress to more complex versions of the material over time

Note. Brauer & Ferguson (2015) and Pearson & Hubball (2012)

Intentional planning is a critical precursor when preparing to integrate. It is important for educators to realize that integration is more than the sum of its parts; it is the relationship between those parts that allows for the whole to be more valuable than its components (Husband et al., 2014).

Medical educators considering integration have largely adopted Harden's integration ladder to identify the degree of integration and assist with planning and evaluating curricula. The 11-step ladder is intended to describe the intermediate points of extremes on a continuum (Harden, 2000). As Harden contends, the suggestion is for educators to identify where on the continuum their teaching is placed, not whether they agree or disagree with integration. The most appropriate step on the ladder is dependent on many factors. In the first four steps of the ladder, the emphasis is on subject matter and disciplines. Moving up, the proceeding steps emphasize increasing degrees of integration across disciplines. The final step, which is the highest level of integration, is categorized by students integrating knowledge in their minds due to learning in a real-world context. Most programs achieve integration to varying degrees (Islam et al., 2016; Poirier et al., 2016).

Caring for patients while simultaneously navigating the healthcare systems represents the highest level of integration. Recalling and applying years' worth of information into one patient interaction is the epitome of integrating knowledge. In the context of health professions, therefore, the more that the educational period incorporates high levels of integration, the more prepared students will be to enter practice.

Curricula that have a high degree of integration, like that of the case in this study, typically means that courses are organized based on faculty expertise and not by course assignment. This means that, instead of being assigned an entire course to manage and teach, faculty within an integrated model are given *a component* of a course to teach (e.g., unit, section, case, topic, etc.), typically along with other faculty who have expertise in the same area. This means the courses integrate content as well, rather than being topic specific like most higher education courses. Faculty thus form a teaching team and are expected to collaborate in order to identify the objectives, assessments, and pedagogical approaches that will meet the educational goals (Harden, 2000; Mawdsley & Willis, 2018). Depending on the number of faculty teaching within a course, there may be course administrators or coordinators who provide oversight and centralization. This is the scenario for the case in this study.

Integration and Competency-Based Education. Standards 2016 state that pharmacy programs should have an integrated curriculum, mentioning it explicitly as an educational strategy. Standard 10, which focuses on curriculum design, delivery, and oversight, mentions pharmacy curricula should emphasize active learning, content integration, and the application of knowledge and skills to therapeutic decision-making (Accreditation Council for Pharmacy Education, 2015, p. 5). Furthermore, this standard indicates that pharmacy curricula should be rigorous, contemporary, and intentionally sequenced to promote integration and reinforcement of

content and demonstration of capability and proficiency. Integration is therefore not a choice for pharmacy programs; it is an expectation.

Integration and Active Learning. Active learning, by definition, promotes student engagement beyond passive listening, requiring them to do something (Faust & Paulson, 1998). The thought is that by doing something, meaning is derived, and critical thinking is fostered. Active learning is also a requirement of Standards 2016; it mandates that pharmacy curricula should emphasize active learning to engage their learners (Accreditation Council of Pharmacy Education, 2015). ACPE suggests that colleges and schools of pharmacy experiment with the design and delivery of their curricula. Examples of active learning strategies include team-based learning, problem-based learning, case-based learning, and the flipped classroom approach (Persky & McLaughlin, 2017). These examples are fit for health professions students and actively engaging them in the learning process, resulting in a stronger application of the knowledge they gain (Gleason et al., 2011).

Active learning is a characteristic of both competency-based education and integration because the goal of all three is to better prepare students for realities of real-world practice. Like CBE and integration, active learning is also considered innovative because students take an active role in thinking critically.

Critiques of Integration. Harden (2000) contends that curriculum integration is an important strategy for medical educators but is complex and time intensive to achieve. Practical concerns include the time required to achieve integration, high demand on faculty workload, ambiguity of the process, lack of consistency regarding course materials, and inadequate support and training (Islam et al., 2016; Mawdsley & Willis, 2018; Poirier et al., 2016). Faculty may also struggle with the precise degree of integration they should achieve to translate to learners. Lastly,

integration might perpetuate tensions between different disciplines as educators work to align their teaching. Mawdsley & Willis (2018) succinctly stated that integration is both a complex and uneven process. As a result, some faculty tend to keep to their teaching siloes for personal ease.

Summary of Innovation

There are many forms of curricular innovation in health professions education. As such, innovation can occur in small ways, like instituting a novel teaching practice during an instructional session. Innovation can also occur in substantial ways, like instilling a competency-based, integrated curricular model within an organization, as was discussed in this chapter. When considering that, by definition, innovation requires implementation, we must consider ways in which it is put into motion and that motion is sustained. Implementation requires continued effort and leadership; therefore, the next section focuses on a type of leadership that has long standing value and rich literary support in supporting innovation. Exploration of leadership qualities that promote and sustain an innovative curricular model is the focus of this research project.

Transformational Leadership

Transformational leadership naturally intersects with innovation. This is because a transformational leader is someone who inspires followers to accomplish extraordinary outcomes (Bass, 1990). The core of this construct is that leaders raise awareness of issues and elevate followers' abilities to look at old problems in new ways, motivating them to realize and commit to performance outcomes that exceed personal expectations (Conger, 1999). This ultimately promotes personal and professional growth among followers and generates innovative ideas that solve organizational problems.

Transformational leadership was first conceptualized by James MacGregor Burns in 1978 to describe political leaders (Bass, 1990). In his seminal work *Leadership*, he described two

opposing leadership orientations: transformational leadership and transactional leadership. Through the 1980s, Burns's theory on transformational leadership was further defined by Bernard Bass and others, who articulated the transformational theory into distinct domains. Since that time, the phenomenon of transformational leadership has been critiqued, re-examined, and translated across countless organizations and areas, and is one of the most widely studied areas of leadership. Transformational leadership and transactional leadership occur on a continuum, rather than opposing ends of a spectrum (Avolio et al., 1999). The present study focuses on the tenets of transformational leadership as a mechanism to cultivate and sustain curricular innovation. Discussions of transactional leadership are beyond the scope of this chapter.

Leaders with transformational qualities are most effective when they carefully listen and openly communicate (Berson & Avolio, 2004). They articulate clear goals and help to define how the work of followers fits into the larger organizational vision (Holdford, 2003). Transformational leaders pay attention to concerns raised to them and take steps to influence positive change. The needs of the group ascend above the needs of the leader. These leaders use multiple strategies to enhance motivation and performance. Currently, there are four interrelated behavioral components that define transformational leadership, each important for the process of inspiring transformation among followers: inspirational motivation, intellectual stimulation, idealized influence (also known as charismatic leadership), and individualized consideration. Leaders utilize one or more of these components to achieve desired outcomes. Each behavioral component is described in depth below.

1. Inspirational motivation: Transformational leaders inspire, encourage, and energize followers by articulating a compelling, clear, and purposeful vision (Avolio et al., 1999; Bass 1990; Cetin & Kinik, 2015). By challenging and motivating followers,

transformational leaders are often able to inspire followers to transcend the expectations they have for themselves. The key indicators of this component are displaying optimism and attainment of the future, shaping expectations, creating purpose, deducing key issues from complex matters, and prioritizing problems (Kirkbride, 2006). The notion of inspirational motivation provides a level of ideology that links followers' identities to the collective identity of the organization (Jung et al., 2003). This in turns facilitates an individual's internal motivation to perform a job.

2. Intellectual stimulation: Transformational leaders stimulate followers by encouraging them to solve problems and question assumptions with innovative and creative solutions (Avolio et al., 1999; Cetin & Kinik, 2015). Leaders encourage new ideas by thinking outside the box and embracing ideas once formulated. They do not publicly criticize their followers for mistakes or ideas deemed impracticable (Bass, 1990). The key indicators of this component include the re-examination of assumptions, acceptance of a range of ideas despite how unattainable or imprudent, encouraging followers to revisit problems, and being a change agent (Kirkbride, 2006).

3. Idealized influence: Transformational leaders influence their followers towards a collective good. They consider the needs of others over their own (Bass, 1990), and thus are typically admired and respected (Vaccaro et al., 2012). Being viewed as a role model for the affirming atmosphere they create, their actions and behaviors are admired and emulated by their followers (Cetin & Kinik, 2015). This in turn energizes the commitment of followers towards the vision (Holdford, 2003). This component of transformational leadership is synonymous with charismatic leadership because the leader displays outward behaviors and attitudes that are charismatic in nature and

exemplifies high moral and ethical standards (Bass, 1990). Using power for personal gain is avoided. Kirkbride (2006) proposed the key indicators of idealized influence to include competence, congratulating followers' achievements, addressing crises directly, and using power for good.

4. Individualized consideration: Transformational leaders facilitate growth of their followers by being considerate and attuned to their needs and growth potential (Avolio, Bass, & Jung, 1999; Bass, 1990). Leaders foster an environment where differences are nurtured and respected (Cetin & Kinik, 2015). Transformational leaders help followers appreciate how their jobs matter in the fulfilment of the organizational vision (Holdford, 2003). Key indicators of this component are the ability to recognize the nuances of their followers (i.e., strengths and weaknesses), active listening, being cognizant of followers' abilities and needs when making assignments, encouraging a reciprocal exchange of views, and supporting self-development (Kirkbride, 2006).

Transformational leadership behaviors can be focused on individuals, teams, and organizations (Li et al., 2016). Decades of research evidence firmly supports transformational leadership as associated with an array of positive individual, team, and organizational outcomes such as employee satisfaction, organizational commitment, performance outcomes, and a positive culture (Bommer et al., 2004). The effects of transformational leadership are promising; research has shown that leaders are more likely to engage in behaviors associated with transformational leadership if they believed positive change is possible (Jung et al., 2003); therefore, a cynical attitude negatively affects one's ability to be a transformative leader (Bommer et al., 2004). Further, the influences of peers can affect one's ability to be transformative. The level of transformational leadership exhibited by leaders is positively

associated with these same behaviors displayed by their peers (Bommer et al., 2004). Lastly, the internal ability to self-evaluate, defined as the assessment of personal effectiveness and worthiness, equated to a stronger display of transformational leadership behaviors (Hu et al., 2012). Altogether, the greater display of transformational leadership behaviors *throughout* an organization, the less negative behaviors of leaders.

Multifactor Leadership Questionnaire (MLQ)

The Multifactor Leadership Questionnaire (MLQ) is a validated instrument designed to assess leadership. It was originally developed by Bruce Avolio and Bernard Bass and has become the standard survey instrument for quantitatively assessing transformational, transactional, and non-leadership scales. It has been extensively utilized and validated throughout the literature in various contexts. While the MLQ is a helpful tool, the current study's focus on the intersecting realms of innovation and transformational leadership place it outside the purview of the MLQ. Additionally, the current study is qualitative, so a survey instrument is not applicable for this methodology. Therefore, the MLQ was not formally utilized as an instrument in this study; however, elements of the MLQ's survey questions were included as interview questions. The MLQ remains an important tool recognized in leadership literature making it prudent to mention in the review of the literature. The current version, MLQ 5X, contains two components: a self-assessment component completed by the leader, and a rater component completed by others.

Leadership in Pharmacy Education

Leaders are important in every profession. However, little is known of the effects of leadership theory in the setting of pharmacy education. As Reed et al. (2019) advise, "definitions of leadership in pharmacy vary considerably, as do expectations regarding the knowledge, skills, abilities, and other characteristics to be demonstrated by pharmacy leaders" (p. 1873). Moreover,

although Standards 2016 articulate several leadership-related requirements of pharmacy graduates, no recommendations exist for operationalizing a definition of leadership in order to measure and assess it. As a result, ambiguity exists regarding the definition and application of leadership in academic pharmacy. Questions persist of how student pharmacists are authentically trained to be leaders, and thus work remains on how to increase leadership behaviors and qualities of students. Table 4 lists the leadership-associated standards for student pharmacists, which is articulated in Standard 4 in the Standards 2016 document (Accreditation Council for Pharmacy Education, 2015).

Table 4

Accreditation Standards Associated with Student Leadership Development

Standard 4: Personal and Professional Development	
Global Definition of Standard 4	"The program imparts to the graduate the knowledge, skills, abilities, behaviors, and attitudes necessary to demonstrate self-awareness, *leadership*, innovation and entrepreneurship, and professionalism" (p. 2).
Specific Definition of Leadership (Standard 4.2)	"The graduate is able to demonstrate responsibility for creating and achieving shared goals, regardless of position" (p. 2).
Required Documentation for Standard 4	"Outcome data from assessments summarizing students' overall achievement of professionalism, *leadership*, self-awareness, and creative thinking expectations" (p. 27).

Note. Accreditation Council for Pharmacy Education (2015)

Using a modified Delphi process, Traynor et al. (2019) determined a working definition of leadership among pharmacy faculty members. The definition states that "faculty leadership is

the process of collaborating with, inspiring and enabling others, regardless of one's administrative responsibilities, to achieve goals rooted in a shared vision through ethical efforts in teaching, service, and scholarship" (p. 1621). Of note, this definition was not codified by the authors to align with any specific leadership construct. Another study in academic pharmacy encouraged faculty to embrace transformational leadership behaviors, however firm recommendations were not made (Allen et al., 2016).

The lack of theoretically based scholarship on pharmacy leadership is a potential result of basic unfamiliarity of leadership theories among pharmacists (Holdford, 2003). Further, a systematic review on conceptualizations of leadership in pharmacy education contends that the most common definitions in the literature were blended from various theories (Reed et al., 2019). Despite this, many of the conceptualizations closely mirrored transformational leadership. In sum, the need for further theoretical and empirical research on leadership in academic pharmacy remains evident.

Critiques of Transformational Leadership

Most critiques of transformational theory relate to how it can affect followers. For instance, if a leader focuses too much attention evaluating organizational performance, rather than facilitating growth, subordinators not meeting standards may feel undervalued or be harshly critiqued (Allen et al., 2016). If this happens, it can be difficult for the leader to re-frame the focus back to growth and development of followers. In addition, followers working to transform the organization can become highly emotionally invested for a prolonged period, leading to burnout and stress (Harrison, 1987). Another critique suggests that transformational leadership can be viewed as unidirectional, focusing on the effects that a leader has on followers, rather than the other way around (Yukl, 1999). Little is known about the reciprocal effects that subordinates

may have on superiors. Related to the leadership style itself, there is some ambiguity about the four behavioral components (Yukl, 1999). For example, what does a leader say or do to transform followers? Where do the four behaviors converge and diverge? Despite the critiques, transformational leadership remains one of the most widely operationalized and referenced leadership theories.

Summary of Transformational Leadership

The hallmark of transformational leadership is the ability to motivate followers to reach new heights. The construct is defined by four behavioral components related to inspiring and stimulating subordinates, working towards a collective good, and personally investing in the growth of their employees. Transformational leadership has been a prominent theory for decades and remains a critical construct for organizations trying to be innovative. Despite its prominence, there is modest information in the context of pharmacy education.

Intersection of Transformational Leadership and Innovation

Leadership is one of the most important influences contributing to employee innovation (Jung, et al., 2003; Mumford et al., 2002). An effective leader has positive effects on collective trust and shared values. This is true of formal and informal leaders, no matter the level or influence within an organization. Transformational leadership, in contrast to various other leadership theories, has been most strongly related to innovation (Rosing et al., 2011). Studies have demonstrated that innovation is best cultivated in organizations where team members share an interest for high quality performance and excellence (Eisenbeiss et al., 2008), where the leadership style is flexible, willing to adjust to current contextual influences and dynamics (Rosing et al., 2011), where there is a strong climate of supporting innovation (Jung et al., 2003), where leaders possess and inspire with a strong vision (Sarros et al., 2008) and where

organizational learning (Hsiao & Chang, 2011; Raj & Sribastava, 2016) and knowledge sharing (Sheehan et al., 2020) are emphasized.

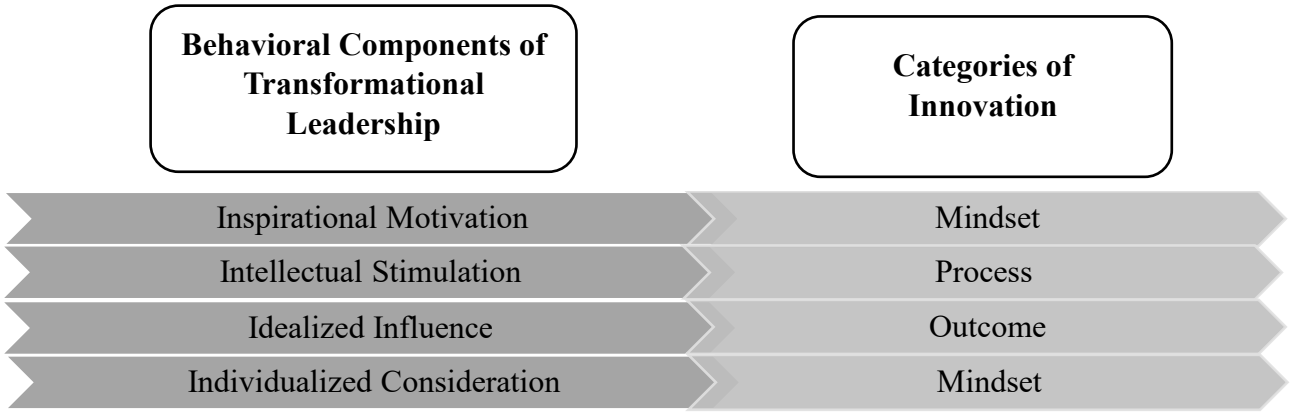
Transformational Leadership and Innovation Framework

Current literature on leadership and innovation, while robust and growing, is fragmented and lacks a cohesive body of evidence. A critical review of leadership, creativity, and innovation revealed that most studies in this area are context-specific and explore limited mediating factors (Hughes et al., 2018). While the literature on leadership and innovation may be vast, it has not been building into a unifying framework or coherent narrative. Therefore, it can be difficult to draw definitive conclusions. As a result, the current study was designed to qualitatively explore this intersection in a case study format.

To provide a framework for the current study and to align curricular innovation with transformational leadership, the Transformational Leadership and Innovation Framework (TLIF) was devised. Figure 4 is a representation of TLIF. Each row in the chart aligns the previously discussed components of innovation and transformational leadership into a new framework. This framework is explained further in the subsequent paragraphs.

Figure 4

Transformational Leadership and Innovation Framework (TLIF): A Conceptual Framework



Related to the first component *inspirational motivation*, transformational leaders increase intrinsic motivation of their followers by engaging their personal value systems and linking it to the collective identity and culture of the organization (Bass, 1990; Jung et al, 2003; Sarros et al., 2008). Individuals who are intrinsically motivated are more apt to consider unique alternatives to problem solving, and thereby display creativity and innovation. Feeling inspired to innovate is a mindset, and thus occurs most readily on an individual level.

Related to the second component of *intellectual stimulation*, transformational leaders encourage exploratory thinking in a supportive environment (Raj & Srivastava, 2016; Sarros et al., 2008). A supportive environment is one where the leader cultivates high expectations and displays confidence in subordinates' capabilities. Leaders seek new solutions to old problems (i.e., innovation) by encouraging employees to think progressively (Jung et al., 2003). Thinking creatively can occur on all levels but is maximized on the team level due to the enhanced effects of a collective imagination (Sosik et al., 2010). Due to team-level focus and organization of ideas, innovation can be thought of as a process in this domain.

Within the third component of *idealized influence*, the visionary and motivational nature of a transformational leader enhances collective creativity. Leaders share the risk of being innovative with followers, enabling them to question existing practices (Vaccaro et al., 2012). Focusing on mutual work goals promotes organizational efforts rather than individual achievement (Jung et al., 2003; Mumford et al., 2002). As a result of having a shared vision around collective outcomes, this component occurs primarily on an organizational level.

Lastly, innovation can be disruptive and thus must be built on a foundation of trust among individuals (Alsharif, 2019). Developing strong and trustworthy relationships is key for the fourth behavioral component of transformational leadership, *individualized consideration.*

Leaders must give followers personal attention, so they feel safe and supported in the generation of innovative solutions. This is not a one-sided relationship, but rather a reciprocal exchange that supports mutual self-development. Building trust requires the right mindset, and thus occurs most readily on an individual level.

A Case of Curricular Innovation: The Auburn University Harrison College of Pharmacy

This study will explore a case of curricular innovation through the lens of transformational leadership. The case is the pharmacy program at Auburn University, which is a land-grant university located in the southeast United States. The pharmacy program is doctoral level, awarding Doctor of Pharmacy (PharmD) degrees upon graduation. The program also includes other graduate-level degrees in drug discovery and health outcomes. The exploration of the case will focus solely on the PharmD curriculum. The curriculum at the Auburn University Harrison College of Pharmacy (AUHCOP) has a long history of being innovative and responsive to practice changes. Before transitioning to the newest curricular model, Auburn's pharmacy program included team-based learning (TBL) pedagogy in a renowned way. Team-based learning is an active teaching approach that engages students in learning through collaborative group work (Whitley et al., 2015). While utilizing TBL was not unique in-and-of-itself, it was the depth and breadth that it was utilized at AUHCOP which made it innovative. The entire third year of the pharmacy curriculum was TBL, meaning students spent the academic year engaged in groupwork where they served as the primary instructors for one another. Each group was led by a pharmacist facilitator whose role was largely supportive; they facilitated discussions, supported progression through material, promoted cohesiveness, and helped to manage conflict (Whitley et al., 2015). While the third year utilized the novel TBL approach, the first two years of

AUHCOP's curriculum were largely didactic. Courses in the first and second years were discipline-specific and taught by faculty from a single department.

When AUHCOP set to re-design their curriculum in 2013, the goal was for a total overhaul of the first three years of the curriculum, making it competency-driven and integrated across disciplines. The current curriculum at AUHCOP is termed the Practice-Ready Curriculum (PRC), and as the name implies, the goal is for students to be "practice ready" upon graduation (Harrison College of Pharmacy, 2021). The PRC is innovative because it is competency-driven, systematically integrated, and focused on active learning (Wright et al., 2018). The program does not have stand-alone nor discipline-specific courses anymore, rather it is comprised of a series of integrated learning experiences spanning three academic years. The fourth academic year consists solely of experiential rotations at various practice sites.

Curricular Innovation at AUHCOP

AUHCOP revitalized its curriculum to match the complexities of practice and optimize more modern teaching and learning practices (Harrison College of Pharmacy, 2021). Much like the themes in the Carnegie Report, its goal was to focus on standardization and individualization (theme 1) and integration (theme 2) (Irby et al., 2010). The process of curricular reform resulted in an innovative curriculum, which was the outcome. In addition, it necessitated changes to the organizational culture which in turn facilitated innovative processes and mindsets. In the time since initial implementation, maintaining the complexities and requirements of the curriculum has also required innovation. As a result, all three categories of innovation (i.e., as a process, as an outcome, and as a mindset) have been evident at HCOP from the initial curricular design phases to the current focus on curricular sustainability and process improvement. The innovative mindset of curricular leaders will be explored more fully related to research question 2.

The benefits and challenges of the PRC's innovative curriculum on the organizational level are detailed in Hornsby and Wright (2020). To summarize, focusing on competencies over content offered clarity in understanding and mapping the curriculum. It limited assumption making to what was taught and to what depth and ultimately allowed for easier identification of gaps and redundancies. The focus on competencies places an emphasis on what was learned, rather than what was taught. It also ensured relevance, as learning activities were strategically aligned with what students are expected to do. Students should be able to apply the information they learn, forcing learning activities to align with practice.

The focus on competencies also facilitates content integration, as the belief is that integrating material from all disciplines facilitates greater understanding of context, which aids application (Hornsby & Wright, 2020). While traditional courses in higher education typically have one Instructor of Record, and that person is the sole teacher for the course; the courses within the integrated curriculum at AUHCOP are team taught. The level of integration achieved at AUHCOP, per Harden's ladder, would be one of the highest levels. This is because the goal of instruction is for students to independently integrate knowledge in their own minds (Harden, 2000). The team-teaching approach encouraged faculty collaboration. Integrating the courses at AUHCOP resulted in a smaller number of courses (not credit hours), which streamlined and centralized processes and policies. The re-designed pharmacy curriculum at AUHCOP was considered innovative because it was competency-driven and integrated. Traditional courses in higher education typically have one Instructor of Record, and that person is the sole instructor for the course. For AUHCOP, however, all PRC courses are team taught and lead by a curricular leader (who is the Instructor of Record). Curricular leaders do not necessarily teach in the courses they coordinate. Conversely, the coordination and oversight of PRC courses occur by the

curricular leaders and not the faculty teaching (unless when the curricular leader is teaching). As mentioned in Chapter 1, the teaching teams comprise the units, and the units are defined by a disease state. Challenges of integrating content, instruction, and assessments at AUHCOP included the heightened need for communication, non-intuitive nature of an integrated curricular model, sequencing of learning, focusing on "do" rather than "know," ensuring adequate resources and oversight, designing meaningful assessments, and describing the complexity to faculty, students, and other stakeholders (Hornsby & Wright, 2020).

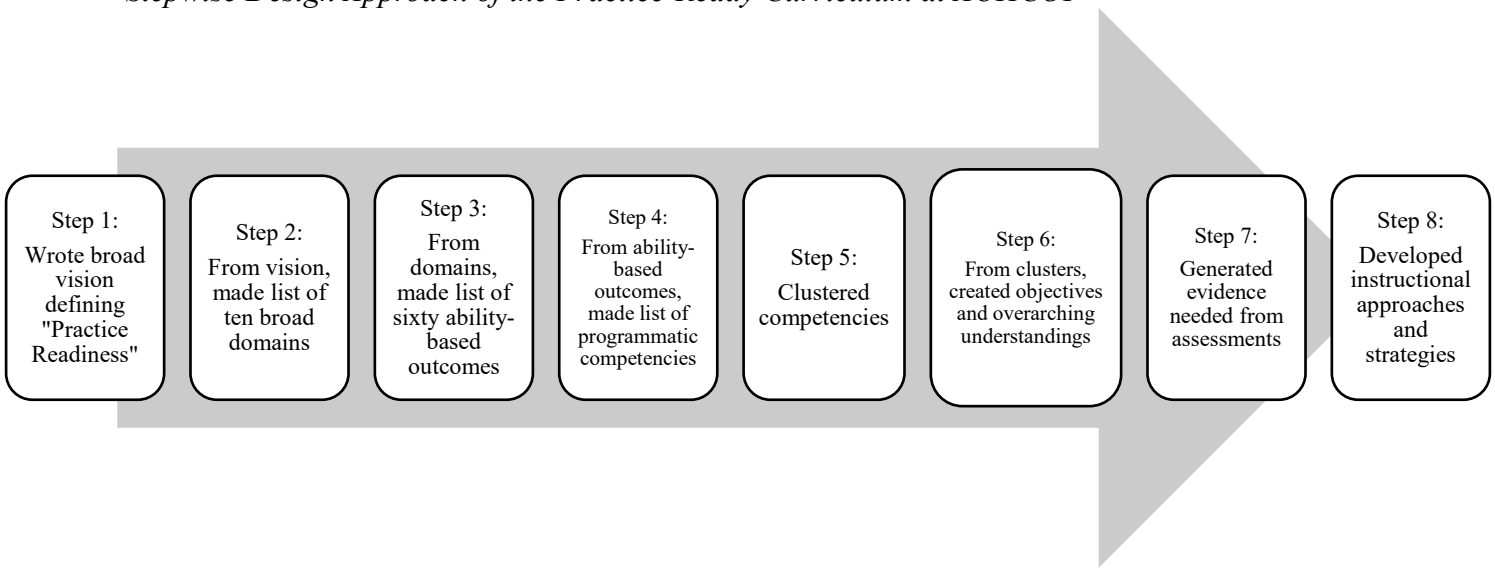
Designing the Practice-Ready Curriculum

Anticipating the publication of Standards 2016, AUHCOP restructured their traditional pharmacy curriculum into an innovative model more strongly aligned with the current and future structure of pharmacy practice. The curriculum committee at AUHCOP designed the PRC in a stepwise approach. This means the program started broadly and with each step it further defined what a "practice ready" graduate should be able to do. Figure 5 illustrates the steps of the design process, starting with articulation of a broad vision and concluding with teaching objectives. The program started the process in 2013 by creating a broad vision for the profession that defined practice readiness (Wright et al., 2018). In a backwards design approach, the committee then narrowed the vision into ten broad domains. Further refinement led first to ability-based outcomes (approximately sixty), followed by programmatic competencies (approximately two hundred eighty). Appendix A contains HCOP's broad domains and ability-based outcomes. Competencies represent the specific knowledge, skills, and abilities that collectively define a practice-ready graduate. The process of mapping and categorizing the competencies then took place. Levels of priority were assigned to each competency identifying it as essential, significant, important, or relevant (Wright et al., 2018). The priority level dictated the level of assessment

needed to demonstrate sufficient competency. Essential competencies were intended to be assessed at multiple points in time using several assessment methods, whereas relevant competencies may or may not be formally assessed. Competencies were then sorted into categories and mapped across the curriculum into integrated courses.

Figure 5

Stepwise Design Approach of the Practice-Ready Curriculum at AUHCOP



It is important to note that AUHCOP has self-categorized the PRC as competency-*driven* rather than competency-*based*. The curriculum includes all competency-based principles except for one. It does not include a de-emphasis on time-based training (Hornsby & Wright, 2020). This is due to the complexities of doing so with a large class size across two campuses, in addition to the team-based format of the curriculum.

The integrated courses within the first three years of the PRC included 12 Integrated Learning Experiences (ILEs), six Longitudinal courses, and six Workshops. There are two ILEs, one Longitudinal, and one Workshop course per semester. These courses are taught only in the fall and spring semesters. Competencies were assigned to each of these courses and were to be taught within the context of a disease state or health related theme (Wright et al., 2018). The

courses in the PRC were designed to include active learning, critical thinking, integration, community, flexibility, innovation, and a professional learning environment (Harrison College of Pharmacy, 2021).

Presently, the courses within each semester have coordinators responsible for its implementation. However, initially, the courses were designated and implemented in units called Learning Communities (LC), which included both faculty and coordinators. Having transitioned away from the LC model since, there were initially six LCs across the PRC, one per semester (Wright et al., 2018). Each LC was comprised of one Learning Community Chair at the helm (who was a faculty member) and various faculty members. The chair also served as the Course Coordinator (i.e., Instructor of Record) for all four courses within that semester. In initial Learning Community meetings, the focus was on curricular design for the four courses of that semester. During this time, the committee developed overarching understandings, or "big ideas with lasting value," as well as learning objectives derived from the competencies and content mapped to the courses (Wright et al., 2018, p. 227). During the design phases of the PRC, the Learning Communities began working with the faculty teams who would be teaching the material. Faculty, in concert with the LCs, were charged with planning the pedagogy, content, and formative assessments to achieve the desired learning outcomes.

Evolution of PRC Support Structures. After PRC had been implemented, the program evolved its LC structure, favoring a smaller more centralized group of coordinators who work collaboratively. As suggested by Robins et al. (2000), centralized oversight of curricular structures assures quality and interdisciplinary collaboration. Table 5 is an abbreviated version of the evolution of the PRC support structures for each semester for years 1-3 of the curriculum. Instead of one Course Coordinator for all courses in one semester, there are now up to three

coordinators in a semester, each overseeing individual course(s). In addition, there is one Curricular Coordinator and one Skills Lab Coordinator who work in all courses across an entire year. Other faculty and staff provide additional support to the coordinator-units as needed.

Table 5

Evolution of PRC Support Structure (Abbreviated)

	Initial Design (Represents Each Semester)	Present Design (Represents Each Semester)
Structure	Learning Community (LC) – more distributive model	Team of Coordinators – more centralized model
Members	One Learning Community Chair/Course Coordinator for all four courses, and eight to ten faculty as part of the LC	One to three Course Coordinators, one per course, one Curriculum Coordinator, and one Skills Lab Coordinator
Focus	Focus was on curricular design – the initial development of all learning experiences within a semester	Focus was on curricular implementation, maintenance, and quality improvement – curricular refinement and day-to-day oversight
Meeting Structure	Routine, structured meetings as a LC	Routine and as-needed, less structured meetings between individual coordinators
Liaison to Teaching Teams	One member of the LC	All coordinators
Responsible for Implementation	Entire LC, with emphasis on the Course Coordinator	All coordinators, with emphasis on Curriculum Coordinator and Skills Lab Coordinator

Note. Hornsby & Wright (2020)

Regarding distribution of tasks in the present day (see Table 5), the Course Coordinator is the instructor of record and is generally responsible for content-related decisions. The Curricular

Coordinator ensures implementation and is generally responsible for logistical-related decisions and student support services. The Skills Lab Coordinator is responsible for experiences and assessments related to skill developed (e.g., taking blood pressure). All coordinators are faculty at AUHCOP. Additional historical context on the PRC can be found in Hornsby & Wright (2020), Wright et al., (2018), and the Harrison College of Pharmacy website (Harrison College of Pharmacy, 2021).

Summary

Constant changes that necessitate curricular renewal should be an expected and predictable part of working in academia (Novak et al., 2019). In health professions, education should attempt to mirror practice to maintain relevance and train contemporary practitioners. Educators that acknowledge and embrace the need to evolve are setting the stage for innovative solutions. Because innovation can be unpredictable and laborious, effective support from leaders is critical. Therefore, the assertion is that leaders who can motivate their employees to transform (and be transformative themselves) will facilitate innovation. Many studies have demonstrated that transformational leadership behaviors facilitate innovation and predict organizational success. As a result, the focus of this study is to explore the transformational leadership behaviors and innovative mindsets of curricular leaders within a pharmacy program that designed and implemented an innovative curriculum.

Chapter 3: Methods

The purpose of this study was to explore curricular innovation and transformational leadership in the context of a competency driven, integrated pharmacy curriculum. The study engaged curricular leaders, all of whom are pharmacy faculty, as they navigated their roles and capacities to lead and manage curricular change. This chapter provides rationale and support for the qualitative case study design, including the research setting, description of participants, process for data collection, procedures for data analysis, and design limitations.

Rationale for Qualitative Research Design

This study employed a qualitative method of inquiry. A qualitative approach explores phenomena through human experience, and allows for the in-depth interpretation of phenomena, interactions, and discourse. This research design was most suitable to explore the research questions of this study as they were exploratory in nature and of a single organization.

There are five distinctive features of qualitative research over other forms of scholarship (Yin, 2016). First, it studies the meaning of people's lives in their real-world environments. Second, it represents the views and perspectives of people (i.e., participants). Third, qualitative research accounts for the contributions of context (e.g., social, institutional, cultural, and environmental contexts). Context is not limited by place or location, rather it should be abstracted as something spatial and relational (Bartlett & Vavrus, 2017). Fourth, it contributes insights that assist in explaining behaviors or perceptions. Lastly, it incorporates multiple sources of evidence (where relevant) rather than singularly relying on one data source. Table 6 showcases the applicability of these five characteristics to the current study.

Table 6

Features of Qualitative Research in Present Study

Five Features of Qualitative Research	Applicability with Current Study
Qualitative research studies the meaning of people's lives in their real-world environments	Current study explores journey of curricular leaders within faculty position
Qualitative research represents the views and perspectives of people (i.e., participants).	Current study gathers data from participant via interviews
Qualitative research accounts for the contributions of context (e.g., social, institutional, cultural, and environments contexts)	Current study investigates all relevant context related to the pharmacy program and curricular innovation
Qualitative research contributes insights that assist to explain behavior or thinking	Current study explores transformational leadership behaviors and perceptions of curricular reform
Qualitative research incorporates multiple sources of evidence (where relevant) rather than relying on one data source	Current study utilizes multiple data sources during the analysis phase to draw meaningful conclusions

Qualitative inquiry is largely intuitive in nature, as it relies heavily on developing meaning through interpretation of phenomena (Stake, 1995). It is more about assertions rather than 'finding something,' seeing as though the researcher exerts influence over the conclusions drawn. This study sought personal perspectives and experiences of curricular leaders within the context of a case, so the use of a qualitative methodology was most appropriate.

Rationale for Case Study Methodology

Case study research includes an empirical investigation of a contemporary phenomenon within its natural context (Yin, 2018). More specifically, case study research allows for understanding complex social phenomena focused on contemporary events. Unlike experimental

research, which purposefully excludes context, case study research is richly situated in context which *should* be explored. A theoretical or conceptual framework is critically important in case study research, over other methodologies perhaps, because the research is iterative and emergent. A framework helps to ground and translate the study. This study utilizes the newly conceptualized TLIF as its conceptual framework. Case study research also relies on multiple sources of evidence. As Yin (2018) states, a case study researcher is a careful craftsman who must make logical connections.

Case studies aid in the development of theory (as is the case for this study), the evaluation of programs, and the development of interventions (Baxter & Jack, 2008). It is a relevant qualitative methodology for educational institutions as it allows for the sharing of unique processes. Since other pharmacy institutions or health professions programs might benefit from the radical curricular innovations that occurred at AUHCOP, case study research was an appropriate methodological choice. In addition, few case studies exist in health professions academic literature, so this study is unique in this regard.

Case study research is not generally intended for investigation of an entire organization. Rather, central to case study research is a case, or according to Yin (2018), an event, problem, or unit of analysis. Through the study of a particular case, the goal is to gain an in-depth appreciation of the case and its subsequent meaning (Hancock & Algozzine, 2017). Further, research questions in case studies consider contemporary events (Yin, 2018). The contemporary event for this case is the innovative curriculum.

Case study research, a method of qualitative inquiry, is generally more illustrative in nature, rather than predictive or comparative (Hancock & Algozzine, 2017). According to Noor (2008), case study research offers a “round picture,” or holistic view, due to the varied sources of

evidence used (p. 1603). Case study research has three main components (Hancock & Algozzine, 2017). First, it focuses on an individual representative of a larger group, an organization, or a specific phenomenon. In this study, the exploration centers on the phenomenon of curricular innovation within a pharmacy program. Second, the phenomenon should be studied in its natural context. This study considered the design, implementation, and maintenance of the revised and innovative pharmacy curriculum. The environment for the study was context-rich and thus considered organizational influences like the structure, culture, processes, expectations, and personal factors. Third, analysis of case studies is richly descriptive and contextual because case studies are grounded in various sources of data (Hancock & Algozzine, 2017). For this case, multiple forms of data will be utilized during analysis to gain a rich understanding of the case.

There are various types of case study research. Among qualitative literature, three main types prevail: exploratory, descriptive, and explanatory (Hancock & Algozzine, 2017). An exploratory case study is often a precursor to future research, as it seeks to define research questions or determine feasibility of conducting a study. A descriptive case study's aim is to describe a phenomenon within the context it is situated. Lastly, an explanatory case study establishes cause-and-effect relationships, meaning how something influences something else. Explanatory case studies are notoriously challenging to conduct because causal relationships are difficult, if not impossible, to establish within one case (Yin, 2013). Typically, multiple cases are needed to compare groups.

For this study, based on the research questions, it is an exploratory and descriptive case study. It is exploratory for the fact that a new conceptual framework (called the TLIF) was conceptualized that may provide relevance to future studies. This study was also descriptive

because one goal was to identify and describe the transformational leadership behaviors of curricular leaders which facilitate innovation.

Constructivism

One accepted belief in qualitative inquiry is that knowledge is constructed or co-constructed rather than discovered (Stake, 1995). Construction of knowledge is termed constructivism and occurs when the researcher(s) and participant(s) collaborate closely in a study, favoring an equalized relationship rather than a hierarchical one (Yin, 2016). Philosophically, case study research has constructivist underpinnings (Baxter & Jack, 2008). While there are other epistemological stances in qualitative case study research, constructivism is perhaps one of the most accepted views. As a result of embracing a constructivist stance, multiple realities are acknowledged (Yin, 2016). A constructivist paradigm is the predominant view of the researcher in this study, due to the collaborative interactions with participants. Further, the researcher, having been embedded with the setting of the case study, was able to incorporate personal context into the data.

The Case

The case in the present study includes the period where the innovative curriculum was designed, implemented, and maintained within a pharmacy program within the southeast United States. The period started around 2013 (Hornsby & Wright, 2020) and continues to the present day (2023). Included as participants in this study were the curricular leaders, also pharmacy faculty members at AUHCOP, who conceptualized and facilitated the unique curriculum. While participants are termed curricular leaders in this study, they have also been called “Course Coordinators” or “Learning Community Chairs” within the organization. To encourage simplification of the case and generalizability to other contexts, this study called these faculty

'curricular leaders' henceforth. During the time of curricular innovation, curricular leaders lead a team of other faculty in the creation of a semester's courses, despite not having formal authority over the peers they lead. Initially, there were six learning community teams, one for each semester of the first three years of the pharmacy curriculum (also known as the didactic period). The program awards Doctor of Pharmacy (PharmD) degrees after four years of professional school. Since year 4 of the program is the experiential year and includes the completion of rotations at different practice sites, it was not included in the PRC curricular re-design. As a result, it was also not considered in this study. This study explored curricular innovations in years 1-3 of the PharmD curriculum.

The role of curricular leaders at AUHCOP has evolved as the curriculum progressed from creation to implementation to now maintenance. After the creation stage from 2013 to 2017, initial implementation of the PRC began in the fall of 2017 with the first-year students. In spring 2021, the first cycle of pharmacy students in the PRC graduated. As of 2023, AUHCOP's curriculum is in the maintenance phase. The maintenance phase is focused more on local quality improvements, rather than large sweeping changes. Therefore, the central role of curricular leaders remains providing oversight of certain courses as the Instructor of Record. In the years since initial implementation in 2017, more curricular leaders have rolled on as others have rolled off. When implementation first began, there were only six curricular leaders (one per semester). Presently, the role has expanded to include more than one leader (or Course Coordinator) per semester in most instances. This was done over time to spread the workload among more faculty. Newer curricular leaders were not necessarily part of the initial design phases but have been closely involved in the implementation and maintenance phases of the PRC.

Boundaries of the Case

Case study research is bounded (Hancock & Algozzine, 2017), and the boundaries are decided upon by the investigator based on the nature of the case and research questions. For this case, it is bounded by the institution, people within the institution, and well as time. As described previously, the institution is Auburn University Harrison College of Pharmacy, and the people are the curricular leaders. To establish the time boundaries for this study, the case began when the curricular reform process began in 2013. The end date for the case is defined as present day. In sum, the time frame for this case is 2013 to 2023. The PRC was implemented on a rolling basis as the legacy curriculum was phased out. For context, Table 7 outlines the timeframe of the case. In addition, curricular innovation in this study was considered in three phases: design, implementation, and maintenance. There is overlap in these timeframes for each cohort year, specifically for the implementation and maintenance phases. This is due to the fact that the innovative curriculum was phased in as the outgoing curriculum was phased out.

Table 7

PRC and Curricular Leader Timeline

Cohort Year	PRC Initial Implementation	Number of Iterations in Study Timeframe (Fall 2017 – Spring 2023)
First-year students (P1)	Fall 2017	6
Second-year students (P2)	Fall 2018	5
Third-year students (P3)	Fall 2019	4

The phenomena being explored in the bounded case are the transformational leadership traits of pharmacy curricular leaders which facilitated curricular innovation. The context for the case is all encompassing, including the organizational culture, curricular influences and process, curricular requirements (e.g., accreditation, competencies, etc.), and personal factors of curricular leaders. Because of this, the design for this project is a holistic approach of a single case (Yin, 2018). This means that the group of curricular leaders is considered one case that is bounded by similar context and on one level of analysis (i.e., no sub-groups). All members of the case are also bound by a similar event that occurred over time: curricular reform.

Research Setting/Context

The setting for the case is the college of pharmacy at Auburn University, located in Auburn, Alabama. Auburn University is a land-grant institution whose mission involves three interrelated components: instruction, research, and extension (Harrison College of Pharmacy, 2022). As a land-grant institution, Auburn focuses on improving the lives of the citizens of Alabama. AUHCOP is one of Auburn's 12 colleges or schools and was founded in 1885. It offers several programs and centers for Alabama citizens: 3 pharmaceutical care clinics, 3 pharmacies, an interprofessional clinic for under/uninsured persons, two student-run clinics, and a Drug Information Center that offers unbiased medication information to healthcare providers (Harrison College of Pharmacy, 2022).

AUHCOP's PharmD program is a 4-year course of study that is fully accredited by the Accreditation Council of Pharmacy Education. It is ranked among the top 25% of all pharmacy programs in the United States (Harrison College of Pharmacy, 2022). The slogan at AUHCOP is "Making Medications Work Through Innovative Research, Education, and Patient Care". The pharmacy curriculum provides a balance of course work in biomedical sciences (basic and

clinical); pharmaceutical sciences; behavioral, social, and administrative pharmacy sciences; pharmacy practice; and pharmacy practice experience (Harrison College of Pharmacy, 2022). Upon entry, student pharmacists are involved in continuous patient care responsibilities and interdisciplinary interactions.

There are three academic departments at AUHCOP, each with a department head: Drug Discovery and Development (DDD), Health Outcomes Research and Policy (HORP), and Pharmacy Practice (PP). The DDD and HORP departments offer MS and PhD degrees. Depending on their position, faculty at AUHCOP may be tenured track or non-tenured track. Over the last year, HCOP researchers have generated almost $6 million in research funding with focus areas in cancer, cardiovascular disease, diabetes, drug safety, infectious disease, health care policy, neurodegenerative disorders, and population-based outcomes (Harrison College of Pharmacy, 2022). AUHCOP also has three administrative divisions under the direction of an Associate Dean: Academic Programs, Clinical Affairs and Outreach, and Faculty Affairs.

The program is structured so that some practice faculty are scattered across the state of Alabama, and beyond in some instances. As a result of geography, several curricular leaders reside in locations other than the main campus in Auburn, Alabama. In addition, AUHCOP has a smaller satellite campus located 3-4 hours away in Mobile, Alabama. This campus has a smaller student body yet offers the same educational experiences as the main campus. The maximum class size for each cohort, combining both campuses, is around one hundred fifty student pharmacists. Additionally, AUHCOP employs over 70 faculty and over 60 administrative/professional staff, in addition to over 500 preceptors who oversee students on experiential rotations (Harrison College of Pharmacy, 2022). Details of the PRC and curricular structure at AUHCOP are available in Chapter 2.

Participants

Curricular leaders were invited to participate in this study if they meet the inclusion criteria of serving as a course coordinator in the PRC for more than one integrated course. This meant that most curricular leaders were involved with at least one phase of curricular reform: design, implementation, and/or maintenance. Eleven faculty met this inclusion criteria and were invited to participate in the study; eight curricular leaders agreed to participate. Some participants may have been more heavily involved with the various curricular phases than others. At the time of data collection, participants were either current or previous faculty members within AUHCOP. The participants were not administrators, meaning none were deans or department heads. Like typical faculty appointments, participants were responsible for teaching, outreach, service, and research. Given that Auburn University is a land-grant university, outreach is a component of the institution's mission. Regarding workload, participating in AUHCOP's curricular revision as a curricular leader was considered a component of teaching.

While there were curricular leaders at AUHCOP from more than one department, the participants in this study were all from the Pharmacy Practice department. Again, this was because the study included curricular leaders who participated in the initial creation phases of the PRC. The goal was not to exclude curricular leaders from other departments. All participants were full-time, clinical-track faculty (not eligible for tenure), and either clinical associate professors or full clinical professors who were licensed pharmacists with a PharmD degree. Most participants had received additional training and certification after graduation, which is typical of clinical faculty. Given that participants were licensed pharmacists, a majority had worked in patient care in either clinic or hospital settings. The provision of patient care as a faculty member falls under the outreach umbrella. Given that participants were licensed pharmacists, the ability

to recognize the quadruple aim of healthcare, as discussed in Chapter 2, was important in designing a curriculum that matched the realities of healthcare practice. To maintain anonymity in reporting, details about each participant's faculty promotion or tenure status, clinical focus, workload distribution, and demographic information were not collected. Each participant was given a pseudonym during data analysis. Further information about participants, including pseudonyms, is provided in Chapter 4

Research Questions

Three research questions guided this study:

RQ1: What are the key transformational leadership qualities and behaviors that curricular leaders demonstrate?

RQ2: How do curricular leaders embody innovation as a mindset?

RQ3: How can the proposed Transformational Leadership and Innovation Framework be refined as a conceptual framework? (The framework is conceptualized in detail in Chapter 2).

Data Collection and Management

A hallmark of case study research is the convergence of multiple data sources in order to create a holistic understanding of the case (Baxter & Jack, 2008). Use of multiple sources of data increases the credibility of the findings. The primary source of data for the present study was one-on-one participant interviews. One-on-one interviews are ideal for participants who can articulate answers to interview questions and share ideas comfortably (Creswell & Guetterman, 2019). Additional data sources include curricular artifacts available to the researcher, and researcher reflections. In sum, there were 8 interview transcripts, 8 researcher reflections, and 6 curricular artifacts used to develop the study findings. According to Stake (1995), there is not a

specific moment in time when data gathering begins. The Institutional Review Board approved the study protocol.

Semi-structured interviews were the primary data gathering method for this study. This format of interviewing is particularly well suited for case study research (Hancock & Algozzine, 2017). The semi-structured format allowed for sufficient flexibility when conversing with the participants, while still following a consistent format. As Stake (1995) suggests, the order and wording of interview questions asked to interviewees should allow for flexibility from the interview protocol. The researcher can deviate from predefined research questions, when necessary, in order to explore an unanticipated topic area. Interview questions were also open-ended to allow the respondent the opportunity to direct the conversation with personal explanations (Creswell & Guetterman, 2019). Each interviewee has unique stories to tell, and the purpose of qualitative data gathering is to collect enough richness for adequate interpretation.

The interview protocol is provided in Table 8. Interviewees were asked all twelve questions on the protocol. Illustrated in the first two questions, history of involvement in the PRC was included in order to ascertain why the participant originally became a curricular leader. Participants can offer unique perspectives on the evolution of their roles and responsibilities as it relates to being a curricular leader, as well as any innovative practices they initiated, whether it be on the front of the curricular overhaul, or in less substantial ways. Other interview questions related heavily to research questions 1 and 2 regarding curricular innovation and leadership behaviors. Interviews were scheduled for one hour using a virtual platform (i.e., Zoom).

Table 8

Interview Protocol

Category	Interview Questions
History and Curricular Leadership	When did you become a curricular leader and why? Were you asked or did you volunteer? What phases of the PRC (creation, implementation, and/or maintenance) would you say represents your primary involvement or interest? What has been your biggest success as a curricular leader? Greatest struggle?
Innovation	In your opinion, why is the PRC innovative? What are your thoughts on being innovative? What curricular innovations have you spearheaded or conceptualized? How did you foster curricular change? Define innovation as a mindset. Do you have an innovative mindset?
Leadership Behaviors	What leadership qualities and behaviors have you embraced in order to facilitate curricular change? Innovation? What is/was your vision as the leader? How did you come to it? How have you cultivated a shared vision with others? What has your experience of being a curricular leader been like? What are your perceptions of leadership in this role? How have you motivated others to be innovative? How do you perceive your influence as a leader?

There were strengths and weaknesses of each data source. Interview data, being the most abundant in this study, is helpful because it is targeted at the research questions and tends to be insightful (Yin, 2018). On the other hand, interviews can produce inaccuracies if recall is poor; interviews can also be biased if the questions are not articulated well, or the interviewee says what they think the interviewer wants to hear. Data from document artifacts also have strengths and weaknesses. Documents are a strength because they tend to be stable, specific, broad, and unbiased if creation was not part of the case study. In contrast, there may be difficulty in retrieving documents or bias may be apparent if selection of documents is not comprehensive (Yin, 2018).

Storage and organization of data is important in research (Creswell & Guetterman, 2019). All data, including transcripts, recordings, reflections, and curricular artifacts were stored on a password-protected, dual-authentication cloud storage system. The sole researcher in this study was the only person who had access to the data within the storage system. Each one-on-one interview occurred virtually on the Zoom platform, which recorded both audio and visual elements. Interviews were recorded, and a transcript was produced from each interview. Zoom automatically transcribed the interviews, allowing the researcher to correct and enhance each transcription after listening to the recording a second time. External transcription services were not utilized by the researcher.

During the interview and when watching the recording afterwards, the researcher wrote a reflection from each interview experience. Each hand-written reflection had a left and right column. In the left column, the researcher recorded summary and key points from responses. In the right column, the researcher recorded conclusions, reflections, and observations from the interviews. During the reflection writing process, the researcher practiced reflexivity by considering how to interpret and co-construct knowledge honoring the participant voice, similarities and differences between participant responses, and personal viewpoints and reactions to responses. Researcher reflections served as the third source of data for analysis and triangulation.

The researcher searched available historical curricular documents from 2013 to present day to identify helpful and contextual artifacts for this study. These artifacts were available to AUHCOP faculty in cloud storage folders. Six curricular artifacts were identified that would enhance understanding of the findings. The details of the curricular artifacts utilized during data analysis are available in Chapter 4.

Data Analysis

Just like data collection, there is not one precise moment when data analysis begins in qualitative case study research. According to Stake (1995), the essence of data analysis is breaking something into pieces. As the investigator searches for meaning, they are often looking for patterns and consistency in certain conditions/situations. Thematic analysis was utilized to analyze the data, which included participant interviews, researcher reflections, and curricular artifacts. Through a systematic, deductive, inductive, iterative process, qualitative data were broken down into codes and then synthesized into themes (Bogdan & Biklen, 2007). Themes were then analyzed to form major findings related to each research question.

The researcher was already familiar with the participants, and therefore approached data collection and analysis with a constructivist mindset, meaning with an understanding that knowledge was co-constructed through the interactions in the interviews (Stake, 1995). As such, the researcher considered herself the tool for which data was to be analyzed. Programs for qualitative research were not utilized for analysis. Data analysis began after all interviews were completed, reflections written, and transcriptions prepared. Thematic analysis occurred through five systematic steps relative to the research questions. Details related to data analysis procedures are described more thoroughly in Chapter 4.

Role of the Researcher and Subjectivity

Subjectivity is inherent to qualitative research. Unlike quantitative research, subjectivity is not seen as a weakness, but is an essential element in qualitative methodology (Stake, 1995). Since the researcher is the instrument, the nature of the investigators' lens(es) plays a critical role in all phases of a project. Yin (2016) asserts that "Your worldview will likely color your overall approach to qualitative research" (p. 41). Researchers should not take claims at face value; rather

they should continuously test the veracity of their interpretations through a critical lens (Stake, 1995). The subjectivity of the researcher cannot be removed, although it should be acknowledged and disclosed. This is known as reflexivity, and entails considering and describing the interactive effects between researcher and participant(s) and reflecting on how these interactions may shape the inquiry. Reflexivity is a component of conducting qualitative research with integrity. It involves actively reflecting on personal biases, values, positioning, and assumptions (Creswell & Guetterman, 2019). The researcher wrote a reflection during and after each interview in order to record thoughts, perceptions, and key points from each participant. These reflections served as additional data for the study.

Positionality

Researchers enter a project with experiences and worldviews which might influence the project. Preconceptions should be accounted for through reflexive practice so they can be transparently mentioned. As a result, reflexivity was actively exercised by the researcher during the data collection and analysis phases through written reflection and record keeping. Managing preconceptions is also referred to as suspending or bracketing biases (Creswell & Miller, 2010).

Epistemologically, the researcher of the current study is self-characterized within a constructivist, interpretivist paradigm. This means that her interests lie in constructing knowledge through social interactions, while sharing mutual interpretations of those interactions. Further, the researcher is a licensed pharmacist and a faculty member at AUHCOP who is heavily involved in pharmacy curriculum. She is not a Course Coordinator (i.e., is not considered a curricular leader as defined in this study) but is colleagues with the participants in the case. The researcher's role in the PRC is the Curricular Coordinator, and she began this role in July of 2018. The uniqueness of the integrated nature of the PRC necessitated a pharmacist to manage

the day-to-day operations in conjunction with Course Coordinators (i.e., the curricular leaders in the study). The researcher oversees the coordination of the first year of the PRC. When she began her role as Curricular Coordinator in 2018, the PRC had been implemented in the first year only once.

As a result, it was important for the investigator's knowledge of curricular reform, the PRC, and participant leadership behaviors to be appropriately integrated into the results without unduly influencing the findings. In other words, the results from the study should be a consequence of interactions between researcher and data, and not from preconceived notions. Therefore, the dynamics between her and the participants was a component of reflexive practice that was exercised.

Ethical Considerations

While case study research and qualitative inquiry in general is interpretive, an obligation exists to minimize misinterpretations and misunderstandings (Stake, 1995). Following accepted protocols and making efforts to 'validate' the findings are important in minimizing concerns of misrepresentation. Further, qualitative researchers make ongoing decisions about the direction of a project. Afterall, qualitative inquiry is iterative and constant re-consideration is encouraged. However, there can be a great burden on qualitative researchers to make choices that have implications. Questions that qualitative researchers might ponder include the degree to which they personally participate in the case, when to pose as an expert or reveal comprehension, when to provide interpretations to the participants, how much to advocate, and how to tell a story (Stake, 1995). Lastly, when considering the 'constructed reality' that is characteristic of the epistemology of case studies, it is important for researchers to keep in mind that all

constructions, meaning that of both the researcher(s) and participant(s) are of equal value (Stake, 1995).

The lines between bias and subjectivity can be blurred. Subjectivity relates to the influence your worldviews have on your interpretations. This is different than bias, which is when preconceived notions mislead or distort research decisions and interpretations (Norris, 1997). Bias was potentially infused in this study during analysis and reporting as the researcher aimed to be considerate of how the pharmacy program central to the research was showcased. Unflattering results could have the potential to jeopardize the program or the relationship the researcher has with the program. On the other hand, subjectivity is embraced in qualitative research (Stake, 1995), but biases should be minimized. Two considerable ways bias is mitigated in this study include reflexive practices and triangulation of data (Norris, 1997). Reflexivity brings issues to the forefront, allowing their influence to be considered. Triangulation, which is described in the next section, helps to confirm the findings as credible.

Characteristic of case study research is a rich description of the case and its participants (Hancock & Algozzine, 2017; Stake, 1995). The researcher must consider what information to gather and report about the participants without jeopardizing anonymity and confidentiality. Given this research was of a single case, identifying information about participants was not gathered. This included promotion or tenure status, clinical focus area, workload distribution as faculty, and demographic information. As a result, this limited the ability of the researcher to include rich descriptions of the participants. Rather, the descriptions focused more on the participants' influence on the curriculum.

Lastly, it was important to consider the implications of the pre-established researcher-participant relationships. The investigator was a colleague of the participants. From a

methodological standpoint, there was no concern because qualitative inquiry is subjective, and thus the researcher was the instrument. Case study research is largely intuitive in nature, as it relies heavily on developing meaning through interpretation of phenomena (Stake, 1995). Additionally, case study research has constructivist underpinnings; therefore, knowledge was co-constructed between researcher and participants (Baxter & Jack, 2008). From an epistemological viewpoint, there was no concern because the researcher identifies within a constructivist, interpretivist paradigm. Her worldview is that knowledge is constructed through social interactions, while sharing mutual interpretations. This acknowledges multiple realities (that of both participants and researchers) (Yin, 2016). As such, when researcher and participants collaborated, it favored an equalized relationship rather than a hierarchical one. Lastly, from an ethical standpoint, there were no power dynamics between participants and researcher, so no concerns for coercion. The investigator also practiced intentional reflexivity to enhance meaning making and minimize the influence of bias.

Confirmability and Trustworthiness

A credible study is one that provides assurances that the investigator(s) collected and interpreted data properly, drawing conclusions that are representative of the phenomena that was studied (Yin, 2016). There are multiple strategies that build trustworthiness in qualitative case study research, and the strategies relevant to this study will be explored in subsequent paragraphs.

First, the methods of a study must be explicitly and methodically reported (Yin, 2016). Transparency in methods is critical to building a credible study. The aim of Chapter 3 was to clearly report and justify all elements of the research design, with the goal of complete transparency. Second, the sources of data should be authentic to the research questions. In the

current study, the main source of data came from participant interviews. The participants were embedded in the case and their leadership behaviors and mindsets were of interest to the research questions. Third, the longer the researcher(s) are engaged in the field, the better able they are to understand the contextual factors that influence the case. In the current study, the investigator was a faculty member involved in pharmacy curriculum at AUHCOP. She was also embedded in the case, so understands the culture and operations of the organization. Fourth, triangulation is another mechanism to strengthen the credibility of a study. Triangulation is the alignment of different sources of information to corroborate a finding (Yin, 2016). Triangulation can be done using data sources (data source triangulation), multiple investigators (investigator triangulation), perspectives from theory (theory triangulation), and/or with sound methods (methodological triangulation). In this study, triangulation was done using multiple sources of data to enrich the findings, so data source triangulation.

Member checking is another mechanism to confirm research findings. Member checking involves the participants reviewing the findings and offering feedback, insights, and/or assurances to the investigator (Creswell & Miller, 2010). As Stake (1995) explains the value of engaging participants in confirming the findings by stating, "Actors [study participants] play a major role directing as well as acting in case study" (p. 115). Member checking was completed as a final step to confirm the overall conclusions of the study.

Limitations

Limitations of the study were presented in Chapter 1; however, there are several limitations in case study methodology to present. First, while strategies were introduced to minimize bias, the existence of bias can never be fully mitigated. All qualitative researchers are limited by their own subconscious shortcomings and in the ways in which they can intentionally

recognize and account for personal values and assumptions. Second, researchers argue about the rigor of case study research, and if it is a desirable research approach (Yin, 2018). Following accepted practices, as was done in this study, helps to minimize concerns of rigor. Third, recall bias is a limitation when conducting interviews as participants are asked to recall events and perceptions from years prior, which can be challenging to fully recollect. Fourth, case study research as well as qualitative research in general is limited in its ability to generalize to other settings or populations. As Yin (2018) asserts, case study findings are generalizable to theoretical propositions but not to other populations, as is the goal with quantitative research. In other words, the goal of case study research is typically to expand upon theories and concepts, and not to extrapolate findings.

Summary

This chapter described and justified the use of case study methodology for this project. A case study approach was chosen because it allowed for an in-depth exploration of a phenomenon, which for this study was the design, implementation, and maintenance of an innovative curriculum within a pharmacy program and the leadership behaviors which facilitated it. The participants in this study were curricular leaders who lead organizational change. Data was collected in one-on-one interviews and analyzed thematically. The findings were triangulated with other data sources, research reflections and curricular artifacts, to confirm the results.

Chapter 4: Results

This study explored the transformational leadership behaviors and qualities of curricular leaders within a pharmacy program that has an innovative curriculum (Wright et al., 2018). A qualitative case study format was utilized to gain an in-depth and thorough appreciation of the case using multiple sources of data (Baxter & Jack, 2008). Qualitative case study methodology allowed for the ability to describe and interpret the perceptions of curricular leaders and their experiences leading curricular innovation. The role of the qualitative researcher is to elicit meaning of the phenomena (Yin, 2018).

Qualitative research is emergent. As new information is gathered and analyzed, new insights are revealed which may re-frame previous understandings (Baskarada, 2014). This study was guided by three research questions which were molded over the course of data collection and analysis. The following research questions were explored in this case study:

RQ1: What are the key transformational leadership qualities and behaviors that curricular leaders demonstrate?

RQ2: How do curricular leaders embody innovation as a mindset?

RQ3: How can the proposed Transformational Leadership and Innovation Framework be refined as a conceptual framework? (The framework is conceptualized in detail in Chapter 2).

The research questions sought to explore two phenomena, transformational leadership and innovation as a mindset, as well as the intersection between the two. These phenomena were explored within the context of a case where the participants successfully led an innovative initiative. More specifically, central to the case was innovative curricular reform and the

participants were faculty at a pharmacy program who led this change. Results from this study may help other pharmacy programs seeking to reform their curricula in a similar manner.

The main sections of this chapters are dedicated to descriptive findings, data analysis procedures, and results. Within the results section, conclusions for each research question will be provided. The results section includes methods of triangulation to confirm the results.

Descriptive Findings

The target population for this study is curricular leaders, who are all typical pharmacy faculty members, and not school administrators. They are called course coordinators at AUHCOP but dubbed "curricular leaders" in this study for the purposes of generalization. As articulated in previous chapters, the pharmacy curriculum in this case is highly integrated and competency driven. This means that each course is taught by multiple teams of faculty who work together to deliver the content and assessments. Each course was initially designed by a team of faculty that typically included the course coordinator as the chair. During implementation and maintenance, courses are led by a single course coordinator in conjunction with support faculty. Each year, the course coordinator develops the schedule for the course, encourages and supports brainstorming with faculty, oversees assessments, and supports student progression. While the course coordinators oversee their course(s), they do not supervise the faculty who teach within their course(s). Yet, they are still responsible for leading them. Curricular leaders are considered mid-level leaders. This is an important distinction for this study, because a highly innovative change was conceptualized and led by faculty educators and not managed by administrators.

There were 11 faculty at AUHCOP who met the inclusion criteria and were thus invited to participate in the study. Of the 11, eight faculty agreed to participate in interviews. All participants have their Doctor of Pharmacy degree and are all licensed pharmacists. At the time

of the interviews, all participants were either Associate Clinical Professors or Clinical Professors within a single department. Some participants had been curricular leaders since 2013 when the initial design of the curriculum was taking place and had kept their roles during the implementation and maintenance phases of the curriculum. Whereas other curricular leaders had taken over course(s) for other prior course coordinators and had only been involved in the implementation and maintenance phases. To this end, the level of curricular and teaching experience among the participants varied. To maintain anonymity, descriptive information of participants was not gathered nor reported. Each participant was given a pseudonym to maintain confidentiality.

Eight one-on-one and in-depth interviews were conducted by the researcher. Interviews were recorded and transcribed. Transcripts were the primary source of data for this study. In addition to interviews, data collected also included reflections from the researcher and historical curricular artifacts from AUHCOP. The researcher is bound within the case and is a colleague to the participants and, thus understands the innovative curriculum.

Interviews were video and audio recorded using Zoom software, which also provided an initial transcript of the interview. To clean up the initial transcript, each interview recording was rewatched by the researcher. During each interview, the researcher actively reflected and summarized key findings on a separate document which was handwritten. Rewatching each recording also allowed the investigator to further reflect on the interview and clean up the initial reflection to enhance understanding. Therefore, for each participant, there is an interview transcript and a reflection from the researcher. Table 9 provides a summary of participants' interviews. Included in the table is the length of the interviews in minutes and the length of each transcript. The length of the researcher's reflection for each participant is also included.

Table 9

Summary of Participants and Interview Data

Participant Pseudonym	Interview Order	Length of Interview	Length of Transcript*	Length of Researcher Handwritten Reflection^
Amanda	First	42 minutes	9 pages	3.5 pages
Bob	Second	41 minutes	9 pages	3 pages
Tommy	Third	41 minutes	8 pages	2 pages
Lucy	Fourth	64 minutes	10 pages	4 pages
Lydia	Fifth	45 minutes	10 pages	3.5 pages
Mitch	Six	36 minutes	8 pages	2.5 pages
Grace	Seventh	49 minutes	11 pages	3 pages
Elise	Eighth	44 minutes	9 pages	4 pages
Total		362 minutes	74 pages	25.5 pages

*Transcripts are single spaced, 11-point font
^Handwritten pages are counted as one-sided

As discussed in Chapter 3, the researcher's handwritten reflections included a dual-column approach. In one column, the researcher summarized key points from the participant response for each question. This represented an initial interpretation of the data. In the other column, the researcher added personal conclusions, reflections, and observations from the interview. It was this column that the researcher added to after rewatching each recording.

Six curricular artifacts were consulted to enhance understanding of the interview and reflective data, and subsequent findings. All documents were created during the early creation phases of the curriculum by the original curricular development team and had been provided or shown to faculty previously. The researcher specifically sought artifacts that were related to the ideation of the PRC, structure and development of the PRC, and roles of the curricular committees, curricular leaders, and teaching faculty. Curricular artifacts were relevant to the

design and implementation phases of the curriculum as AUHCOP was operationalizing the curriculum, and curricular leader influence was greatest. While dozens of available artifacts were reviewed, 6 were included in data analysis and triangulation because they offered either new insights or confirmed findings relative to the research questions. While all documents were internal to AUHCOP, the investigator had open access to them through collaborative workspaces. Artifacts were of various lengths, spanning from one to 46 pages. In total, there were 74 total pages associated with the 6 curricular artifacts. The 6 curricular artifacts in this study included:

1. Definitions of committees and individual roles in the PRC – This 3-page document defined different curricular-related committees and courses and outlined the various roles and processes of those involved in PRC revision. Specifically for this study, it aided in understanding how the organization viewed and categorized the role of curricular leader (i.e., learning community chair) and what their responsibilities were.
2. Concept map of the curriculum development process – This 1-page graphic showcased how the PRC was developed, starting with a practice-ready vision, and ending with instructional strategies. Figure 5 is a similar representation of this concept map, and provided the steps that curricular leaders lead their committees and teaching teams through.
3. Goal and philosophy of the PRC – This 12 slide PowerPoint breaks down the goal and philosophy behind the development of the PRC into component parts. It further contextualizes Figure 5 and the concept map of the curriculum development process. Curricular artifacts 2 and 3 specifically supported findings related to RQ1.
4. Responses to faculty questions from a curriculum open forum – This 46 slide PowerPoint answers AUHCOP faculty questions in an open forum format. This slide set was

developed in consultation with various curricular leaders and showcases their leadership in the curricular reform process as the general faculty population had questions and hesitations. This open forum occurred in 2018, which was the first year of PRC implementation. Curricular leaders responded to faculty questions related to student confusion, scheduling conflicts, consistency among teaching teams, interdepartmental collaboration, faculty workload, and alignment of competencies with assessment questions. This curricular artifact supported the findings related to RQ2.

5. Roles of teams and curricular experts – This 11-page document from 2016 defined the roles of learning communities, teams, and experts. Similar to the first curricular artifact, it listed very specific charges for curricular development committees. It also defined the roles of teaching teams and why specific faculty were chosen to teach certain content. This curricular artifact assisted in describing the development of the PRC in earlier chapters.
6. Teaching team steps for collaboration – This 1-page document from 2018 listed the granular steps for each teaching team meeting. This guidance document applied to all faculty and exemplified how curricular leaders guided and supported faculty through the teaching and collaboration process without micromanaging the meetings. This curricular artifact supported the findings related to RQ1 and RQ2, and subsequently RQ3.

Considering all sources of data in this project, including interview transcripts, investigator reflections, and curricular artifacts, the result was almost 174 pages of data for analysis.

Data Analysis Procedures

Thematic analysis of transcript data and interviewer reflections considered the contextual richness associated with each participant, including their setting, context, history, perspectives, and ways of thinking. The researcher was already familiar with the traits of each participant and took that into account when writing personal reflections of each interview. Due to the nature of constructivism, embedded within analysis was the investigator's interpretation of these things and the co-construction of knowledge that was generated during and after the interviews. Qualitative analysis involves "working with the data" to organize, break-down, synthesize, and search for patterns (Bogdan & Biklen, 2007, p. 159). For this study, thematic analysis was used to analyze the 8 participant interviews,8 researcher reflections, and 6 curricular artifacts.

Data analysis began once all interviews were conducted and transcribed. It was an iterative, deductive, inductive process that include taking smaller findings and codes and building broader themes in order to construct meaning and answer the research questions. Due to the iterative nature of qualitative research, some of the steps in thematic analysis are revisited and/or overlap with other steps. Because the researcher considered herself the tool for analysis, she did not employ qualitative software to assist with coding and analysis.

The first step of thematic analysis is to get a sense of the whole by familiarizing oneself with the data to begin the coding process (Creswell & Guetterman, 2019). As mentioned, refamiliarization of data was initially achieved when rewatching the interview recordings and reviewing the transcripts and reflections for overall impressions. The second step of analysis involved reading each transcript and reflection and gathering initial words and phrases to see what initially stood out. In a bulleted format, the researcher extracted key words, salient points, and important phrases in a handwritten format. An inductive approach to data analysis occurred

in step two as key words and phrases emerged from the data itself. Six handwritten, semi-disorganized documents resulted in this step. These key words and phrases would ultimately form patterns, be categorized, and build into themes in later steps. Approximately 200 codes, key words, and phrases were elicited during this step, many of which were in vivo, meaning in the participant's own words (Creswell & Guetterman, 2019). Other words and phrases were interpretations or summary points made by the researcher. Appendix B showcases the list of initial phrases and key words in step two. At this stage, some of the codes and key words/phrases were organized loosely by interview questions, while others were listed in a bulleted list.

The third step involved organizing and categorizing the codes into logical groups and removing redundancies. This step was deductive, meaning applied to a theory or framework. Broad categories were created, and key words/phrases grouped under them based on the components of transformational leadership and innovation. The main goal of the researcher during steps two and three was to identify and logically organize the key words/phrases into groups that would enhance the ability to derive meaning from them and answer the research questions. Appendix C showcases how the codes related to transformational leadership were specifically organized into its four categories.

After data were organized and categorized in step three, the researcher took the opportunity to revise the research questions to be more specific to the story being told by the data. The fourth step in thematic analysis was further refining, collapsing, and categorizing the groupings of codes into broader thematic areas. This step was also deductive, as data were further organized into sub-categories based upon the larger categories of transformational leadership and innovation. Table 10 provides a summary of how the data were organized in this step.

Table 10

Organization of Codes into Categories and Broader Thematic Areas

Organizational Approach	Categories and Broader Thematic Areas
Organization of Select Data by Research Question	How curricular leaders perceived their role Phases of the curriculum curricular leaders liked the most Biggest success of curricular leaders Biggest struggle of curricular leaders
Organization of Select Data by Transformational Leadership Qualities and Behaviors (See Appendix C)	Behaviors and qualities associated with Inspirational Motivation Behaviors and qualities associated with Intellectual Stimulation Behaviors and qualities associated with Idealized Influence Behaviors and qualities associated with Individualized Consideration
Organization of Select Data by Categories of Innovation	Innovation as an outcome Innovation as a process Innovation as a mindset

The fifth and final step involved a further step of deductive analysis. This step took a different shape for each research question and formed the framework for this chapter. For RQ1, the investigator identified the key behaviors and qualities of transformational leadership displayed by curricular leaders and derived six overarching findings. Through further analysis, the researcher aligned each finding with at least one component of transformational leadership. For RQ2 related to innovation, the investigator focused on the significant ways curricular leaders displayed an innovative mindset to better understand the internalization process of individuals. Major themes and sub-themes are reported. The findings of RQ1 and RQ2 were confirmed via triangulation of relevant literature, curricular artifacts, and member checking. While answering RQ2, a new vision for the TLIF framework was derived related to RQ3. This enhanced

framework more strongly interweaves the components of transformational leadership with the categories of innovation based on the data.

As discussed in Chapter 3, member checking was conducted to confirm the findings associated with research questions 2 and 3. The process involved emailing the research questions and a summary of the associated study findings to each of the 8 participants individually to gather their reactions and ask for verification of the results. The email included a brief description of the purpose of member checking for context. Of the eight participants, four replied to the email request for feedback. The four responses offered positive reactions and confirmed the authenticity and accuracy of the findings. None of the responses suggested adjustments. As a result, member checking served as a mechanism to confirm the findings in this study.

Results

Reporting results from qualitative inquiry can take many shapes (Creswell & Guetterman, 2019). There is great flexibility in the manner for which case study research is reported (Hancock & Algozzine, 2017). What is important for reporting of case study research is that the results and discussion provide a narrative which offers a rich understanding of the case in relation to the research questions. The rest of this chapter will explore the results of each research question individually. A discussion of the results will occur in Chapter 5.

Results from Research Question 1

The first research question in this study explored the key transformational leadership qualities and behaviors that curricular leaders demonstrated. Results from thematic analysis of interview transcripts (n=8), researcher reflections (n=8), and curricular artifacts indicated that curricular leaders displayed all four components of transformational leadership. See Appendix C for categorization of codes into the four behavioral components of transformational leadership.

Results indicated there were six overarching findings related to the key transformational leadership behaviors of curricular leaders. Collectively, participants exhibited the traits associated with all six findings, although the display of behaviors associated with each finding varied by participant. Each finding aligns with at least one component of transformational leadership. Table 11 showcases this alignment.

Table 11

Map of Transformational Leadership Behaviors of Curricular Leaders

	Associated Transformational Leadership Category			
Key Transformational Leadership Behaviors of Curricular Leaders	Inspirational Motivation	Intellectual Stimulation	Idealized Influence	Individualized Consideration
Curricular leaders try to keep the goal(s) in focus for themselves and others	X			
Curricular leaders encourage "the why"	X	X		
Curricular leaders encourage others to be all in		X		
Curricular leaders put trust in others				X
Curricular leaders recognize the importance of communication				X
Curricular leaders take on the burden of organizational tasks to promote productivity for others			X	

Finding 1: Curricular Leaders Try to Keep the Goal(s) in Focus for Themselves and Others. Curricular leaders have kept the practice-ready curricular vision in the forefront since the start of curricular reform discussions in 2013. A keen focus on the goal was especially evident during the creation phase when curricular teams were working to develop the PRC in a backwards fashion. Development started with a vision, an end goal, and worked backwards from the broad vision to specific content and instructional methods. Chapter 2 details these steps. Curricular leaders stated that repeated messaging regarding the curricular vision was needed throughout the creation and initial implementation phases to refocus and motivate faculty to work towards the collective outcome. Bob exemplified this when sharing how he energized faculty peers to see the goal in the early phases of curricular creation. He stated, "We were clear about why we were [developing the PRC] …here's the goal, this is why we're going there, and let's move there together." Curricular leaders, in collaboration with others, were tasked with honing this vision into more discrete tasks for the committees they led and the courses they coordinated. One specific phrase frequently used at AUHCOP is the "creation of a shared understanding." The phrase was stated in interviews and apparent in several curricular artifacts. A shared understanding is in reference to creating an environment where stakeholders are on the same page and work towards common goals. The notion of creating a shared understanding permeated curricular meetings and was in some instances considered the first discussion point before addressing other agenda items. An example of this was apparent in a guidance document made available to faculty teams regarding the steps for team collaboration. The first step, according to the guidance document, is to establish a shared understanding among the team before discussing other important decisions. Bob shared how he worked tirelessly to create and maintain a shared understanding with faculty around the curricular goals, stating:

> "We tried to keep the end goal out in front. We tried to have a lot of discussion around that at first. We tried to congregate steps. We tried to create urgency by saying 'this is where we need to go', and obviously we're not there yet...we tried messaging out in front."

Curricular leaders, specifically those involved in the creation phase, spent significant time thinking about and reminding others of the goal(s). After all, developing a practice-ready graduate was a collective goal among all faculty at AUHCOP, as they had voted to reform the prior curriculum with a practice-ready graduate as the new vision.

While the vision of the PRC was generated before some curricular leaders were serving in their role, all curricular leaders had to buy-in to the programmatic vision that guided the PRC. It was evident that all curricular leaders in this study were collectively working towards the same outcome (i.e., the practice ready vision), despite experiencing some challenges. Challenges included getting lost in the daily grind and losing site of the goal(s), the time needed to nurture a shared understanding among stakeholders, and the burden of frequently reminding others of the PRC's vision of a practice-ready graduate. These challenges were expressed by participants. Lucy shared that she would "get lost in the day-to-day functioning." Despite this, she also stated that she "always has to go back to know what you are doing." Additionally, creating a shared vision does not happen overnight, and takes time as the organizational culture shifts. As Lucy stated:

> "I think that's gotten a little better each year as more people do understand. Faculty are like students in that they really don't pay attention until they have to. So, the more they get involved, and the more that they're coordinating and leading and taking that

ownership, it is more people slowly coming on board with that overall intent. I think it continues to improve."

Keeping the end in mind and helping others see the vision was important in creating and maintaining buy-in among other stakeholders. As Grace explained:

"We had to get faculty to see the [goal of the PRC] and remind them that we're not trying to just get rid of the previous courses, what you're teaching, or how you're teaching it. We're just trying to do it in a more specific, proactive, targeted, and meaningful way."

Explaining the vision in this way reminded faculty that the purpose remains central to the task. Leaders who express a compelling and purposeful vision to others are inspirational. Therefore, finding 1 is most closely related to the inspirational motivation component of transformational leadership.

Finding 2: Curricular Leaders Encourage "the Why." Despite some curricular leaders volunteering to serve in this leadership capacity and others being asked to serve, curricular leaders were initially curious to know more about the big, bold concept that was the PRC, and were open to the idea of integrating themselves into it. In fact, the vision for the PRC stemmed from faculty questioning the previous curricular model. Elise shared the importance of being a curious educator stating, "[I am] always curious and always want to learn more. I [constantly] think about how I could make this [curriculum] better." Being curious is related to the intellectual stimulation component of transformational leadership because leaders stimulate and encourage creative solutions, accepting an array of ideas despite limits in practicality.

In the design phase, curricular leaders wanted the PRC to stimulate curious thinking among the general faculty population, because in turn this would facilitate curious thinking among students. According to Bob, curiosity from faculty about the PRC was present in the early

stages, and some faculty struggled to understand how to translate an abstract curricular vision into actual coursework.

> In the beginning, "We spent the first six months to a year talking abstractly, and every time we tried to put a benchmark on paper, we kept running into faculty just not seeing it. Because our idea that it is up to faculty to decide. Faculty develop it. But that was probably just a little too much creativity for them."

Further, encouraging followers to ask "why" questions might make leaders feel defensive, yet that was not the general experience of curricular leaders in this study. Rather, participants encouraged faculty to be curious and ask questions, even if it challenged the accepted thinking. This is because the curriculum was intended to be a shared enterprise. As previously mentioned, the practice-ready vision was voted on and approved by faculty consensus. Additionally, the PRC was intentionally designed using a "non-expert approach" as Mitch shared. Faculty wrote and mapped objectives for content areas that they were not an expert, and curricular leaders organized and managed content where they were not an expert. Grace shared why she valued when faculty questioned things about the curriculum, stating:

> "I think it's still important to listen to why they [faculty] don't like something and see if there is a way we can incorporate their ideas. Because, yes, we have this idea for what the curriculum should look like, but then we also have these people [faculty] who've gone to school, who've worked, and who have trained as experts in their field, so their opinion is still very important."

Because the role of curricular leaders was not from a place of authority, most participants perceived themselves in a supportive role relative to other faculty, stating they felt like their role was more characteristic of being a "caretaker" or "resource." Encouraging "the why" is related to

the inspirational motivation component of transformational leadership because leaders inspire followers to aspire to be the best they can be for the collective good. By asking why and challenging the status quo, individuals and organizations grow.

Finding 3: Curricular Leaders Encourage Others to be All In. Organizational buy-in for the PRC was critically important due to the curriculum's integrated nature (i.e., faculty would be co-teaching in teams) and the behemoth task of reforming the entire curriculum. There was no way around it: stakeholders had to collaborate and work together. Therefore, curricular leaders worked hard to create a sense of collaboration within the committees they led. Bob's early messaging to faculty exemplified this, "Let's be all in and see what can happen." Results for this finding indicated that curricular leaders supported faculty in their teaching efforts and encouraged them to be all in, even if the outcome(s) were not ideal or expected. The point instead was that they tried. Lydia shared how she encourages others to be all in, stating "My success has been trying to encourage people to try something new and innovative. It is ok that it fails; we just gotta try." A document displayed at a faculty open forum in 2018 addressing curriculum concerns reminded faculty of the need to stick together. This forum was conducted at the conclusion of the first year of implementation when AUHCOP was still working through early trials. The document shared with faculty inspirationally stated:

> "[There is] still a long way to go in the process, improvements will have to be made, new ideas will have to be incorporated, bad ideas will need to be abandoned, we will all need to continue to stick together and believe in each other during the process."

It was clear that curricular leaders supported faculty when they tried something new, even if the outcome was not ideal or expected. As Bob shared, "We knew it wasn't going to be perfect." This relates to the intellectual stimulation component of transformational leadership

because it encourages out-of-the box thinking and creative solutions. When asked if the culture of AUHCOP encourages faculty to try new and/or innovative things in the classroom despite its success, Tommy stated:

> "I think that is very important piece of a curriculum like this," further sharing "Whenever people would come and try to do something new, I was always very supportive of however they wanted to go try that. And if they ask for my input or ideas or things, I'm happy to provide that. But I've never said, 'Oh, this is a terrible way to think about this' even if it might not be the best."

Curricular leaders felt that some faculty were hesitant to try new or innovative things because, as Lydia shared "It's hard in our mindset being pharmacists and type A. We don't want to fail, so people sometimes don't want to try." Elise shared a similar sentiment stating:

> "I think part of the problem is that those in health care education are evidence based, and that carries over into teaching, which is a good thing. But sometimes I think the willingness to try something new might be hampered by the fact that no one's ever done it before, so there is not clear data that it will make a difference."

Curricular leaders worked to create a supportive and collaborative environment that encouraged others to step out of their comfort zones.

Finding 4: Curricular Leaders Put Trust in Others. In the beginning, curricular leaders provided faculty teaching in their courses with the competencies, objectives, and disease states related to what they would be teaching. Given the highly integrated nature of the curriculum, the expectation was that faculty would take that information and design their units collaboratively among their teaching team, to include pedagogical methods, assessments, and assignments. This inherently required curricular leaders to put trust in faculty, and thus faculty

had autonomy to decide how they wanted to teach their content within a given amount of teaching time. A curricular document was provided to teaching teams that detailed the step-by-step actions they should take to collaboratively design their units with other faculty on their team. One step in the document exemplifies how the PRC put trust in faculty, stating that when developing learning activities, faculty should "Think about how to make the learning experience active. Be creative and have fun!" Curricular leaders provided faculty autonomy to make decisions about how teaching would be conducted. Bob shared how the PRC put trust in faculty, stating:

> "You need to get students to X competency through the use of dementia as a topic [for example]. We're not giving [faculty] everything because we want [them] to ask the questions...Why do students need to know this? And what's the best way to get them there? So, in my mind, it was trying to inspire the faculty, motivate the faculty to think that way, and to get to that point where they started asking some of those questions."

Lucy shared how this putting trust in others was challenging as a curricular leader, stating "It takes a lot of work to try to keep up with all the moving pieces. And you're putting a lot of trust in a lot of other people."

During the implementation and maintenance phases, if there was an obvious learning issue for students, curricular leaders facilitated discussions with faculty to energize them into making decisions about their teaching. Amanda stated:

> "I feel like I brought some initial ideas or big picture things [to the meetings with faculty], but then turned it to them so I'm not deciding what they teach. This allows them the space and the time to think through it and talk about it from their expertise for what would make the most sense."

This finding is related to individualized consideration component of transformational leadership because it gave followers individualized attention to foster a fulfilling environment where they feel seen and respected. As participant Lydia shared, “My success is that people have been successful…it’s the fact that I’ve hopefully encouraged others to go out and try things new, and they’re seeing the benefits of their innovation.” Further, by placing trust in faculty, some curricular leaders felt that respect reciprocated. Lucy exemplified this by stating:

> “I feel like people trusted me in terms of my intentions. If you think about corporate America, everybody has their agenda. That's big in academia too. There's a lot of people that are looking at everybody like, “Do they mean what they're saying? What's their intent?”

Finding 5: Curricular Leaders Recognize the Importance of Communication. Not surprisingly, almost all participants commented on the importance and struggles related to communication. The main reason for this was the volume of people involved in the curriculum and the integrated nature of its design. All courses are taught by multiple teaching teams and managed by a team of coordinators. As with any organization that distributes its leadership, one decision can snowball to affect many other things, so various people might need to be involved in decisions or updated when decisions are made. That was the case for curricular leaders in the case. At AUHCOP, lines of communication extend throughout the organization. Within the curriculum, communication occurs between faculty involved in teaching, curricular leaders who led the courses, faculty and staff who support curricular implementation, students who experience the curriculum, and administrators and other stakeholders who have a vested interest in student progression or curricular outcomes. All members of AUHCOP are inherently involved in the mission to educate students, so naturally information and decisions about the curriculum

can affect everyone. As a result, curricular leaders sometimes struggled with keeping everyone updated. Tommy shared:

> "With something this complex and unique, the really difficult part is making sure everybody is updated with changes, and that everybody is not duplicating content… I try to be available for people to meet. Try to set up meetings with the people that are in teaching teams together to really discuss the best way to change things or cut content or do these things. So being a facilitator…and trying to keep that transparency."

Elise expressed difficulty in knowing the best method to communicate with faculty relative to her preferences, stating:

> "Having good communication with faculty is something I struggle with. What's the best way to communicate with faculty? Sometimes I think a well worded email is great because you could save that or print it and refer to it later. But I think others prefer other methods of communication via meetings, appointments, or reminders."

Recognizing the importance of being inclusive and intentional with communication is closely aligned with the individualized consideration component of transformational leadership because the leader fosters an environment where individuals are nurtured and respected; maintaining communication with their followers is one mechanism to achieve this aim.

Finding 6: Curricular Leaders Take on the Burden of Organizational Tasks to Promote Productivity for Others. As mentioned, there are numerous people and logistics involved in executing an integrated curriculum well. Because of this, inconsistencies and miscommunications are bound to occur. Curricular leaders tried to minimize issues by being organized. Amanda shared that her biggest strength as a curricular leader is organization:

> "My biggest thing is organization and consistency, and I feel like that's what I have spent a lot of time doing. I try to take some of the burden on for some of this stuff. And let [faculty] be in charge of the teaching."

Further, to streamline tasks as a curricular leader and promote efficiency during meetings, Mitch stated that he would:

> "Organize the meetings so there was a clear agenda to try to get things done… we kept discussions to a minimum, so it did not drag on. I would always bring things to the group half done versus an empty slate."

While a necessary component of leadership, spending time with organizational or managerial tasks left some curricular leaders feeling like this overshadowed their ability to focus on more fulling tasks or roles. Elise epitomized this feeling by sharing:

> "I feel like course coordinators are not necessarily looked at as leaders at our institution. I think they're looked at as an organizer or a manager. It's that leadership versus management discussion. I feel much more of a manager than a leader a lot of the times."

Lucy shared that she is always "thinking about the logistics" of the ideas she generates. Taking on burden from others is related to the idealized influence component of transformational leadership because leaders consider the needs of others over their own. For curricular leaders, offloading organizational burden from faculty, despite personal workload, ultimately helped faculty have the ability focus more attention on their teaching.

Summary of Results from Research Question 1. Curricular leaders displayed all four components of transformational leadership. The most significant transformational leadership behaviors displayed by participants included encouraging commitment and curiosity, trusting others, and assuming administrative responsibilities. While curricular leaders did not have formal

authority over the faculty who taught in their courses, they were still responsible for leading them through the creation, implementation, and maintenance phases of teaching and overseeing the integration of the PRC.

Results from Research Question 2

Research question two explored how curricular leaders embody innovation as a mindset. Results from thematic analysis of interview transcripts (n=8), researcher reflections (n=8), and curricular artifacts helped to explain how innovation as a mindset is internalized. Findings indicated that leaders displayed innovation as a mindset because they were open to taking risks, expressed a curious mindset, and were perceptive of themselves and others.

Unlike innovation as a process or outcome, innovation as a mindset occurs because of individuals' mindsets and organizational culture (Khan, 2018). As discussed in Chapter 2, there is limited scholarly work on innovation as a mindset, and little to none in higher education settings. Seeing as though the focus of this study is individual leaders, exploring the notion of innovation as a mindset aligns well with the target population in this study and the data collected. According to Khan (2018), innovation as a mindset "addresses the internalization of innovation by individual members of an organization where innovation is instilled and ingrained along with the creation of a supportive organizational culture that allows innovation to flourish" (p. 1). The current study sought to better understand *how innovation is internalized* by curricular leaders within the context of a case study. Table 12 presents the major themes and sub-themes related to innovation as a mindset. The sub-themes were derived after consolidating and organizing the initial codes.

Table 12

Themes Related to Innovation as a Mindset

Major Themes	Major Theme Definition	Sub-Themes
Experimenting	Displaying a willingness to take risks, explore, and try new and different approaches, accepting that the result may be flawed or unexpected	Accepting less than perfect Being adaptable Promoting efficiency/structure
Questioning	Demonstrating curiosity by asking questions that challenge the status quo, overcoming barriers, and promoting a shared understanding	Solving problems Asking why
Perceiving	Having awareness of oneself and others within a larger organizational context and its culture	Recognizing the culture shift Being self-aware Having a positive outlook

Finding 1: Innovation is Internalized by Experimenting. Curricular leaders displayed a mindset related to experimentation, which was encouraged by the larger organizational culture. Experimenting means that processes and ideas are constantly enhanced or refined; inherent to this is a willingness to take risks, explore different solutions, try different approaches, and accept that outcomes may be flawed. According to curricular artifacts, the entire curricular vision was developed and implemented through an iterative process known as ADDIE: analyze/design, develop, implement, and evaluate. Emphasis on this cyclical process showcases the degree to which curricular leaders were aware of the need to continually experiment and refine the PRC over time. Embracing a mindset of experimentation was necessary for the program as a whole as they encouraged active learning, new teaching methods, improved organizational structures, enhanced efficiency, and modernized teaching expectations.

Experimenting was embodied by curricular leaders most significantly in the early design phase of the PRC, as the initial development team worked to map out and establish

competencies, steps, definitions, and expectations, all while trying to translate their progress and decisions to faculty and administrators. No other pharmacy program at the time had totally reformed their curriculum in the manner of AUHCOP. Therefore, as expected, decisions made during the design phase evolved over the years of curricular implementation and maintenance as refinements and adjustments were made. As Lucy shared:

> "[We] would always talk about the intended curriculum and the actual curriculum, like what is delivered. And do they match? And I would say, if I had to guess, probably 65% of what was intended is occurring and 35% is probably not. Just my gut feeling."

As this statement suggests, the notion of experimenting has been a hallmark in every phase of the curriculum (e.g., design, implementation, and maintenance) as refinements have been made over time.

Curricular leaders had a healthy awareness that the PRC was never going to be perfect, but practices and ideas could be refined over time – and they were. They also recognized that succeeding with curricular reform would only be successful if risks were taken. As Tommy shared, "I think of creative ways to problem solve. An important piece of that is trying new things but being okay with failure in a sense. So, learning from those mistakes and processing them and trying again." Further, a curricular document from 2017 on the roles of committees and teams illustrated the need to experiment and be adaptable, stating:

> "If there is anything we have learned from the curriculum development process so far it is that it is hard to determine time commitment initially, and the process gets perfected through doing. Development team 2 has achieved curriculum development milestones in a shorter time than development team 1, because we made significant changes to how we

operationalize the curriculum development process based on team one's feedback. We still continue to go through the reflection, improvement process."

Grace shared the questions she would ask herself and others when considering how to further experiment and improve her course(s), stating:

"Once it has been taught, I take a step back and am like, 'Okay, what went well and what didn't? Where can we shift things around? Is this really the best place for this competency to be taught?' Even things like, 'Do we need to see these disease states three times?' I like that part."

Some curricular leaders discussed their mindsets around managing expectations, further showcasing how they accepted a less-than-perfect mentality focused on risk taking. Having this mindset allowed curricular leaders to support experimentation without expecting perfection in the outcome. Elise discussed how she accepts 'good enough' stating:

"One thing I've used for myself, but then also for others that I've tried to communicate. And you know I have perfectionist tendencies as well. But the concept of 'good enough'. Is something good enough at this time? Sometimes I think that helps, because then you don't get stuck as much trying to make everything perfect."

Lydia also managed her expectations of others. She shared:

"I have high expectations for myself, and I don't let them down. But I know that some people are not going to reach them, and that's their choice...I just expect you to do your best, that you have a good work ethic."

Adaptability is another key component of a mindset related to experimentation. It is accepting that things will not be perfect, and will need to be adapted, revised, or improved for

future utility. Tommy embodied the notion of adaptability in the context of an evolving vision for his courses. He shared:

> "Being a coordinator for the first time, I got to see the details. You go through the weeds and see everything that's in there. So, I think your vision has to change as you receive information, and you have to be adaptable with that."

In a faculty forum in 2018, Lucy addressed an important concern from faculty about the overall organization of the courses and timeliness of receiving information. During the forum, she took the opportunity to remind faculty of the need to maintain flexibility to allow for experimentation and adaptations to be made. The document stated that while a set schedule might be desirable, "the vision for this curriculum was to allow for flexibility of activities, and [adjusting to that] will require a culture change and may take some time."

AUHCOP tried to establish a culture that expected risk taking and engagement, not perfection. A curricular document shared with faculty in 2018 contained several quotations to serve as a reminder of the need to overcome perfectionist tendencies. One quotation from Marie Curie was included in the document and stated, "Have no fear of perfection; you'll never reach it." Another quotation on the document was from Vince Lombardi and stated, "Perfection is not attainable, but if we chase perfection, we can catch excellence." Despite this, not all faculty expressed a mindset oriented at experimenting. Elise explained that faculty like to stay in their comfort zones, sharing "I don't think our faculty are necessarily risk adverse [sic]. I think they are cautious." In spite of some hesitation from faculty, curricular leaders embraced a mindset related to experimentation, and thus internalized innovation in this manner.

Finding 2: Innovation is Internalized by Questioning. The notion of questioning aligns closely with finding 2 related to RQ1 (curricular leaders encourage "the why"). Curricular

leaders expressed curiosity throughout all curricular reform phases (e.g., creation, implementation, and maintenance), and were responsive to faculty who had questions about the curriculum. Ultimately, the viewpoint from curricular leaders was that faculty who were inquisitive would inspire students to be curious as well.

Curricular leaders expressed a willingness to solve problems and also worked with others to brainstorm solutions that affected their course(s). Lucy shared "I liked coming up with solutions." Similarly, most, if not all participants enjoyed being able to solve problems because it was meaningful to them to help others. In their eyes, one of the primary duties of a curricular leader was to brainstorm and resolve problems. Tommy shared that he thought a lot about how things can be taught "more strategically and efficiently…although it is challenging and can be overwhelming." Amanda felt similarly stating, "I think back [to the course] that we have changed every year. I think problem solving is probably accurate, because that is what we are trying to do. How can we get this taught in a way that makes sense?"

The sheer length of the curricular design phase indicated that a high degree of questioning occurred by curricular leaders and faculty during this time. According to a document utilized in a faculty meeting in 2018, the first year of curricular design (2013-2014) was focused on refining the curricular vision into categories and ability-based outcomes. It was not until a year later in 2015 when the ability-based outcomes were broken into competencies; and another year after that (2016) when more specific objectives started to be made from the competencies. It was after this that curricular leaders started to collaborate with faculty teams to design the more specific elements of the teaching units. In sum, it took 3+ years of planning (i.e., questioning) to establish the structural components of the PRC.

Embracing a mindset that encourages questioning can be inherently challenging. This is because a constant state of questioning means there are frequent updates and little certainty in the process. While two participants mentioned the overwhelming workload burden associated with being a curricular leader, in general participants did not seem to struggle with questioning the status quo, even if it increased their workload.

Finding 3: Innovation is Internalized by Perceiving. Being perceptive means having an awareness of oneself and others within the larger organizational context. As mentioned previously, curricular leaders recognized that reforming the curriculum would require an ongoing culture shift. Thus, they spent significant amounts of time focusing on the PRC's vision and communicating with faculty. Bob shared, "I think we made a culture shift; actually, I know we did. I've seen some colleagues at first and where they are now…they're advocating for what we're trying to do. That means a lot." Curricular leaders understood their role as non-content experts leading other faculty, who lacked formal authority. Despite this, most curricular leaders had a positive outlook on their role and had an awareness of how they wanted to be perceived by others. Bob shared, "I am proud of what we did." Similarly, Lucy and Grace shared how they are perceived by others. Lucy stated, "[Faculty] saw me as someone who was genuinely trying to figure out the best way to address the challenges that we had." Whereas Grace shared, "I hope that people see me as a leader that they can talk to and share their opinions with."

During the interviews, curricular leaders were asked about their biggest successes and struggles serving in this leadership capacity. All participants easily answered these questions. Interestingly, the answers were very diverse, yet they showcased a strong perception of self. Table 13 indicates curricular leaders' self-identified successes and struggles.

Table 13

Self-Identified Successes and Struggles of Curricular Leaders

Participant	Biggest Successes	Biggest Struggles
Amanda	"I think organization…I spent a lot of time reading through test banks, and trying to organize those and group them just so that it was easier for everyone."	"Having to make the decisions about things was hard for me."
Bob	"Getting this thing [the PRC] implemented. Taking it from post-it notes on a wall to seeing the first-class graduate."	"One of the things I always struggled with was…trying to build a team atmosphere. Maybe we achieved that sometimes, but probably not a lot. But that was always the goal for me: to make it more collaborative."
Tommy	"I really think what we've done from moving from a 5 day to a 4-day week and trying to streamline and be efficient with our content."	"The really difficult part is making sure everybody is updated with changes, and just that everybody is not duplicating content. And I guess that communication piece from all different semesters."
Lucy	"The biggest success, honestly, that first year it was just surviving. It was just actually just making it happen. And I feel like having people embrace what we did, and that's faculty and students. When I hear students say, 'I'm so glad that we learn things this way. I'm so glad things are organized this way.' Or even have faculty talk about what we're doing positively and seeing the benefits of it."	"Just from a workload perspective, it is a lot. I like to put things in buckets and folders, and organize things in a nice little, neat, tidy way to keep up with everything... and dot my Is and cross my Ts, and cross reference things. And it's very hard to do that with this, obviously."

Lydia	“I think my success has been encouraging people. It's the fact that I've hopefully encouraged others to go out and try things new, and they're seeing the benefits of their innovation come about.”	“It's the naysayers. I know you can't get everybody involved, and I know you can't get everybody on board 100%. You can't make everybody happy. But it's very disappointing when a faculty member then outright criticizes the curriculum or says that they can't teach this way.”
Mitch	“I think I had an early understanding of [our assessment software] and how to use it.”	“I didn’t feel like there's things that I just struggled terribly with. I think the hardest thing was when we had to go remote in spring of 2020 [due to COVID]. Going remote was fine because we had the infrastructure for it, although it was terrible, but it worked out. But having to do some honor board things and having to have some hard meetings with students. That was tough, and not something that any faculty member wants to do. I struggled with it, and it was hard, and it certainly wasn't fun.”
Grace	“My biggest success honestly was just getting it off the ground…I think seeing it through with that first class. That was probably the most rewarding part of it and how we got them through it and their knowledge. Even now, seeing the quality of students that we're putting out there.”	“It’s letting go of my need to control everything… I just wanted to know all the things and be involved in all the things. I would get really frustrated with things, and I had to learn, in the grand scheme of things, some of this is just not worth that.”
Elise	“Getting the labs at scheduled times and to the point where students have a lab almost every week. It was something that I identified really early on that I thought there was a problem - a piece was missing with not having labs.”	“My biggest struggle is probably related to leadership, I guess. I feel like course coordinators are leaders in the curriculum, but without that much power. And I struggle with that because I try and do a lot of work and logistics, but sometimes I don't feel like I’m backed up with that. And it's difficult sometimes to communicate

> and try and inspire faculty to make changes, especially in this maintenance phase, when I don't have the support or authority."

It was apparent in the interviews that curricular leaders often associated innovation with being creative or generating flashy ideas. This was a common misconception among participants. As Grace stated, "I'm good at problem solving. But I'm not the most creative of people. But I can talk about ideas, and I can brainstorm things, but it being just super cool and innovative, I'm not that cool." In general, curricular leaders did not realize that simply *expressing a willingness* to resolve an issue equated to having an innovative mindset. Similarly, most curricular leaders did not identify strongly as being an innovator. This is likely because they did not have an appreciation or awareness for their innovative mindsets. Amanda also had this perception, stating "I'm not a very creative or innovative person in my opinion. But I like to talk about things and talk things out, so to me, it is also helpful to bounce ideas off of other people too." While neither Amanda nor Grace identified as being innovative people, both displayed innovation as a mindset by being willing to brainstorm solutions with others, thus introducing different solutions. Mitch took a stronger stance, also considering himself a non-innovative person despite intentionally making things more practical and efficient for others.

> "I don't like the word innovative. I think sometimes we try to be innovative at the expense of sound design. If it ain't broke [sic], don't fix it. I like that. As a student, I was highly annoyed at people that tried to do 'fun stuff'. It just didn't resonate with me. Talking about innovation [as a curricular leader], I tried to do things like efficiency or streamlining things or practical/fixing stuff. So, I like to fix things and make things work

the best they can work. But I'm not necessarily someone who is looking for the new thing."

On the reverse end, one participant Elise shared that she feels that she has an innovative mindset because she likes to try new things, "I like to be creative. I like to try new things, and I'm not afraid to. Because if they flop, I'm like, okay well we'll do it different the next time." While most curricular leaders did not identify as being innovative, they still expressed a willingness to solve problems differently than before, thus expressing an innovative mindset.

Summary of Results from Research Question 2. Innovation as a mindset is being willing to address issues. Despite not personally identifying as innovators, all curricular leaders displayed this willingness, and thus had an innovative mindset. Their innovative mindsets were expressed through an internalization process that involved experimenting, questioning, and perceiving. In summary, participants displayed innovative mindsets by taking risks (and encouraging others to do so), being inquisitive, and expressing awareness of themselves and others.

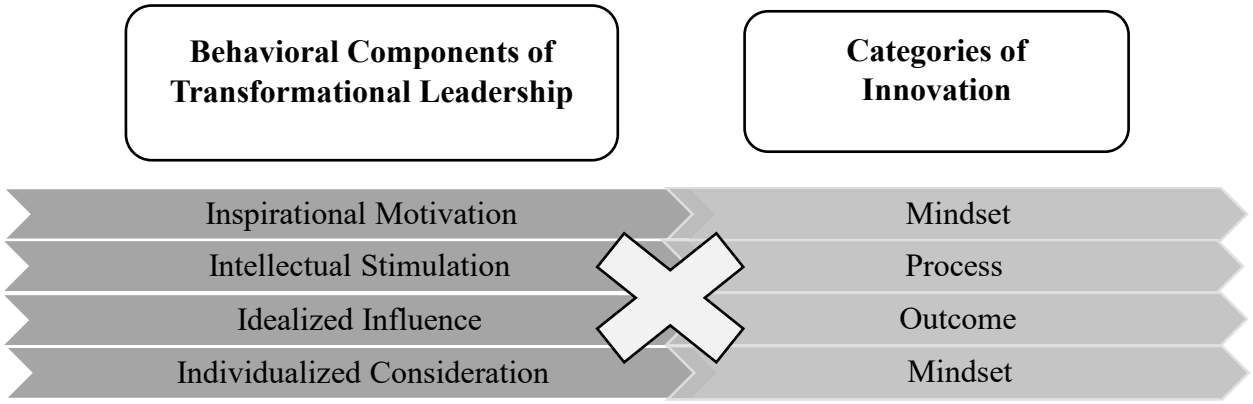
Results from Research Question 3

The third research question in this study explored the refinement of the proposed Transformational Leadership and Innovation Framework (TLIF). The framework was conceptualized after an extensive review of the literature. Figure 6 is a representation of the original TLIF described in Chapter 2, before data collection and analysis occurred. The original framework was initially proposed based on the extant literature on transformational leadership and innovation; it suggested a theoretical alignment between the four transformational leadership behaviors and the three categories of innovation. A visual X was added to the framework in Figure 6 to indicate the original alignment is no longer conceptually sound. The focus of the

originally designed conceptual framework was on the influence of specific leadership behaviors on the categories of innovation. An updated TLIF framework was derived that depicts a process-orientated representation of leadership and innovation. Results from RQ3 detail how the framework was updated and refined after data analysis of RQ1 and RQ2.

Figure 6

The Original Transformational Leadership and Innovation Framework (TLIF): A Conceptual Framework from Chapter 2



Mapping of Findings from RQ1 and RQ2. To generate an updated TLIF framework, findings of RQ1 and RQ2 were mapped and aligned. This alignment is showcased in Table 14. Study results indicate that transformational leadership behaviors influence the ways that curricular leaders internalized innovation and displayed it as a mindset. Each finding associated with transformational leadership is mapped to at least one finding related to innovative as a mindset. As a result, the process of this mapping revealed a significant, overall conclusion for this project: a leader who is transformational (and thus displays transformational qualities and behaviors) has an innovative mindset. Because of this, the combination of leadership and a mindset towards innovation ultimately influenced the innovative processes associated with the practice-ready curriculum, and this resulted in the innovative outcome that was the revised

curriculum. This is not true in reverse, as someone with an innovative mindset does not necessarily show the scope of behaviors associated with being a transformational leader. Examples of how leadership qualities and behaviors influenced innovation as a mindset is also included in Table 14.

Table 14

Map of Findings from RQ1, RQ2, and RQ3

Transformational Leadership Findings (RQ1)	Innovation as a Mindset Findings (RQ2)			Examples of how Leadership Influenced Mindset (RQ3)
	Experimenting	Questioning	Perceiving	
Curricular leaders try to keep the goal(s) in focus for themselves and others	X	X		Curricular leaders constantly questioned the philosophy of the PRC and the processes used to design it (i.e., a questioning mindset), while also considering different ways to improve curricular processes and create shared goals (i.e., an experimenting mindset).
Curricular leaders encourage "the why"		X		Curricular leaders displayed curiosity and wanted others to be inquisitive, and thus question the status quo (i.e., a questioning mindset).
Curricular leaders encourage others to be all in	X		X	Curricular leaders tried to generate buy-in among stakeholders and wanted followers to be willing to try new things (i.e., a questioning mindset), while also encouraging a culture of collaboration and engagement (i.e., perceiving).

Curricular leaders put trust in others		X	X	Curricular leaders created in inclusive environment by placing trust in others, while also desiring reciprocal trust (i.e., a perceiving mindset). Curricular leaders also worked to create a shared understanding (i.e., a questioning mindset).
Curricular leaders recognize the importance of communication	X		X	Curricular leaders relied heavily on communication to achieve personal and organizational goals and approached communication in new and different ways (i.e., an experimenting mindset). To achieve this, curricular leaders had to understand who they were communicating with and thus tailored communication to help the person receiving it better comprehend (i.e., a perceiving mindset).
Curricular leaders take on the burden of organizational tasks to promote productivity for others			X	Curricular leaders took on managerial burden, thus understanding the importance of such tasks in enhancing innovative success for the organization (i.e., a perceiving mindset).

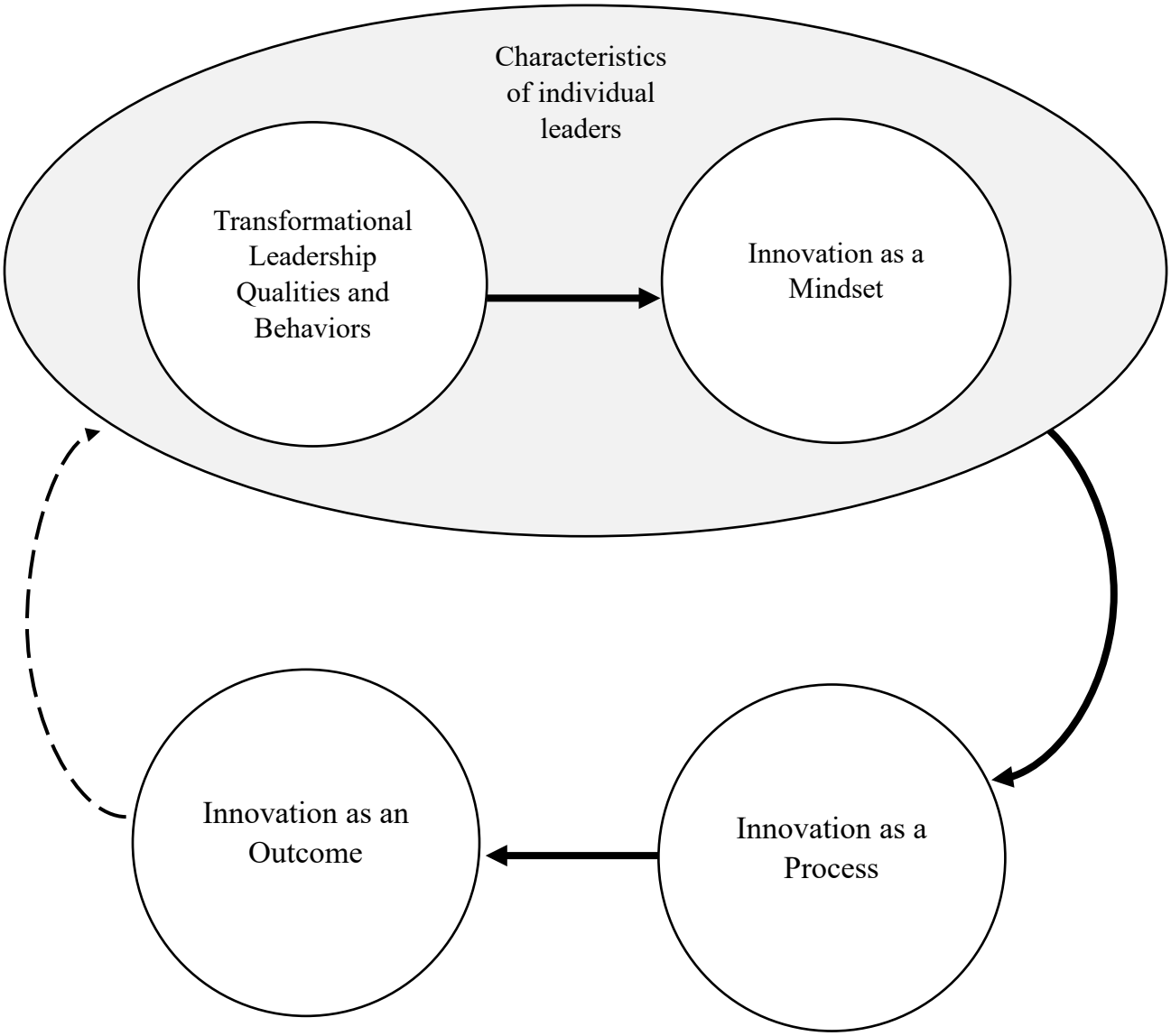
Updated TLIF Framework. The TLIF framework evolved significantly from its initial conceptualization in chapter 2. As a result of data analysis related to research questions 1 and 2, a stronger conceptual understanding of transformational leadership and innovation was developed by the researcher, thus necessitating the need to refine and update the original TLIF to show a stronger connection between transformational leadership and innovation. Conceptually, the

figure is now a process-oriented representation of concepts, rather than alignment of categories.

Figure 7 showcases the updated TLIF.

Figure 7

The Updated Transformational Leadership and Innovation Framework (TLIF): A Conceptual Framework



There are four major updates in the revised conceptual framework depicted in Figure 7: (1) the merging of transformational leadership behaviors into one circle; (2) the grouping of transformational leadership with innovation as a mindset, depicted at the top of the figure in the gray circle; (3) the categories of innovation are sequentially placed in relation to each other (not aligned with the behaviors of transformational leadership), depicted by arrows in the figure; (4) an overall stronger representation of the *relationship* between leadership and innovation is now apparent, depicted by the process-oriented nature of the framework. Each update is described in detail in subsequent paragraphs.

First, the four transformational leadership behaviors are merged, and not listed separately as in the original framework. This update was made because results indicated significant overlap and commonalities between the four categories of transformational leadership displayed by curricular leaders. In other words, the leadership behaviors of participants did not neatly fall into one behavioral component versus another. This overlap is apparent in the transformational leadership codebook available in Appendix C. For example, when a leader encouraged followers to ask "the why" questions, as discussed in the results for RQ1, this was a display of both inspirational motivation and intellectual stimulation-related transformational behaviors. This is because asking "why?" challenges the status quo; when this questioning is encouraged and conducted by leaders, such behavior can be inspirating and aspirational to others (which is related to inspirational motivation) and also stimulates curiosity (which is related to intellectual stimulation). In this instance, firmly categorizing this behavior into one category of transformational leadership over the other would be a challenge and is inconsistent with the theory. While it was clear that all four transformational leadership behaviors were displayed by participants (see Table 11), the inability to firmly categorize the related codes into one

transformational leadership category made subsequent alignment with the categories of innovation difficult and insignificant. Therefore, transformational leadership behaviors are represented at the top left of the framework as one circle.

The second update to the TLIF framework relates to how transformational leadership and innovation as a mindset are now grouped together. This is depicted at the top of the figure; the circle titled transformational leadership qualities and behaviors is included in the larger gray oval with the circle that contains innovation as a mindset. These two circles were placed in a larger oval together for two reasons. First, behaviors and mindset have a unique relationship because they are both characteristics of individuals, unlike other two circles of innovation in the framework. Despite curricular leaders not always identifying as innovators, they displayed innovation as a mindset through three behaviors (i.e., experimenting, questioning, and perceiving). The original framework implied the categories of innovation occurred on the same level, which was incorrect; the circles in the gray oval are not characteristics of a team or an organization, like those of innovation as a process or outcome. Second, after mapping of RQ1 and RQ2 was completed (see Table 14), it was concluded that a leader who is transformational (and thus displays associated qualities and behaviors) has an innovative mindset. Curricular leaders showed a sense of experimentation and willingness to take risks (related to the inspirational motivation, intellectual stimulation, and individualized consideration domains of transformational leadership), an expression of curiosity through questioning behaviors (related to the inspirational motivation, intellectual stimulation, and individualized consideration domains of transformational leadership), and had an awareness of themselves and others through a perceiving mindset (related to related to the intellectual stimulation, idealized influence, and individualized consideration domains of transformational leadership). This is not categorically

true in reverse, as someone with an innovative mindset does not necessarily show the scope of behaviors associated with being a transformational leader. Thus, the arrow at the top of the graphic from the leadership circle on the left to the innovation as a mindset circle on the right is unidirectional.

The third update relates to how the categories of innovation are now sequentially placed in relation to each other, and no longer aligned with the behaviors of transformational leadership. The framework now shows a process of innovation depicted by arrows. From the gray oval at the top (an individual's characteristics), an arrow goes down the right to innovation as a process. Following that is an arrow which moves from the circle on the bottom right titled innovation as a process to the circle on the bottom left titled innovation as an outcome. In the original framework, the categories of innovation were aligned with transformational leadership behaviors; however, because the transformational leadership behaviors were merged in the updated framework, this made alignment with the categories of innovation impossible. The categories of innovation remained separated as they originally were represented in the original graphic. The process in the framework, starting with an individual's characteristics (gray oval) moving to innovation as a process then outcome is explained by the curricular reform process of the case. When curricular leaders were in the design phase of the PRC, their leadership and mindset behaviors shaped how the committees ran, the decisions that were made, and how information was prioritized and communicated to other stakeholders. This influence resulted in innovative curricular design processes (i.e., innovation as a process), which ultimately resulted in an innovative curriculum (i.e., innovation as an outcome). As mentioned, both of these resulted from the leadership qualities and behaviors of the curricular leaders who ran the committees. Therefore, the primary path to an innovative outcome begins with the qualities and behaviors of

leaders, which then facilitates the innovative processes that generate outcomes. These innovative processes and outcomes occur among teams and organizations, unlike innovation as a mindset.

The fourth update to the TLIF framework relates to a stronger overall representation of the *relationship* between leadership and innovation, depicted by the now process-oriented nature of the framework. The framework is now cyclical in nature. As discussed in the previous paragraph, a leader by nature of being transformational influences organizational processes, and those processes are the engine that generates innovative outcomes. To exemplify this connection, an example is provided. As was discussed in results from RQ1, curricular leaders encouraged "the why". They did this by displaying curiosity and encouraging others to be curious too. By doing this, they challenged the status quo of the organization and its culture. This is also an expression of an innovative mindset because leaders continuously questioned the why and how of curricular reform and were responsive to similar questions from others. This leadership behavior resulted in improved *processes* where questions about the curriculum were solicited and transparently answered in faculty forums and meetings. As Bob shared, we wanted faculty "…to get to the point where they started asking some of the questions". The curricular artifact that contained 46 slides with questions and responses from a curriculum open forum further confirmed this orientation towards questioning-and-answering that encouraged the why. Curricular leaders wanted questions to be asked of them. Doing so offered the opportunity to provide answers, but more than that, it allowed for the quelling of fears related uncertainty and demonstrated transparency and openness. This *process* facilitated the outcome, which was the implementation of the revised curriculum.

Leaving the circle titled innovation as an outcome on the left of the graphic is a dashed line pointing back up to the gray oval with an individual leader's characteristics. This line is

dashed because the cycle does not always restart. Sometimes an innovative outcome remains as is, whereas other times the process of innovation starts over. Within the case at AUHCOP, plans to begin another curricular revision have not been made, but when they do, the process of innovation and subsequent influence of leaders on that process will follow the flow of the updated TLIF.

Summary of Results from Research Question 3. Results from data analysis for RQ3 necessitated updates to the initially proposed TLIF. The updated framework offers a stronger connection between leadership and innovation through a process-oriented depiction. Results from this study indicate that a leader's transformational qualities and behaviors are closely linked with the ways they internalize innovation as a mindset. A leader who is transformational (and thus displays transformational behaviors) has an innovative mindset, and an innovative mindset influences innovative processes, which results in innovative outcomes. Further, innovation as a mindset cannot be considered in the same manner as innovations associated with processes and outcomes because it occurs on an individual level like leadership behaviors. In sum, innovations that are processes and outcomes occur as a result of the combined influence of transformational leadership behaviors *and* the innovative mindsets of leaders.

Chapter 5: Discussion and Conclusion

Curricular leaders were responsible for making AUHCOP's curricular vision come to life. As this study demonstrated, designing, implementing, and maintaining the Practice-Ready Curriculum (PRC) required transformational leadership behaviors. But more than that, curricular leaders drove a culture shift within the organization as a result of reforming their curriculum. It is not surprising that an outcome of curricular leaders displaying transformational leadership behaviors was most faculty reciprocating with positive commitment. Previous studies on transformational leadership have also demonstrated this positive relationship (Bayler, 2012; Xie et al., 2018).

Curricular leaders also displayed an innovative mindset that aligned with their leadership behaviors. Having an innovative mindset, as demonstrated in this study, is not the same thing as being creative or inventive. Rather, it is believing in a purpose and expressing a willingness to solve problems related to it. It is being open to leading change. Curricular leaders embodied the notion of an innovative mindset. None of the participants were educational experts in a traditional sense yet were tasked with leading significant educational reform. They were chosen to lead in this role, not based on a particular skill set, but rather a passion and willingness to spearhead an innovative initiative.

The goals of this study were to better understand the transformational leadership behaviors that propelled an innovative outcome (RQ1), how innovation as a mindset is embodied (RQ2), and the relationship between transformational leadership and innovation in the form of a framework (RQ3). The subsequent three subsections will provide a discussion on these three broad areas: transformational leadership, innovation, and the relationships between the two.

Transformational Leadership (RQ1)

All four transformational leadership behaviors were expressed by curricular leaders: inspirational motivation, intellectual stimulation, individualized consideration, and idealized influence. Inspirational motivation was displayed when curricular leaders kept the curricular vision in focus, making organizational and team-level goals for the design, implementation, and maintenance of their integrated course(s). A component of creating this vision was asking themselves and encouraging others to ask, why this vision and why now? The intellectual stimulation component was exhibited by curricular leaders because they encouraged faculty to be curious, as they themselves displayed curiosity. Asking questions and being curious mirrors a person's interest in a topic. So, stimulating "the why" and being inclusive with others' questions brought AUHCOP's faculty together around a common objective. Individualized consideration was displayed when curricular leaders put trust into faculty to create the vision for their own teaching. Curricular leaders also showed consideration to individual faculty by keeping the lines of communication open and serving as a resource to their peers. Lastly, curricular leaders displayed idealized influence, or charismatic behaviors by being organized and taking on tasks that would improve efficiency and productivity in others. Table 15 provides a summary of the results related to the key transformational leadership behaviors displayed by curricular leaders in this study. Included in the table is an explanation for why the behavior is considered a key behavior of participants.

Table 15

Key Transformational Leadership Findings

Transformational Leadership Findings	Why a Key Behavior?
Curricular leaders try to keep the goal(s) in focus for themselves and others	Defines (in collaboration with others), reinforces, redefines, and creates urgency around the intended outcomes in order to create a shared understanding
Curricular leaders encourage "the why"	Creates curiosity in self and others by questioning assumptions, examining problems, and thinking critically about the best solutions
Curricular leaders encourage others to be all in	Signals others to provide input in order to build them up and to help reach the ideal solution
Curricular leaders put trust in others	Engages others' ideas and offers them autonomy in order to build self-efficacy and create mutual effort
Curricular leaders recognize the importance of communication	Creates a team environment by engaging with others, communicating decisions and updates, serving as a resource, and facilitating conversations
Curricular leaders take on the burden of organizational tasks to promote productivity for others	Supports others by completing administrative tasks that ultimately help the collective reach the end goal(s)

AUHCOP was able to achieve a high degree of innovation through total curricular reform and did so through a distributive leadership approach. The program started with eight curricular leaders initially but expanded it to more after initial implementation. Five of the eight participants in this study were one of the original eight faculty who designed the PRC. As mentioned, curricular leaders were faculty within the pharmacy program and not administrators. They had to practice what they preached, and therefore, could better appreciate the implications

of the curriculum they were helping to create and implement than someone external. Research confirms that a decentralized leadership structure like that at AUHCOP which encourages cross-faculty teamwork drives successful curricular innovation (Lasakova et al., 2017). Further, innovation extends when individuals from diverse backgrounds, abilities, and perspectives work together, as this offers a more comprehensive view (Langford & Tierney, 2022). Therefore, AUHCOP's curricular reform was successful, at least in part, by the distributive leadership approach and the diversity of curricular leaders.

Leadership is about behavior and not about personality (Kouzes & Posner, 2007). That sentiment was exhibited in this study, as each participant was unique relative to background, professional interests, and leadership and management styles, yet they collectively led widescale innovation and organizational change through intentional leadership behaviors. This study demonstrated that while each participant portrayed leadership qualities and behaviors unique to them, certain collective behaviors led to the success of the PRC. The most critical leadership behavior associated with the participants in this study was related to finding 1: keeping goal(s) in focus for oneself and others. This is because organizational change to the magnitude experienced by AUHCOP could not have been achieved if the curricular vision did not remain central to the task. What was clear from this study was that all curricular leaders kept both big scale and small-scale goals out front with their messaging and actions. Being goal-oriented is related to the inspirational motivation domain of transformational leadership. The link between inspirational motivation and organizational outcomes has previously been empirically confirmed by Shafi et al. (2020). Findings from their study state that subordinates depend on transformational leaders' displays of inspirational motivation in order to motivate them. Results from this study firmly support the need to work towards shared goals when being innovative. While curricular leaders

had a healthy understanding that expecting absolute buy-in for the revised curriculum was not realistic, they kept the vision moving forward through their other actions.

Findings 2 and 3, encouraging others to ask why and inspiring others to be all in, are heavily related to transformational leadership because the focus is on the growth of followers. In the case of this study, the followers are the faculty colleagues of the curricular leaders. Leadership is a highly social enterprise, and curricular leaders created social influence by displaying behaviors related to these two findings. It was evident that curricular leaders sought input from others before making decisions because they felt that this energized others to offer solutions. They wanted others to be engaged in the curricular reform process and question personal assumptions. Stock et al. (2022) confirmed the importance of these two transformational leadership behaviors in their qualitative study. Two findings from their research supported the results from this study. One of their themes was leaders who encouraged followers to question critical assumptions. Much like encouraging others to ask why (a finding in this study), this theme required followers to question "the fundamental elements of an idea or argument" (p. 8). A second theme was leaders seeking different perspectives. Similar to encouraging others to be all in (a finding from this study), this theme promotes inclusion by building confidence in follower's creative thinking, thus enhancing the likelihood of finding the best solution.

Building trust was another element displayed by curricular leaders in this study, related to finding 4. As explained by Xie et al. (2018), trust is a mediator between transformational leadership and innovation atmosphere. This is because trust improves job satisfaction, promotes belonging, and creates individual identity. When curricular leaders put their trust in other faculty, and conversely when administrators put their trust in curricular leaders, the sense of autonomy

was a motivator for many. The current study found that curricular leaders thrived with that level of independence, even if some of their faculty counterparts (e.g., the ones teaching in their courses) felt that a blank slate was overwhelming.

The fifth findings related to communication. Results showed that curricular leaders elevated followers by engaging them, asking for input, and supporting them. This cannot be achieved without communication, as contact with others is a fundamental component of effective team and organizational functioning. As mentioned previously, leadership is a social enterprise and cannot be achieved without interacting with others. But more than simply communicating, curricular leaders understood *what* they needed to communicate to others about. More specifically, they utilized communication as a tool for engagement, as a means to disseminate decisions and updates, to express their willingness to help others, and as a mechanism to facilitate conversations in order to bridge gaps. Curricular leaders realized that an integrated curriculum could pose challenges for effective communication, like keeping everyone engaged in the process and updated with decisions. Most participants experienced communication challenges, yet generally took ownership in trying to communicate effectively with others. This was achieved using different approaches: some faculty preferred meetings, while others preferred email communication.

The final finding related to transformational leadership was taking on organizational or managerial tasks to promote productivity. Like communication, the central focus of this behavior was supporting followers and keeping track towards the goal. The role of curricular leader was at times managerial in nature and not always transformative or developmentally focused. With an integrated curriculum like the PRC, there were a number of organizational tasks that needed to be completed to ensure operational cohesion. These tasks included creating team meeting

agendas, creating/updating documents, tracking decisions, passing along information to others, sending reminders, and setting deadlines. Curricular leaders took on the burden of these tasks to ensure others had time for their tasks, and to ensure progress was made towards the end goal.

Curricular leaders were undoubtedly engaged in the curricular reform process. Every participant in this study took significant ownership of their role as curricular leader. This was displayed in an assortment of ways, including organizing and leading meetings, facilitating discussions among teaching teams, communicating decisions and best practices, documenting new processes, and serving as a bridge between students and faculty. Perhaps most telling though, was that curricular leaders spent significant amounts of time executing this role. The time spent for some was over 5+ years and spanned multiple phases. Even those that entered the role inheriting it from a previous curricular leader displayed a strong sense of ownership. For most participants, serving as a curricular leader was a driver for developing a stronger identity as an educator.

Innovation as a Mindset (RQ2)

Published research on innovation as a mindset is limited. Therefore, this study sought to better understand, and thus describe this phenomenon within the context of curricular revision. Scholarly work on innovation from Khan (2018) describes an innovative mindset as a process of internalization. Therefore, data analysis centered on how curricular leaders *facilitated* innovation. Results of this study indicated that curricular leaders were able to create and implement an innovative curriculum by expressing an innovative mindset through three traits: by being willing to experiment (i.e., experimenting), by asking questions and being curious (i.e., questioning), and by maintaining awareness of themselves and others within the larger organizational context (i.e., perceiving). Table 16 provides examples of how curricular leaders expressed traits associated

with experimenting, questioning, and perceiving. Further, these traits were expressed by curricular leaders in all phases of curricular revision (i.e., creation, implementation, and maintenance).

Table 16

Expression of Traits Associated with an Innovative Mindset

Traits Associated with Innovation as a Mindset	Examples of How Traits Were Expressed in Case by Curricular Leaders
Experimenting	Creation Phase of Curriculum: Experimenting with structure of curricular committees Experimenting with structure of integrated courses Implementation/Maintenance Phases of Curriculum: Experimenting with teaching techniques Experimenting with assessments Experimenting with curricular best practices Experimenting with quality improvement measures
Questioning	Creation Phase of Curriculum: Questioning philosophical assumptions Questioning why an integrated, competency-driven curriculum and why now Questioning the practicality of competencies and objectives Implementation/Maintenance Phases of Curriculum: Questioning the feasibility of integration Questioning of barriers and facilitators of curriculum implementation Questioning curricular nay-sayers
Perceiving	Creation Phase of Curriculum: Shifting the organizational culture as a result of the revised curriculum Exploring unforeseen barriers that resulted from PRC Implementation/Maintenance Phases of Curriculum: Developing stronger identity as an educator Sharing the PRC as an exemplar with outside stakeholders

Findings from this study align with two of the five skills from research on the innovative mindsets of leaders conducted by Dyer et al. (2019): experimenting and questioning. Their research found that leaders have an innovative mindset when they implement new ideas (i.e., experimenting) and show a passion for inquiry by asking questions that challenge accepted wisdom (i.e., questioning). The third finding in the present study, perceiving, diverged from the five skills identified by Dyer and colleagues. Perceiving is having awareness of oneself and others within a larger organizational context and its culture and was found to be a mechanism in which curricular leaders facilitated innovation in the case.

According to Langford & Tierney (2022), mindful innovation within higher organizational organizations is a social process, and for innovation to occur, there are six ideal conditions. Selected findings from their work support the findings in this study related to RQ2. First, they assert that innovation occurs when there is a welcoming environment for experimentation that accepts failure as a part of the process. This notion clearly aligns with current study results that indicate curricular leaders display a mindset of innovation by experimenting (finding 1). Second, Langford & Tierney (2022) suggest that innovation occurs when creative diversity is cultivated by bringing together a broad spectrum of diverse opinions, backgrounds, and expertise. This connects to finding 2 related to questioning because curricular leaders promoted curiosity among stakeholders as well as within themselves; they actively gathered opinions by seeking input and feedback from stakeholders. A third condition from Langford & Tierney (2022) relates to supporting intrinsic motivation. This condition relates to finding 3, perceiving, because leaders must be aware of themselves, and how the organization influences them. Promoting intrinsic motivation equates to supporting individual curiosity through resources and protections, thus allowing faculty to focus on their interests. In this study,

participants discussed how they took ownership of their role as curricular leaders, thus displaying a high degree of intrinsic motivation.

Because AUHCOP was one of the first pharmacy schools in the United States to completely integrate their curriculum, there was not a gold standard for the program to follow. The curricular revision started by articulating the vision for a practice-ready graduate (i.e., the end result), then worked backwards to create tangible steps. By nature of blazing a trail, it was natural for individuals to internalize an innovative mindset.

Data analysis related to innovation as a mindset included an effort to understand how curricular leaders perceived their personal innovativeness. Results were not consistent regarding how participants perceived themselves; some participants self-identified as having an innovative mindset, whereas others did not. Regardless, innovation as a mindset was still expressed by all participants because they each facilitated the creation and implementation of an innovative initiative, thus displaying the notions of experimenting, questioning, and perceiving. Additionally, participants misunderstood innovation as only an outcome and did not realize how it was internalized as a mindset.

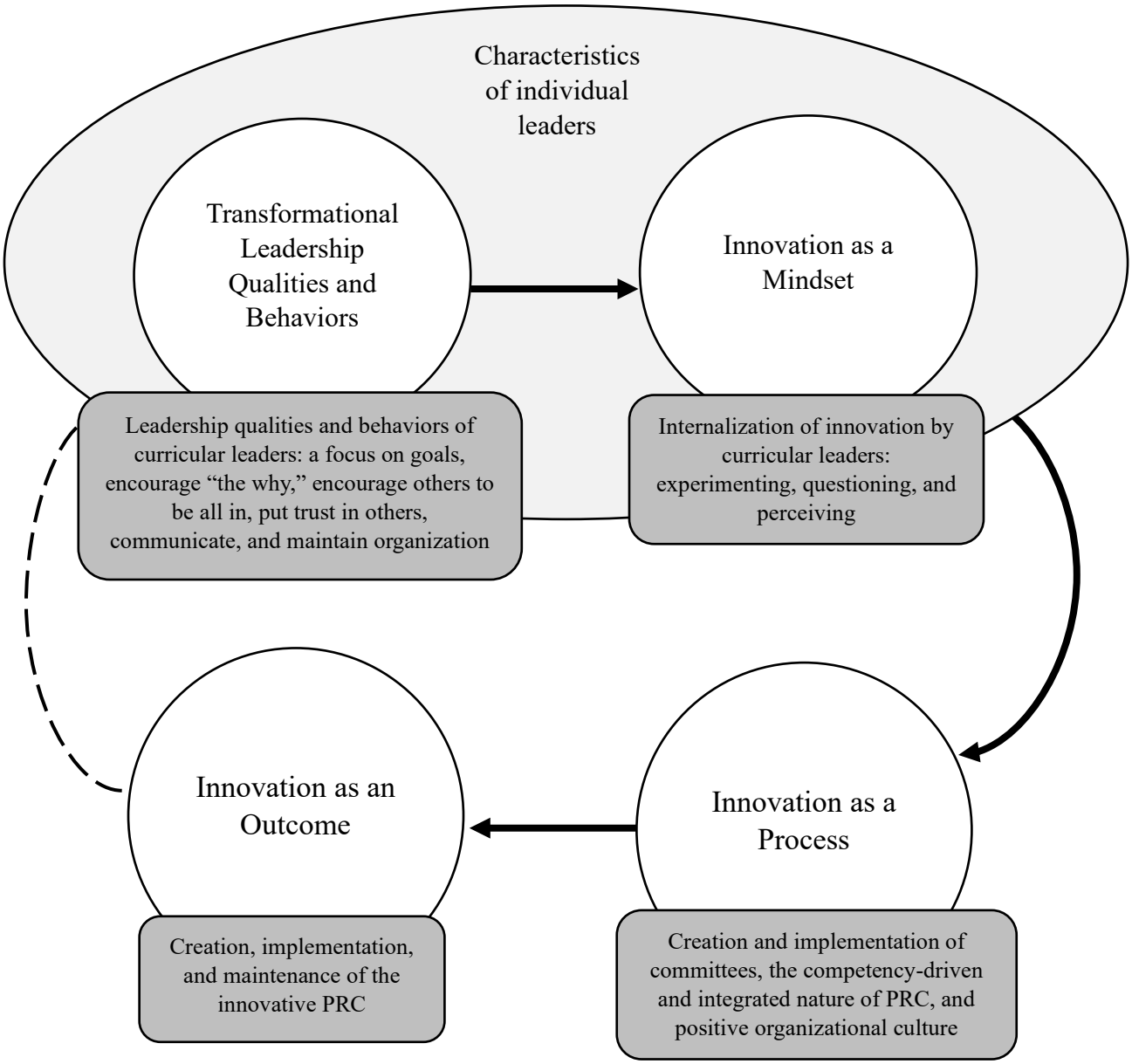
In sum, an expanded definition of innovation as a mindset from Kahn (2018) can be proposed as a result of findings from this study. The proposed expansion would include the three findings from research question 2 related to experimenting, questioning, and perceiving. Therefore, a mindset of innovation is the internalization of innovation by individuals who are curious, self-aware, take risks, and who are supported by an organizational culture which encourages it.

Transformational Leadership and Innovation Framework (RQ3)

This study proposed a conceptual framework (TLIF) for the relationship between transformational leadership and innovation. The framework displays how an innovative outcome begins with a transformational leader who inherently has an innovative mindset. Articulated by Xie et al. (2018), transformational leadership is helpful in building an innovative atmosphere. A leader who is transformational (and thus displays associated behaviors) has an innovative mindset, and an innovative mindset influences innovative processes, which results in innovative outcomes. Figure 8 shows how the updated TLIF is applied to the innovative pharmacy curriculum in this case study. The darker gray boxes underneath each circle provide examples specific to the pharmacy curriculum in the case. The framework starts at the top with the characteristics of curricular leaders, who were pharmacy faculty. A transformative leader has an innovative mindset, thus facilitating innovation as a process as depicted with the arrow on the right. Innovative processes included the conceptualization, design, and implementation of strategies, committees, and structures that would ultimately become the innovative curriculum, which is the outcome. The process engineers the outcome, as depicted by the arrow from processes to outcomes. Further, innovation as a mindset, like leadership behaviors, are individual characteristics of curricular leaders, whereas innovation as a process within the context of the case occurred on both a team (e.g., committee) and organizational level. Innovation as an outcome, the curriculum, occurred on an organizational level.

Figure 8

Application of TLIF to Curricular Reform



The updated TLIF depicts an overall stronger representation of the *relationship* between leadership and innovation, depicted by the process-oriented nature of the framework. By demonstration of leadership behaviors, curricular leaders showed innovative mindsets with an

orientation towards experimenting, questioning, and perceiving (see Table 14). These qualities and behaviors resulted in updating and establishing team and organizational processes which in turn resulted in the *outcome* of the Practice-Ready Curriculum.

Conclusion

This qualitative case study explored a pharmacy program's pathway to an innovative curriculum through the lenses of transformational leadership and innovation. The participants in this study were those who led the curricular reform. Analysis of multiple types of data revealed that curricular leaders displayed strong transformational leadership qualities and embodied innovative mindsets. These qualities and behaviors influenced the ability of the organization to create and implement a highly innovative pharmacy curriculum, which resulted in organizational change. Further, a leader's transformational qualities and behaviors are closely linked with the ways they internalize innovation as a mindset. This connection is depicted in the updated conceptual framework.

Conclusions to Research Question 1

Transformational leadership qualities and behaviors were strongly expressed by participants who were curricular leaders responsible for overseeing innovative curriculum reform. While leaders expressed the different components of this leadership style to varying degrees, participants displayed all four behaviors. The most significant transformational leadership behaviors displayed by participants included encouraging commitment and curiosity, trusting others, and assuming administrative responsibilities. What makes the curricular leaders in this case unique is that they did not have formal authority over the faculty who taught in their courses, yet they were successful in leading organizational change through curricular reform.

Conclusions for Research Question 2

Innovation has historically been conceptualized in the literature as the development and implementation of unique and creative ideas. This study took a different focus, exploring innovation as the mindset of participants. Innovation as a mindset is an internalization process that occurs from being willing to address issues within an organization or team. Results show that curricular leaders internalized innovation by their openness to change and having a desire to enhance the curriculum. Innovation as a mindset does not mean having all the solutions nor even being creative. Rather, innovative mindsets were expressed through a willingness to take risks (i.e., experimenting), being inquisitive (i.e., questioning), and expressing awareness of themselves and others (i.e., perceiving). The curricular leaders in this study exemplified a willingness to lead change, and thus displayed an innovative mindset.

Conclusions for Research Question 3

Due to the unique nature of the curriculum in the case, this study sought to better understand the relationship between transformational leadership and innovation, and how participants manifested these traits. A conceptual framework aligning these two concepts did not previously exist in the literature. Therefore, a conceptual framework called the TLIF was proposed in Chapter 2 after a thorough review of the literature. A goal of this study was to refine the framework after data analysis occurred. As a result, the framework was updated and re-proposed in Chapter 4. The updated framework establishes a stronger relationship between innovation and transformational leadership. Results from this study indicate that a leader's transformational qualities and behaviors are closely linked with the ways they internalize innovation as a mindset. A transformational leader has an innovative mindset. These two factors

(i.e., transformational leadership and innovation as a mindset) influence the innovative processes of teams and organizations, which results in innovative outcomes, like the PRC in the case.

Limitations

This study had several limitations, as discussed in Chapters 1 and 3. First, the research questions were explored within a single case. In order to apply results to other pharmacy programs or contexts, additional data from other cases needs to be studied.

Additionally, this study proposed a new conceptual framework of leadership and innovation. The initial TLIF framework depicted alignment between categories. This depiction was ultimately abandoned in favor of a process-orientated framework after analysis of RQ1 and RQ2. However, upon reflection, the interview questions provided in Table 8 were not specifically angled at exploring that alignment. Conducting a pilot study with non-participants first would have allowed for early refinement of the interview protocol before study implementation. Further, the TLIF framework can be widely applied to a variety of organizations, yet the application of TLIF in the current study was specific to one case and only represents a single setting for which it can be applied. Applying the TLIF to additional settings and contexts could further refine and enhance the framework.

Second, the success of the PRC was explored through the lenses of transformational leadership and innovation of leaders. However, there are likely other frameworks or theories that might be relevant to understanding the success of the PRC and case.

Third, qualitative inquiry is subjective. As a result, it is important for qualitative researchers to be transparent and account for personal biases. While the researcher actively reflected internally and in writing during the length of the project, the scope of conclusions drawn from the data are limited by the researcher's beliefs, perceptions, and lived experiences.

For example, because the validated Multifactor Leadership Questionnaire (MLQ) survey was not administered to participants, the observations made by the researcher regarding the transformational leadership behaviors of participants were interpretations. Further, only one researcher collected and analyzed the data and explored conclusions. The inclusion of more than one qualitative researcher to analyze the data would have enhanced the credibility of the results.

Lastly, while the researcher was methodical in data collection and analysis, the ability to offer thick, rich description of study participants (a characteristic of case study research) was limited by the ethical obligation to anonymize their identity. Readers familiar with the case could have the potential to identify participants by their quotations if demographical information or professional interests were disclosed. The following information about participants was not gathered: promotion or tenure status, clinical focus area, workload distribution as faculty, and demographic information. While maintaining participant confidentiality is critical in research, the analysis and narrative would have been enhanced if further descriptions were provided of the participants themselves. Rather, the descriptions in Chapters 4 and 5 focused heavily on the participants' influence on the curriculum.

Implications for Practice

Leadership and innovation are important for facilitating change, and change is inevitable in all workplaces. Across multiple studies, transformational leadership was found to positively influence innovation (Hsiao & Chang, 2011; Jung et al., 2003; Matzler et al., 2008). Because the pharmacy program in the case reformed its curriculum in ways not done before by other pharmacy programs, the influence of leaders who led this change is important and can serve as an example for other programs. Further, new accreditation standards for pharmacy programs will be released in 2025. Changes in educational expectations will significantly impact pharmacy

programs, thus promoting change. As a result, as colleges and schools of pharmacy seek to update their curricula, now or in the future, results from this study will aid organizations and individuals by suggesting ideal behaviors and qualities for leaders to embody.

Additionally, the participants in this study were mid-level leaders, meaning they oversaw curricular reform without formal authority over the faculty who served on their committees or taught in their courses. Curricular leaders were general faculty members themselves. Despite this, the program experienced successful organizational change through curricular reform. Therefore, this study serves as a reminder that successful change can occur from leaders in the middle space and does not have to be lead from the top down.

Because change affects all organizations, findings from this study are applicable to those outside the sphere of pharmacy education. Results reaffirm the long-standing notion that a leader's behaviors and mindset are important in facilitating change within a team or organization. Leaders should be open to change and express a willingness to bring others together. In addition, they should ask questions in order to create a shared understanding; they should challenge the status quo by taking risks, and they should be self-aware in order to promote the organization as a whole.

Lastly, results from this study can inform faculty development initiatives. Recognizing that a transformational leader has an innovative mindset, and that these two characteristics positively influence organizational change, programs should seek to cultivate these qualities within their employees. Leadership development initiatives could focus energy on the findings from this study. For example, development strategies could challenge educators to think about what they are curious about, how they can challenge (and have challenged) the status quo, how they perceive themselves and others, and how they can put trust in others. These are transferable

qualities that would benefit all employees in developing their leadership qualities and preparing them for change.

Recommendations for Future Research

Results from this study identified additional questions for future exploration. Undoubtedly, further research needs to be conducted to confirm, refine, or refute the proposed TLIF framework, and the relationship between transformational leadership and innovation. The TLIF also needs to be applied to another case, and innovation as a mindset better understood. Further, as new pharmacy accreditation standards are published in 2025 and curricular reform permeates academic pharmacy, it would be worthwhile to explore these findings in relation to future small-scale or large-scale curricular reform initiatives.

Results from this study reaffirm the long-standing notion that a leader's behaviors and mindsets are important in facilitating change with a team or organization. Further, a transformational leader has an innovative mindset, which positively influences organizational change. Yet, participants in this study did not think of themselves as innovative. This study confirmed the key ingredient to positive organizational change is leaders who are curious and open to change. Therefore, faculty development initiatives should encourage and challenge educators to nurture curiosities, challenge the status quo, develop an openness/overcoming resistance to change, develop stronger self-awareness, and put trust in others. In other words, development initiatives should focus on helping faculty learn about their identities.

as an educator, innovator, and transformational leader.

Additionally, this study collected interview data directly from leaders, which is a lesser utilized approach in scholarly works which explore leadership. A majority of leadership studies evaluate leadership qualities and behaviors from the viewpoint of subordinates, so this study was

unique because its participants were leaders. However, studies that included data from followers would be insightful. Future studies might evaluate how the behaviors of leaders align or misalign with that of followers, or how curricular leaders transformed their followers. Further exploration could also be done through a mixed-methods approach, where leaders and/or followers are given the validated MLQ for quantitative data and interviewed for qualitative data. Lastly, further studies might evaluate the non-verbal behaviors of curricular leaders, like how they engage with others, their body language, etc. This study only explored verbal and observational behaviors of leaders.

Concluding Remarks

This case study confirms previous findings that transformational leadership qualities and behaviors are relevant for achieving organizational change, and that leaders do not need to be at the top of an organization to be effective in leading innovative change. Additionally, results from this study provide *specific* qualities and behaviors related to a leader's behaviors and mindset that others can emulate, or that programs can use for leadership development.

Despite the conclusions drawn from this study, there is more to learn. The findings begged more questions, specifically related to innovation as a mindset. There is limited scholarly work on that topic, so this was the most challenging area in this study to understand. Enhancing the definition of innovation as a mindset was a start in operationalizing the concept, but there is still more to explore in this area.

As an educator who focuses on pharmacy curriculum, this study reinforces the notion that everyone is a leader regardless of title, and that change is lead when you are curious and open to it. This is the fundamental message that I hope this study conveys.

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Appendix A

HCOP's Curricular Domains and Ability-Based Outcomes

(Harrison College of Pharmacy, 2021)

The practice-ready HCOP graduate should be able to…

1. **Provide direct patient care**
    1. Identify patients who would benefit from pharmacotherapy intervention
    2. Collect data through patient interviews and chart review
    3. Perform physical assessments necessary for the evaluation of common conditions, drug- related problems, and monitoring response to drug therapy
    4. Utilize point of care testing
    5. Perform a comprehensive medication review
    6. Prioritize patient drug-related problems
    7. Assess and develop an appropriate plan for managing drug-related problems
    8. Develop and implement evidence-based pharmacotherapy plans considering patient specific factors
    9. Assess and promote medication adherence while identifying and resolving patient specific barriers to medication adherence
    10. Diagnose and treat acute self-limited illnesses and determine appropriate referrals
    11. Recommend self-care, OTC and alternative medications when appropriate
    12. Collaboratively prescribe and adjust medication therapy
    13. Develop and communicate a treatment plan that considers patient specific cultural and social issues
    14. Document patient interventions using appropriate medical language
    15. Monitor outcomes of care
2. **Provide evidence-based pharmacotherapy services**
    1. Assume responsibility for and provide evidence-based pharmacotherapy as a member of the healthcare team
    2. Access and utilize appropriate drug information resources
    3. Identify and analyze appropriate medical literature
    4. Develop and maintain a plan as a self-directed learner for staying current with medical literature
3. **Serve as a health educator**
    1. Identify stakeholders who would benefit from pharmacist-delivered education
    2. Assess the educational needs and barriers to learning of stakeholders
    3. Provide appropriate education to stakeholders to include an assessment of their understanding

4. Provide effective patient centered counseling/education taking into consideration health literacy, motivation, and readiness for change

4. **Optimize clinical, economic, and humanistic outcomes**
    1. Serve as an advocate for patients
    2. Assist patients with access to health care and services
    3. Identify, interpret and analyze literature in order to ensure the practice of evidenced based medicine
    4. Perform medication reconciliation at all points of care
    5. Facilitate transitions of care throughout the healthcare system
    6. Manage and utilize a formulary
    7. Select appropriate technology to enhance patient care
5. **Function within an interprofessional team**
    1. Work with individuals of other professions to plan and deliver patient-/population-centered care, while maintaining a climate of mutual respect and shared values
    2. Assess and address the healthcare needs of the patients and populations served with awareness of one's own role and those of other professions
    3. Communicate, both in writing and verbally, with patients, families, communities, and other health professionals in a responsive and responsible manner that supports a team approach to the maintenance of health and the treatment of disease
6. **Distribute medications safely and effectively**
    1. Evaluate medication orders by correlating the order with patient-specific data and drug information
    2. Provide safe, accurate and efficient distribution of medications
    3. Compound sterile and non-sterile drug products according to guidelines set forth by USP 797 and other regulations
    4. Recognize, report and resolve medication errors and adverse drug reactions
    5. Assess and resolve medication safety related issues
    6. Utilize pharmaceutical product management systems (e.g., PBMs, hospital systems) associated with distribution services
    7. Perform functions necessary for emergency management and assist with emergency stockpiles
    8. Identify the need for and implement quality/performance improvement strategies
7. **Manage Pharmacy Practice**
    1. Apply basic management principles to all aspects of pharmacy operations including human resources, operations, information technology, inventory, finance and accounting, and marketing
    2. Negotiate appropriate payment structure and determine consequences of contracts with payers

3. Develop and lead the implementation of new practices
4. Develop collaborative drug therapy management agreements (CDTM)
5. Plan, implement and assess a program to improve patient safety, patient outcomes, and attain financial goals
6. Participate in accreditation processes
7. Practice within state and federal laws, rules and regulations

8. **Provide preventative health and wellness services**
    1. Utilize existing data to prioritize public health needs
    2. Provide education to patients regarding health and wellness
    3. Conduct health screenings and provide recommendations and referrals
    4. Recommend and administer immunizations
9. **Change Healthcare Environment/Advocacy**
    1. Remain active and engaged in professional organizations
    2. Recognize the need and advocate for change in the U.S. health care system in order to improve patient outcomes and decrease costs
    3. Facilitate the development of innovative practice models that provide opportunities for pharmacists to develop clinical and leadership skills
    4. Advocate formalized leadership training programs to advance the profession of pharmacy
10. **Personal and Professional Development**
    1. Demonstrate ethical and professional behaviors and values
    2. Create and assume responsibility for the accomplishment of personal and professional goals
    3. Examine and reflect on personal factors and experiences that could enhance or limit personal and professional growth
    4. Develop and implement an individualized plan for continuous personal and professional development

Appendix B

List of Initial Key Words, Phrases and Codes

1. Role gives you increased empathy
2. "Don't think of myself as a leader"
3. Better at logistics/reviewing than creating own/making final decisions
4. Problem solver
5. "How can I help students understand better?"
6. Thought process >> memorization
7. Pressure on self to execute, workhorse, task-oriented
8. Transparent with students about struggles
9. Thinks of innovation as an outcome
10. Importance of communication
11. Supporting teaching teams with communication but giving them space
12. Likes to brainstorm with others/problem solve/build off of each other
13. Self-aware of strengths/weaknesses
14. Positive outlook of position
15. Role is challenging – lots of moving pieces
16. Role is a stepping stone to other leadership roles
17. Character is important
18. Spent a lot of time on initial philosophy
19. PRC was student focused – not teaching method focused
20. PRC forces self-assessment/self-checks
21. Faculty are like students with regard to what they pay attention to
22. PRC continues to improve
23. PRC initial goal was to help students make connections
24. Important of adding structure to curriculum
25. Never going to have 100% of people buy-in and have to accept this
26. A lot of people get lost in logistics
27. More productive when you work on stuff you choose to
28. "I hope people see me as I see myself"
29. Conflict levels can be proportional to respect someone has
30. Creation phase – didn't do stuff just for the sake of it
31. "I don't feel like I have a lot of influence as a leader" – but do have personal influence because of so much experience
32. "Didn't see it as a leadership role" – asked to do it and was going to do it
33. Still overcoming "This is your box and this box is mine"
34. Maintenance phase exciting because you got through initial hurdles
35. "My success is that other people are successful"
36. Sometimes it feels like you're not doing enough
37. Synergy between interests, how you spend your time, and research
38. "Innovation is being open to change"
39. Faculty designed PRC by voting on it
40. Sharing best practices is important
41. PRC is more collaborative than prior curricula and much more support is needed

42. Designing PRC was not challenging per se, but enjoyed doing things that way you wanted to (enjoyed autonomy of creation/academic freedom)
43. Took an approach that was "opposite of typical" – a very "non-expert approach"
44. "We're fixated on being perfect to a fault"
45. Don't do "fun stuff" in the classroom just for the sake of it
46. "I have no leadership qualities that I know" – not identifying as a leader
47. Vision important
48. Creation phase was hardest because of unknown
49. Challenge to expect faculty to keep up with everything
50. "I hate conflict. I have to force myself to deal with it"
51. Sense of responsibility with outcomes
52. Wanted students to see the importance of why things were designed like they were
53. Some faculty were initially hesitant but did it anyways – "There could have been a lot more resistance than we had"
54. Even though we don't have 100% buy-in, faculty are still doing what is asked of them
55. Creating buy-in
56. Getting advocates and representation in departments
57. PRC goal was the deliver content in more effective, efficient, targeted and meaningful way
58. Don't personally identify as innovative because not creative
59. Practice the pause during conflict
60. The more people involved, the more errors and inconsistencies
61. "I try not to think too hard about what other people think of me" – leads to insecurity
62. Difficult to inspire faculty with support or authority
63. "Sometimes I feel like I am not necessarily looked at as a leader at our institution"
64. Not real opportunity to help faculty be good teachers
65. Less influence in maintenance phase
66. "I think people outside Auburn think our curriculum is a whole lot more innovative than our faculty do"
    - Related to leadership behaviors:
    - Culture-focused
    - Recognizing it is a team effort
    - Not a dictator or micro-manager
    - Knowing that conflict comes with being a leader
    - Organization
    - Consistency
    - Keeping people on track
    - Being specific with faculty about what needs to happen (and spending time to do this)
    - Clear expectations
    - Willing to meet with others and be a resource
    - Keeping end goal out front/starts with the end in mind
    - Creates urgency in needing PRC
    - Out front messaging
    - Creating guiding coalition initially
    - Transparency

- Communication
- Being humble and admitting when wrong
- Giving people a voice
- Open to others' thoughts/ideas
- Takes burden off faculty
- Creates key relationships with stakeholders
- Inspires others to ask why
- Offers flexibility
- Collaborative atmosphere
- Listens and gathers feedback from others
- Likes the challenge
- Have to put trust in other people
- Create a sense of ownership in faculty
- Instilling confidence in others
- Gives examples
- Risk manager
- Idea generator
- Thinking logistically
- Developing trust with faculty
- Open mindset about change
- Have to know the goals and what you're trying to achieve – keep an overall vision
- Meet people where they are – think about their personality
- Being creative (for some)
- Being genuine
- Being trusted
- Wants others to be successful and excited
- Making sure others feel acknowledged and respected
- Being able to make a final decision
- Encouraging people to "try"
- Acknowledge that you can't change others' mindsets
- Assisting people to meet their goals
- Providing confirmation to others' ideas
- Had to teach self
- Have to understand the change
- Acknowledging we have different paths to the same goal
- Encouraging faculty involvement
- Being curious
- Asking questions – not giving solutions
- Recognizing you can't change people or make them do things
- "Encouraging the discussion"
- Providing enthusiasm
- Non-judgmental
- Recognize personal shortcoming
- Continue open dialogue
- Have to stand ground when needed
- "It's a puzzle we're trying to figure out"

- Had to gain respect
- Approachable
- Will take action
- Don't hold grudges
- "I took charge and gave stuff to do"
- Play on faculty strengths and training
- Team player
- Flexible in expectations of people
- Not going to ask faculty to do something you're not willing to do
- Promote empathy towards faculty
- Taking on the burden of preparing things in advance to help ease burden of others
- Conflict – don't take things personally
- Pick battles
- Overcoming "if you don't agree with me, then you're wrong"
- Focus on efficiency/streamlining/practicality
- Direct and honest
- Knowing "problem people"
- Knowing and answering the why
- Create clear agenda for meetings
- Recognize others have good ideas

67. Related to innovation as a mindset:
    - Problem solver
    - Brainstorming to build off of each other
    - Recognizing shifting culture
    - Creating discussions around key topics
    - Started with why questions (innovation is asking why) and encouraged it through out
    - "We've got to fail" so let's try something/just put something on paper
    - Didn't let challenges stop progress
    - Leading positive change
    - Being a facilitator
    - Not afraid to fail and adapt and adjust
    - Knowing how to adapt
    - Giving structure to curriculum
    - Pushing boundaries
    - Concept of "good enough"
    - Develop curiosity
    - "Embody the why"
    - Having solutions to barriers
    - Not just the "cool new thing"
    - Increase efficiency
    - Liked "creating and recreating"
68. Phases liked the most:
    - Creation – 4 participants
    - Implementation – 0 participants
    - Maintenance – 4 participants

69. Biggest successes:
    - Organization
    - Initial implementation and backwards design, and supporting roles
    - Streamlining content and positive change
    - Surviving the first year and having big/bold ideas
    - Encouraging people
    - Assessment structure and progression
    - Getting the PRC off the ground and quality of student being produced
    - Scheduling of labs
70. Biggest struggles:
    - Decisions and feeling confident
    - Unforeseen struggles in 1st year since no one has done this before
    - Too abstract for faculty initially
    - Making sure everyone is updated with changes and communication across semesters
    - Workload
    - Naysayers
    - Doing too much as an individual, student professionalism
    - Letting go of the need to control
    - Expressing leadership qualities
71. View role as:
    - Facilitator – hear and share ideas
    - Influencer – but in a supportive capacity with faculty/more influential from a student standpoint
    - Peer – not administrator
    - Not micromanager
    - Not dictator
    - "A caretaker"
    - Listener
    - Leader without power
    - Organizer
    - Manager
    - Brainstormer
    - Resource

Appendix C

Codes Organized into Transformational Leadership Behavioral Components

Transformational Leadership Components	Corresponding Codes Categorized by Transformational Leadership Behaviors
Inspirational Motivation Codes	Clear expectations – being specific with faculty about what needs to happen (and spending the time to do this) Culture-focused [also idealized influence] Recognizing it's a team effort [also idealized influence] Keep the end goal out front/start with the end Create urgency without front messaging (during creation phase) Create a sense of ownership among faculty Instilling confidence in others [also idealized influence] Have to know goals and what you're trying to achieve Wanting others to be successful and excited Have to understand the change and why it is needed Being curious [also intellectual stimulation] Give examples Direct and honest [also idealized influence] Knowing and answering the why Create clear agenda for meetings Encouraged the "why" throughout [also intellectual stimulation] Keep an overall vision [also intellectual stimulation] Create guiding coalition initially Likes the challenge [also intellectual stimulation] Create a sense of ownership among faculty Instilling confidence in others [also idealized influence] Have to know goals and what you're trying to achieve Wanting others to be successful and excited Have to understand the change and why it is needed
Intellectual Stimulation Codes	Give people a voice [also idealized influence] Open to others' thoughts/ideas Inspire others to ask "why" [also intellectual stimulation] Listen to feedback (and gather it) Idea generator Open minded about change Maintaining open dialogue/open communication Encouraging people to try [also idealized influence] Acknowledge that you can't change others' mindsets Recognizing you can't change people or make them do stuff Acknowledge we can have different paths to the same goal [also individualized consideration] Encouraging faculty involvement [also individualized consideration]

	Asking questions – not just giving solutions
	Don't take conflict personally
	Overcoming "if you don't agree, then you are wrong" mentality [also idealized influence]
	Encouraging the discussion [and individualized consideration]
	Encouraging people to "try"
Idealized Influence Codes	Being humble – admitting when wrong
	Takes burden off faculty and onto self
	Being genuine
	Provide confirmation to others' ideas
	Pick battles
	Provide enthusiasm/positive mindset
	Being non-judgmental
	Recognize personal shortcomings
	Approachable
	Don't hold grudges
	Taking on the burden of preparing things in advance to help ease the burden of others [also individualized consideration]
	Not going to ask faculty to do something you're not willing to do
	Making sure others feel acknowledged and respected
	Gaining respect from faculty
	Having to stand ground when needed
	Being able to make a final decision
	Teaching self when necessary
	Transparency in decision making and needs
	Knowing that conflict comes with being a leader
	Create collaborative atmosphere [also idealized influence]
Individualized Consideration Codes	Makes key relationships with stakeholders [also idealized influence]
	Willingness to meet with others/be a resource
	Give others' flexibility and autonomy [also idealized influence]
	Having to put trust in other people [also intellectual stimulation]
	Developing trust with faculty/being trusted
	Meet people where they are – think about their personality
	Assisting people to meet their goals
	Gained empathy towards faculty
	Recognize others have good ideas [also intellectual stimulation]
	Play on faculty strengths and training
	Team player [also idealized influence]
	Makes key relationships with stakeholders [also idealized influence]
	Willingness to meet with others/be a resource
	Give others' flexibility and autonomy [also idealized influence]
	Have to put trust in other people [also intellectual stimulation]
	Developing trust with faculty/being trusted
	Meet people where they are – think about their personality
	Assisting people to meet their goals

Appendix D

Institutional Review Board Approval

IRB Memorandum

Hello IRB,

This IRB memorandum is in reference to updated protocol #22-398, "A Case Study of Innovative Pharmacy Curricula and Leadership Behaviors" conducted by Lindsey Moseley, PharmD, MEd (PI). Below is a summary of updates requested by the IRB.

Updates made on 8/31 (previously made and reviewed by IRB):

1. The following updates were made to the Information Letter and highlighted in yellow:
    a. Paragraph 1 – "PRC" was defined as the practice ready curriculum
    b. Paragraph 3 – the following sentence was added: "Due to the small population of participants, indirect identification is possible"
    c. Paragraph 5 – the following sentence was added: "Your participation is completely voluntary."

Updates made on 9/8 (not yet reviewed by IRB):

1. The following update was made to the Information Letter and highlighted in yellow:
    a. Signature and date line removed at the bottom to make room for IRB stamp

The updated PDF file contains the following documents in this order:

1. Page 1 – Memorandum
2. Pages 2-8 – IRB Application
3. Page 9 – Updated Information Letter w/ highlighting
4. Page 10 – Email Invitation
5. Page 11 – Interview Protocol
6. Pages 12-20 – CITI training for P1 and faculty advisor
7. Page 21 – Updated Information Letter without highlighting, ready for IRB signature

Thank you,

Lindsey Moseley, PharmD, MEd
P1 Curricular Coordinator
Harrison College of Pharmacy
Auburn University
O: 334-844-8372
Email: lre0001@auburn.edu

Revised 02/01/2022

AUBURN UNIVERSITY HUMAN RESEARCH PROTECTION PROGRAM (HRPP)

EXEMPT REVIEW APPLICATION

For assistance, contact: **The Office of Research Compliance (ORC)**
Phone: **334-844-5966** E-Mail: IRBAdmin@auburn.edu Web Address: http://www.auburn.edu/research/vpr/ohs
Submit completed form and supporting materials as one PDF through the IRB Submission Page
Hand written forms are not accepted. Where links are found hold down the control button (Ctrl) then click the link..

1. Project Identification **Today's Date: August 28, 2022**

Anticipated start date of the project: September 1, 2022 Anticipated duration of project: 1 Year

a. Project Title: A Case Study of Innovative Pharmacy Curricula and Leadership Behaviors

b. Principal Investigator (PI): Lindsey Moseley Degree(s): BS, PharmD, MEd
Rank/Title: Curricular Coordinator Department/School: Pharmacy/ Educational Foundations, Leadership and Technology
Role/responsibilities in this project: Conceptualization, design, data collection, data analysis, reporting
Preferred Phone Number: 334-844-8372 AU Email: lre0001@auburn.edu

Faculty Advisor Principal Investigator (if applicable): Ellen Hahn
Rank/Title: Professor Department/School: Educational Foundations, Leadership and Technology
Role/responsibilities in this project: Oversight of project
Preferred Phone Number: 706-573-7563 AU Email: reamseh@auburn.edu

Department Head: Paul Fitchett Department/School: Educational Foundations, Leadership and Technology
Preferred Phone Number: Click or tap here to enter text. AU Email: pgf0011@auburn.edu
Role/responsibilities in this project: Click or tap here to enter text.

c. Project Key Personnel – Identify all key personnel who will be involved with the conduct of the research and describe their role in the project. Role may include design, recruitment, consent process, data collection, data analysis, and reporting. (To determine key personnel, see decision tree). *Exempt determinations are made by individual institutions; reliance on other institutions for exempt determination is not feasible. Non-AU personnel conducting exempt research activities must obtain approval from the IRB at their home institution.*

Key personnel are required to maintain human subjects training through CITI. Only for EXEMPT level research is documentation of completed CITI training NO LONGER REQUIRED to be included in the submission packet. NOTE however, **the IRB will perform random audits of CITI training records to confirm** reported training courses and expiration dates. Course title and expiration dates are shown on training certificates.

Name: Lindsey Moseley Degree(s): **BS, PharmD, MEd**
Rank/Title: Curricular Coordinator Department/School: Pharmacy/ Educational Foundations, Leadership and Technology
Role/responsibilities in this project: Conceptualization, design, data collection, data analysis, reporting
- AU affiliated? ☒ Yes ☐ No If no, name of home institution: Click or tap here to enter text.
- Plan for IRB approval for non-AU affiliated personnel? Click or tap here to enter text.
- Do you have any known competing financial interests, personal relationships, or other interests that could have influence or appear to have influence on the work conducted in this project? ☐ Yes ☒ No
- If yes, briefly describe the potential or real conflict of interest: Click or tap here to enter text.
- Completed required CITI training? ☒ Yes ☐ No If NO, complete the appropriate CITI basic course and update the revised Exempt Application form.
- If YES, choose course(s) the researcher has completed: Human Sciences Basic Course 10/10/2024

Name: Ellen Hahn Degree(s): **EdD**
Rank/Title: Professor Department/School: Educational Foundations, Leadership and Technology
Role/responsibilities in this project: Oversight and consultation as advisor
- AU affiliated? ☒ Yes ☐ No If no, name of home institution: Click or tap here to enter text.
- Plan for IRB approval for non-AU affiliated personnel? Click or tap here to enter text.
- Do you have any known competing financial interests, personal relationships, or other interests that could have influence or appear to have influence on the work conducted in this project? ☐ Yes ☒ No
- If yes, briefly describe the potential or real conflict of interest: Click or tap here to enter text.
- Completed required CITI training? ☒ Yes ☐ No If NO, complete the appropriate CITI basic course and update the revised EXEMPT application form.
- If YES, choose course(s) the researcher has completed: Human Sciences Basic Course 1/29/2025
  Refresher Course 1/29/2027

Name: Click or tap here to enter text. Degree(s): Click or tap here to enter text.
Rank/Title: Choose Rank/Title Department/School: Choose Department/School
Role/responsibilities in this project: Click or tap here to enter text.
- AU affiliated? ☐ Yes ☐ No If no, name of home institution: Click or tap here to enter text.
- Plan for IRB approval for non-AU affiliated personnel? Click or tap here to enter text.
- Do you have any known competing financial interests, personal relationships, or other interests that could have influence or appear to have influence on the work conducted in this project? ☐ Yes ☐ No
- If yes, briefly describe the potential or real conflict of interest: Click or tap here to enter text.
- Completed required CITI training? ☐ Yes ☐ No If NO, complete the appropriate CITI basic course and update the revised EXEMPT application form.
- If YES, choose course(s) the researcher has completed: Choose a course Expiration Date
  Choose a course Expiration Date

d. Funding Source – Is this project funded by the investigator(s)? Yes ☐ No ☒
Is this project funded by AU? Yes ☐ No ☒ If YES, identify source Click or tap here to enter text.
Is this project funded by an external sponsor? Yes ☐ No ☒ If YES, provide name of sponsor, type of sponsor (governmental, non-profit, corporate, other), and an identification number for the award.
Name: Click or tap here to enter text. Type: Click or tap here to enter text. Grant #: Click or tap here to enter text.

e. List other AU IRB-approved research projects and/or IRB approvals from other institutions that are associated with this project. Describe the association between this project and the listed project(s):
None

2. Project Summary

a. Does the study *TARGET* any special populations? Answer YES or NO to all.

Minors (under 18 years of age; if minor participants, at least 2 adults must be present during all research procedures that include the minors)	Yes ☐ No ☒
Auburn University Students	Yes ☐ No ☒
Pregnant women, fetuses, or any products of conception	Yes ☐ No ☒
Prisoners or wards (unless incidental, not allowed for Exempt research)	Yes ☐ No ☒
Temporarily or permanently impaired	Yes ☐ No ☒

b. Does the research pose more than minimal risk to participants? Yes ☐ No ☒

If YES, to question 2.b, then the research activity is NOT eligible for EXEMPT review. Minimal risk means that the probability and magnitude of harm or discomfort anticipated in the research is not greater in and of themselves than those ordinarily encountered in daily life or during the performance of routine physical or psychological examinations or test. 42 CFR 46.102(i)

c. Does the study involve any of the following? *If YES to any of the questions in item 2.c, then the research activity is NOT eligible for EXEMPT review.*

Procedures subject to FDA regulations (drugs, devices, etc.) Yes ☐ No ☒

Use of school records of identifiable students or information from instructors about specific students. Yes ☐ No ☒

Protected health or medical information when there is a direct or indirect link which could identify the participant. Yes ☐ No ☒

Collection of sensitive aspects of the participant's own behavior, such as illegal conduct, drug use, sexual behavior or alcohol use. Yes ☐ No ☒

d. Does the study include deception? Requires limited review by the IRB* Yes ☐ No ☒

3. MARK the category or categories below that describe the proposed research. Note the IRB Reviewer will make the final determination of the eligible category or categories.

☐ **1.** Research conducted in established or commonly accepted educational settings, involving normal educational practices. The research is not likely to adversely impact students' opportunity to learn or assessment of educators providing instruction. 104(d)(1)

☒ **2.** Research only includes interactions involving educational tests, surveys, interviews, public observation if at least ONE of the following criteria. (The research includes data collection only; may include visual or auditory recording; may NOT include intervention and only includes interactions). **Mark the applicable sub-category below (I, ii, or iii). 104(d)(2)**

☐ **(i)** Recorded information cannot readily identify the participant (directly or indirectly/ linked);
OR
- surveys and interviews: no children;
- educational tests or observation of public behavior: can only include children when investigators do not participate in activities being observed.

☐ **(ii)** Any disclosures of responses outside would not reasonably place participant at risk; **OR**

☒ **(iii)** Information is recorded with identifiers or code linked to identifiers and IRB conducts limited review; no children. **Requires limited review by the IRB.***

☐ **3.** Research involving Benign Behavioral Interventions (BBI)** through verbal, written responses including data entry or audiovisual recording from adult subjects who prospectively agree and ONE of the following criteria is met. (This research does not include children and does not include medical interventions. Research cannot have deception unless the participant prospectively agrees that they will be unaware of or misled regarding the nature and purpose of the research) **Mark the applicable sub-category below (A, B, or C).** 104(d)(3)(i)

☐ **(A)** Recorded information cannot readily identify the subject (directly or indirectly/ linked); **OR**

☐ **(B)** Any disclosure of responses outside of the research would not reasonably place subject at risk;
OR

☐ **(C)** Information is recorded with identifies and cannot have deception unless participants prospectively agree. **Requires limited review by the IRB.***

☐ **4.** Secondary research for which consent is not required: use of identifiable information or identifiable bio-specimen that have been or will be collected for some other 'primary' or 'initial' activity, if one of the following criteria is met. Allows retrospective and prospective secondary use. **Mark the applicable sub-category below (i, ii, iii, or iv).** 104 (d)(4)

☐ **(i)** Bio-specimens or information are publicly available;

☐ **(ii)** Information recorded so subject cannot readily be identified, directly or indirectly/linked investigator does not contact subjects and will not re-identify the subjects; **OR**

☐ **(iii)** Collection and analysis involving investigators use of identifiable health information when us is regulated by HIPAA "health care operations" or "research" or "public health activities and purposes" (does not include bio-specimens (only PHI and requires federal guidance on how to apply); **OR**

☐ **(iv)** Research information collected by or on behalf of federal government using government generated or collected information obtained for non-research activities.

☐ **5.** Research and demonstration projects which are supported by a federal agency/department AND designed to study and which are designed to study, evaluate, or otherwise examine: (i)public benefit or service programs; (ii) procedures for obtaining benefits or services under those programs; (iii) possible changes in or alternatives to those programs or procedures; or (iv) possible changes in methods or levels of payment for benefits or service under those programs. (must be posted on a federal web site). 104.5(d)(5) (must be posted on a federal web site)

☐ **6.** Taste and food quality evaluation and consumer acceptance studies, (i) if wholesome foods without additives and consumed or (ii) if a food is consumed that contains a food ingredient at or below the level and for a use found to be safe, or agricultural chemical or environmental contaminant at or below the level found to be safe, by the Food and Drug Administration or approved by the Environmental Protection Agency or the Food Safety and Inspection Service of the U.S. Department of Agriculture. The research does not involve prisoners as participants. 104(d)(6)

**Limited IRB review – the IRB Chair or designated IRB reviewer reviews the protocol to ensure adequate provisions are in place to protect privacy and confidentiality.*

***Category 3 – Benign Behavioral Interventions (BBI) must be brief in duration, painless/harmless, not physically invasive, not likely to have a significant adverse lasting impact on participants, and it is unlikely participants will find the interventions offensive or embarrassing.*

**** Exemption categories 7 and 8 require broad consent. The AU IRB has determined the regulatory requirements for legally effective broad consent are not feasible within the current institutional infrastructure. EXEMPT categories 7 and 8 will not be implemented at this time.*

4. Describe the proposed research including who does what, when, where, how, and for how long, etc.

a. Purpose

The purpose of this project is to explore experiences and perceptions of faculty curricular leaders within the college of pharmacy in relation to the design, implementation, and maintenance of an innovative pharmacy curriculum. It is a qualitative case study research project. The case in the case study is the innovative curriculum at the AU school of

pharmacy. The investigator is also a faculty member at the school of pharmacy. One-to-one interviews (30-60 minutes) will be conducted by the PI in a virtual format (on Zoom), and accessible curricular/programmatic documents will be explored. The study participants are full-time faculty members and are known to the PI. Importantly, there is not a power dynamic between the PI and participants, as all are faculty within the pharmacy program. The interviews will be conducted on Zoom and recorded for transcription purposes only. The recordings will be destroyed at the conclusion of the study, which is estimated to be 1 year. The transcripts will be automatically generated from Zoom and de-identified after transcription yet before analysis. The nature of the interviews is such that perceptions and experiences of being a curricular leader/innovator will be explored. The interview protocol is provided as an Appendix. The interview questions are not inflammatory, contentious, nor pose risk beyond a normal conversation with a colleague.

b. Participant population, including the number of participants and the rationale for determining number of participants to recruit and enroll. Note if the study enrolls minor participants, describe the process to ensure more than 1 adult is present during all research procedures which include the minor.

Participants are curricular leaders/innovators. The inclusion criteria includes being a full time faculty member within the pharmacy school and having been or currently serving as a course coordinator for an integrated pharmacy course. In total, approximately 12 pharmacy faculty fit the inclusion criteria and thus will be invited to participate in the study via email. The email invitation is provided as an Appendix.

c. Recruitment process. Address whether recruitment includes communications/interactions between study staff and potential participants either in person or online. *Submit a copy of all recruitment materials.*

Individual emails will be sent by the PI to the faculty who meet the inclusion criteria. A copy of the email invitation is included as an Appendix to this IRB.

d. Consent process including how information is presented to participants, etc.

At least 24 hours before the identified interview date, the information letter will be sent to participants for review. In addition, at the start of the interview, the information letter will be reviewed, and participants will be asked what questions they have before proceeding to the interview.

e. Research procedures and methodology

This is a qualitative case study research project. Zoom recordings will be transcribed automatically by the Zoom application and cleaned up as needed by the PI. Qualitative coding and thematic analysis will occur after transcription is completed using a manual process and qualitative analysis software (as needed). Any directly identifying information captured in the transcripts will be redacted before analysis. No direct identifiers will be included in the transcripts, nor in the reporting/publishing documents.

f. Anticipated time per study exercise/activity and total time if participants complete all study activities.

~1 hour for participation in interviews

g. Location of the research activities.

Completely on Zoom. Participants are all located in the state of Alabama and faculty within the AUHCOP (school of pharmacy).

h. Costs to and compensation for participants? If participants will be compensated describe the amount, type, and process to distribute.

There is no cost nor compensation for participation.

i. Non-AU locations, site, institutions. *Submit a copy of agreements/IRB approvals.*

N/a

j. Additional relevant information.
N/a

5. Waivers
Check applicable waivers and describe how the project meets the criteria for the waiver.

☐ Waiver of Consent (Including existing de-identified data)

☒ Waiver of Documentation of Consent (Use of Information Letter, rather than consent form requiring signatures)

☐ Waiver of Parental Permission (in Alabama, 18 years-olds may be considered adults for research purposes)
https://sites.auburn.edu/admin/orc/irb/IRB 1 Exempt and Expedited/11-113 MR 1104 Hinton Renewal 2021-1.pdf

a. Provide the rationale for the waiver request.
The information letter serves as the means to inform the participants of any potential benefits or risks. The recordings of the interviews are only being used for transcription and will be destroyed. The transcripts will be de-identified after being cleaned up by the PI. In sum, only de-identified data in the form of transcripts will be retained. Because the risks are minimal and steps are taken to mitigate the potential risks, an information letter seems appropriate.

6. Describe the process to select participants/data/specimens. If applicable, include gender, race, and ethnicity of the participant population.
As long as participants meet the inclusion criteria (full time faculty member within the pharmacy school and having been or currently serving as a course coordinator for an integrated course), they will be asked to participate. There is no sampling. The following demographic information will not be collected nor reported: age, race, ethnicity, or gender.

7. Risks and Benefits
7a. Risks - Describe why none of the research procedures would cause a participant either physical or psychological discomfort or be perceived as discomfort above and beyond what the person would experience in daily life (minimal risk).
The interview questions are not inflammatory, contentious, nor pose risk beyond a normal conversation with a colleague. The concern of coercion should not be present, as participants and PI are all faculty-level within the school of pharmacy. There is the potential for faculty to be indirectly identified in the manuscript based on their responses (breach of confidentiality); however, the PI will make a good faith effort to prevent the inclusion of statements in the manuscript that may indirectly identify a participant. Member checking will be done before publication, so participants will have the opportunity to review the study report for accuracy/privacy before publication.

7b. Benefits – Describe whether participants will benefit directly from participating in the study. If yes, describe the benefit. And, describe generalizable benefits resulting from the study.
Participants will have the opportunity to inform/define innovative pharmacy curricular efforts before new pharmacy accreditation standards are published in 2025. In addition, by gathering their perceptions and experiences, participants may feel their voices are heard. Other pharmacy programs may benefit from the leadership behaviors which facilitate innovation.

8. Describe the provisions to maintain confidentiality of data, including collection, transmission, and storage. Identify platforms used to collect and store study data. *For EXEMPT research, the AU IRB recommends AU BOX or using an AU issued and encrypted device. If a data collection form will be used, submit a copy.*
Recordings will be conducted in a Zoom application, which the PI has through Auburn University. The PI will conduct the interviews from her office with the door closed. Zoom will transcribe the conversation automatically, and participants will be informed of this in the information letter. Recordings will be stored in the password-protected Zoom account of the

PI, whereas the transcripts will be stored for the duration of the study in a password-protected Box account. Only the investigators on this study protocol will have access to the recordings and transcripts.

a. If applicable, submit a copy of the data management plan or data use agreement.
N/A

9. Describe the provisions included in the research to protect the privacy interests of participants (e.g., others will not overhear conversations with potential participants, individuals will not be publicly identified or embarrassed).

The PI will conduct the interviews from her individual office with the door closed. Any identifiers will be removed/redacted during review of the transcripts. As stated previously, there is the potential for faculty to be indirectly identified in the manuscript based on their responses (breach of confidentiality); however, the PI will make a good faith effort to prevent the inclusion of statements in the manuscript that may indirectly identify a participant. Member checking will be done before publication, so participants will have the opportunity to review the study report for accuracy/privacy before publication. Lastly due to the small number of participants, demographic information related to age, race, ethnicity, gender will not be gathered nor reported, which will assist in the protection of privacy of participants.

10. Does this research include purchase(s) that involve technology hardware, software or online services?

☐ **YES** ☒ **NO**

If YES:

A. Provide the name of the product Click or tap here to enter text.
and the manufacturer of the product Click or tap here to enter text.

B. Briefly describe use of the product in the proposed human subject's research.
Click or tap here to enter text.

C. To ensure compliance with AU's Electronic and Information Technology Accessibility Policy, contact AU IT Vendor Vetting team at vetting@auburn.edu to learn the vendor registration process (prior to completing the purchase).

D. Include a copy of the documentation of the approval from AU Vetting with the revised submission.

11. Additional Information and/or attachments.

In the space below, provide any additional information you believe may help the IRB review of the proposed research. If attachments are included, list the attachments below. Attachments may include recruitment materials, consent documents, site permissions, IRB approvals from other institutions, data use agreements, data collection form, CITI training documentation, etc.

Attachments: Interview protocol, email to participants, and information letter

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Required Signatures *(If a student PI is identified in item 1.a, the EXEMPT application must be re-signed and updated at every revision by the student PI and faculty advisor. The signature of the department head is required only on the initial submission of the EXEMPT application, regardless of PI. Staff and faculty PI submissions require the PI signature on all version, the department head signature on the original submission)*

Signature of Principal Investigator: Lindsay Wesley **Date:** 8/28/2022

Signature of Faculty Advisor (If applicable): Ellen Reamer Hahn **Date:** 8/28/22

Signature of Dept. Head: Paul Fitchett **Date:** 8/30/2022

Version Date: 7/30/2022

AUBURN UNIVERSITY
Harrison College of Pharmacy

INFORMATION LETTER
For a Research Study Entitled:
"A Case Study of Innovative Pharmacy Curricula and Leadership Behavior"

You are invited to participate in a research study which explores leadership behaviors and pharmacy curricular innovation. The study is being conducted by Lindsey Moseley (PI), BS, PharmD, MEd, Office of Academic Programs in the Harrison College of Pharmacy, Auburn University, and PhD Candidate, Educational Leadership, Auburn University. You are invited to participate because you are full time faculty member within the Harrison College of Pharmacy and are currently serving **or** previously served as a course coordinator for an integrated pharmacy course in the Practice Ready Curriculum (PRC).

What will be involved if you participate? Your participation is completely voluntary. If you decide to participate in this research study, you will be asked to participate in a 1:1 interview with the PI on Zoom. Your total time commitment will be 30-60 minutes. There are no costs or compensation for participating.

Are there any risks or discomforts? The risks associated with participating in this study are minimal. Interview questions ask about perceptions and experiences of being a course coordinator (a 'curricular leader') during design, implementation, and/or maintenance phases of the PRC. Interview questions are not polarizing nor contentious and relate largely to innovation. Due to the small population of participants, indirect identification is possible. Interviews will be recorded for transcription purposes only. Information related to age, gender, race, or ethnicity will not be gathered nor reported.

Are there any benefits to yourself or others? If you participate in this study, you can expect to have your perceptions and experiences heard. In addition, you have the opportunity to inform innovative curriculum and leadership practices for the next revision of pharmacy curricular standards (2025).

Participation in this study is completely voluntary. If you change your mind about participating, you can withdraw from the survey at any time. Your decision about whether or not to participate or to stop participating will not jeopardize your future relations with the PI, Auburn University, or the College of Pharmacy.

Any data obtained in connection with this study will remain confidential. Information collected through this study will be used to fulfill educational requirements for a doctoral dissertation.

If you have any questions about this study, please contact Dr. Lindsey Moseley at (334) 844-8372 or lre0001@auburn.edu, or Dr. Ellen Hahn at (706) 573-7563 or reameh@auburn.edu.

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

HAVING READ THE INFORMATION PROVIDED, YOU MUST DECIDE IF YOU WANT TO PARTICIPATE IN THIS RESEARCH PROJECT. IF YOU DECIDE TO PARTICIPATE, THE DATA YOU PROVIDE WILL SERVE AS YOUR AGREEMENT TO DO SO. THIS LETTER IS YOURS TO KEEP.

[Signature line removed]

E-MAIL INVITATION FOR INTERVIEW PARTICIPATION

Dear _____,

As a current or previous Course Coordinator within the PRC, I would like to invite you to participate in my dissertation research study which explores leadership behaviors and pharmacy curricular innovation.

Participation in this study involves approximately 30-60 minutes of your time. Participants will be asked to participate in a 1:1 interview, and asked questions of their perceptions/experiences being involved in the design, implementation, and/or maintenance of the innovative PRC.

The interviews will be conducted on Zoom and recorded for transcription purposes only. Recordings will be deleted at the conclusion of this project. Personal identifiers will be redacted during the transcription process. There is no compensation for participating. The benefit to participating in this study includes informing innovative curriculum and leadership practices for the next revision of pharmacy standards (2025).

If you would like to participate in this study, please respond to this email with availability for an interview. If you would like to know more information about this study, an information letter can be obtained by responding to this email with the request. If you choose not to participate in this study, it will not jeopardize your relationship with the PI nor the Harrison College of Pharmacy.

If you have any questions, please respond to this email, or contact my advisor, Dr. Ellen Hahn at reamseh@auburn.edu.

Thank you for your consideration,

Lindsey Moseley, PharmD, MEd
P1 Curriculum Coordinator
Office of Student Success, 2229E
Auburn University Harrison College of Pharmacy
lre0001@auburn.edu
O: 334-844-8372

Interview Protocol

Category	Interview Questions
History and Curricular Leadership	• When did you become a curricular leader and why? Were you asked or did you volunteer? • What phases of the PRC (creation, implementation, and/or maintenance) would you say represents your primary involvement or interest? • What has been your biggest success as a curricular leader? Greatest struggle?
Innovation	• In your opinion, why is the PRC innovative? • What are your thoughts on being innovative? What curricular innovations have you spearheaded or conceptualized? • How did you foster curricular change? • Define innovation as a mindset. Do you have an innovative mindset?
Leadership Behaviors	• What leadership qualities and behaviors have you embraced in order to facilitate curricular change? Innovation? • What is/was your vision as the leader? How did you come to it? How have you cultivated a shared vision with others? • What has your experience of being a curricular leader been like? What are your perceptions of leadership in this role? • How have you motivated others to be innovative? • How do you perceive your influence as a leader?

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)

COMPLETION REPORT - PART 1 OF 2
COURSEWORK REQUIREMENTS*

* NOTE: Scores on this Requirements Report reflect quiz completions at the time all requirements for the course were met. See list below for details. See separate Transcript Report for more recent quiz scores, including those on optional (supplemental) course elements.

- **Name:** Lindsey Edwards Moseley (ID: 5083558)
- **Institution Affiliation:** Auburn University (ID: 964)
- **Institution Email:** lre0001@auburn.edu
- **Institution Unit:** Pharmacy
- **Phone:** 2566586086

- **Curriculum Group:** Responsible Conduct of Research for Social and Behavioral
- **Course Learner Group:** Social, Behavioral and Education Sciences RCR
- **Stage:** Stage 2 - RCR Refresher
- **Description:** This course is for investigators, staff and students with an interest or focus in **Social and Behavioral** research. This course contains text, embedded case studies AND quizzes.

- **Record ID:** 37120716
- **Completion Date:** 08-Sep-2020
- **Expiration Date:** 07-Sep-2025
- **Minimum Passing:** 80
- **Reported Score*:** 100

REQUIRED AND ELECTIVE MODULES ONLY	DATE COMPLETED	SCORE
Authorship (RCR-Refresher) (ID: 15661)	08-Sep-2020	5/5 (100%)
Collaborative Research (RCR-Refresher) (ID: 15662)	08-Sep-2020	5/5 (100%)
Conflicts of Interest (RCR-Refresher) (ID: 15663)	08-Sep-2020	5/5 (100%)
Data Management (RCR-Refresher) (ID: 15664)	08-Sep-2020	5/5 (100%)
Peer Review (RCR-Refresher) (ID: 15665)	08-Sep-2020	5/5 (100%)
Research Misconduct (RCR-Refresher) (ID: 15666)	08-Sep-2020	5/5 (100%)
Mentoring (RCR-Refresher) (ID: 15667)	08-Sep-2020	5/5 (100%)
Research Involving Human Subjects (RCR-Refresher) (ID: 15668)	08-Sep-2020	5/5 (100%)

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid Independent Learner.

Verify at: www.citiprogram.org/verify/?k8b37348d-f153-4b45-816a-d9b9349409bd-37120716

Collaborative Institutional Training Initiative (CITI Program)
Email: support@citiprogram.org
Phone: 888-529-5929
Web: https://www.citiprogram.org

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)

COMPLETION REPORT - PART 2 OF 2
COURSEWORK TRANSCRIPT**

** NOTE: Scores on this Transcript Report reflect the most current quiz completions, including quizzes on optional (supplemental) elements of the course. See list below for details. See separate Requirements Report for the reported scores at the time all requirements for the course were met.

- **Name:** Lindsey Edwards Moseley (ID: 5083558)
- **Institution Affiliation:** Auburn University (ID: 964)
- **Institution Email:** lre0001@auburn.edu
- **Institution Unit:** Pharmacy
- **Phone:** 2566586086

- **Curriculum Group:** Responsible Conduct of Research for Social and Behavioral
- **Course Learner Group:** Social, Behavioral and Education Sciences RCR
- **Stage:** Stage 2 - RCR Refresher
- **Description:** This course is for investigators, staff and students with an interest or focus in **Social and Behavioral** research. This course contains text, embedded case studies AND quizzes.

- **Record ID:** 37120716
- **Report Date:** 09-Sep-2020
- **Current Score**:** 100

REQUIRED, ELECTIVE, AND SUPPLEMENTAL MODULES	MOST RECENT	SCORE
Authorship (RCR-Refresher) (ID: 15661)	08-Sep-2020	5/5 (100%)
Collaborative Research (RCR-Refresher) (ID: 15662)	08-Sep-2020	5/5 (100%)
Research Involving Human Subjects (RCR-Refresher) (ID: 15668)	08-Sep-2020	5/5 (100%)
Conflicts of Interest (RCR-Refresher) (ID: 15663)	08-Sep-2020	5/5 (100%)
Data Management (RCR-Refresher) (ID: 15664)	08-Sep-2020	5/5 (100%)
Peer Review (RCR-Refresher) (ID: 15665)	08-Sep-2020	5/5 (100%)
Research Misconduct (RCR-Refresher) (ID: 15666)	08-Sep-2020	5/5 (100%)
Mentoring (RCR-Refresher) (ID: 15667)	08-Sep-2020	5/5 (100%)

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid Independent Learner.

Verify at: www.citiprogram.org/verify/?k8b37348d-f153-4b45-816a-d9b9349409bd-37120716

Collaborative Institutional Training Initiative (CITI Program)
Email: support@citiprogram.org
Phone: 888-529-5929
Web: https://www.citiprogram.org

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)

COMPLETION REPORT - PART 1 OF 2
COURSEWORK REQUIREMENTS*

* NOTE: Scores on this Requirements Report reflect quiz completions at the time all requirements for the course were met. See list below for details. See separate Transcript Report for more recent quiz scores, including those on optional (supplemental) course elements.

- **Name:** Lindsey Edwards Moseley (ID: 5083558)
- **Institution Affiliation:** Auburn University (ID: 964)
- **Institution Email:** lre0001@auburn.edu
- **Institution Unit:** Pharmacy
- **Phone:** 2566586086

- **Curriculum Group:** IRB #1 Health Science Emphasis - AU Personnel - Basic/Refresher
- **Course Learner Group:** IRB #1 Health Science Emphasis - AU Personnel
- **Stage:** Stage 1 - Basic Course
- **Description:** Choose this group to satisfy CITI training requirements for Key Personnel (including AU Faculty, Staff and Students) and Faculty Advisors involved primarily in biomedical research with human subjects.

- **Record ID:** 45519825
- **Completion Date:** 11-Oct-2021
- **Expiration Date:** 10-Oct-2024
- **Minimum Passing:** 80
- **Reported Score*:** 91

REQUIRED AND ELECTIVE MODULES ONLY	DATE COMPLETED	SCORE
Belmont Report and Its Principles (ID: 1127)	11-Oct-2021	3/3 (100%)
Basic Institutional Review Board (IRB) Regulations and Review Process (ID: 2)	11-Oct-2021	4/5 (80%)
Informed Consent (ID: 3)	11-Oct-2021	4/5 (80%)
Privacy and Confidentiality - SBE (ID: 505)	11-Oct-2021	5/5 (100%)
Social and Behavioral Research (SBR) for Biomedical Researchers (ID: 4)	11-Oct-2021	4/4 (100%)
Populations in Research Requiring Additional Considerations and/or Protections (ID: 16680)	11-Oct-2021	5/5 (100%)
Students in Research (ID: 1321)	11-Oct-2021	4/5 (80%)

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid Independent Learner.

Verify at: www.citiprogram.org/verify/?kd06c01c7-74ed-4d68-8943-bf2627a1ec47-45519825

Collaborative Institutional Training Initiative (CITI Program)
Email: support@citiprogram.org
Phone: 888-529-5929
Web: https://www.citiprogram.org

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)

COMPLETION REPORT - PART 2 OF 2
COURSEWORK TRANSCRIPT**

** NOTE: Scores on this Transcript Report reflect the most current quiz completions, including quizzes on optional (supplemental) elements of the course. See list below for details. See separate Requirements Report for the reported scores at the time all requirements for the course were met.

- **Name:** Lindsey Edwards Moseley (ID: 5083558)
- **Institution Affiliation:** Auburn University (ID: 964)
- **Institution Email:** lre0001@auburn.edu
- **Institution Unit:** Pharmacy
- **Phone:** 2566586086

- **Curriculum Group:** IRB #1 Health Science Emphasis - AU Personnel - Basic/Refresher
- **Course Learner Group:** IRB #1 Health Science Emphasis - AU Personnel
- **Stage:** Stage 1 - Basic Course
- **Description:** Choose this group to satisfy CITI training requirements for Key Personnel (including AU Faculty, Staff and Students) and Faculty Advisors involved primarily in biomedical research with human subjects.

- **Record ID:** 45519825
- **Report Date:** 11-Oct-2021
- **Current Score**:** 91

REQUIRED, ELECTIVE, AND SUPPLEMENTAL MODULES	MOST RECENT	SCORE
Basic Institutional Review Board (IRB) Regulations and Review Process (ID: 2)	11-Oct-2021	4/5 (80%)
Students in Research (ID: 1321)	11-Oct-2021	4/5 (80%)
Informed Consent (ID: 3)	11-Oct-2021	4/5 (80%)
Social and Behavioral Research (SBR) for Biomedical Researchers (ID: 4)	11-Oct-2021	4/4 (100%)
Belmont Report and Its Principles (ID: 1127)	11-Oct-2021	3/3 (100%)
Privacy and Confidentiality - SBE (ID: 505)	11-Oct-2021	5/5 (100%)
Populations in Research Requiring Additional Considerations and/or Protections (ID: 16680)	11-Oct-2021	5/5 (100%)

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid Independent Learner.

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COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)

COMPLETION REPORT - PART 1 OF 2
COURSEWORK REQUIREMENTS*

* NOTE: Scores on this Requirements Report reflect quiz completions at the time all requirements for the course were met. See list below for details. See separate Transcript Report for more recent quiz scores, including those on optional (supplemental) course elements.

- **Name:** Lindsey Edwards Moseley (ID: 5083558)
- **Institution Affiliation:** Auburn University (ID: 964)
- **Institution Email:** lre0001@auburn.edu
- **Institution Unit:** Pharmacy
- **Phone:** 2566586086

- **Curriculum Group:** IRB Additional Modules
- **Course Learner Group:** The IRB Member Module - 'What Every New IRB Member Needs to Know'
- **Stage:** Stage 1 - Basic Course

- **Record ID:** 45519826
- **Completion Date:** 11-Oct-2021
- **Expiration Date:** 10-Oct-2024
- **Minimum Passing:** 80
- **Reported Score*:** 80

REQUIRED AND ELECTIVE MODULES ONLY	DATE COMPLETED	SCORE
The IRB Member Module - 'What Every New IRB Member Needs to Know' (ID: 816)	11-Oct-2021	4/5 (80%)

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid Independent Learner.

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COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)

COMPLETION REPORT - PART 2 OF 2
COURSEWORK TRANSCRIPT**

** NOTE: Scores on this Transcript Report reflect the most current quiz completions, including quizzes on optional (supplemental) elements of the course. See list below for details. See separate Requirements Report for the reported scores at the time all requirements for the course were met.

- **Name:** Lindsey Edwards Moseley (ID: 5083558)
- **Institution Affiliation:** Auburn University (ID: 964)
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- **Institution Unit:** Pharmacy
- **Phone:** 2566586086

- **Curriculum Group:** IRB Additional Modules
- **Course Learner Group:** The IRB Member Module - 'What Every New IRB Member Needs to Know'
- **Stage:** Stage 1 - Basic Course

- **Record ID:** 45519826
- **Report Date:** 11-Oct-2021
- **Current Score**:** 80

REQUIRED, ELECTIVE, AND SUPPLEMENTAL MODULES	MOST RECENT	SCORE
The IRB Member Module - 'What Every New IRB Member Needs to Know' (ID: 816)	11-Oct-2021	4/5 (80%)

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid Independent Learner.

Verify at: www.citiprogram.org/verify/?k5078dbf0-1e2d-4ed8-b915-c1504d5c2fe9-45519826

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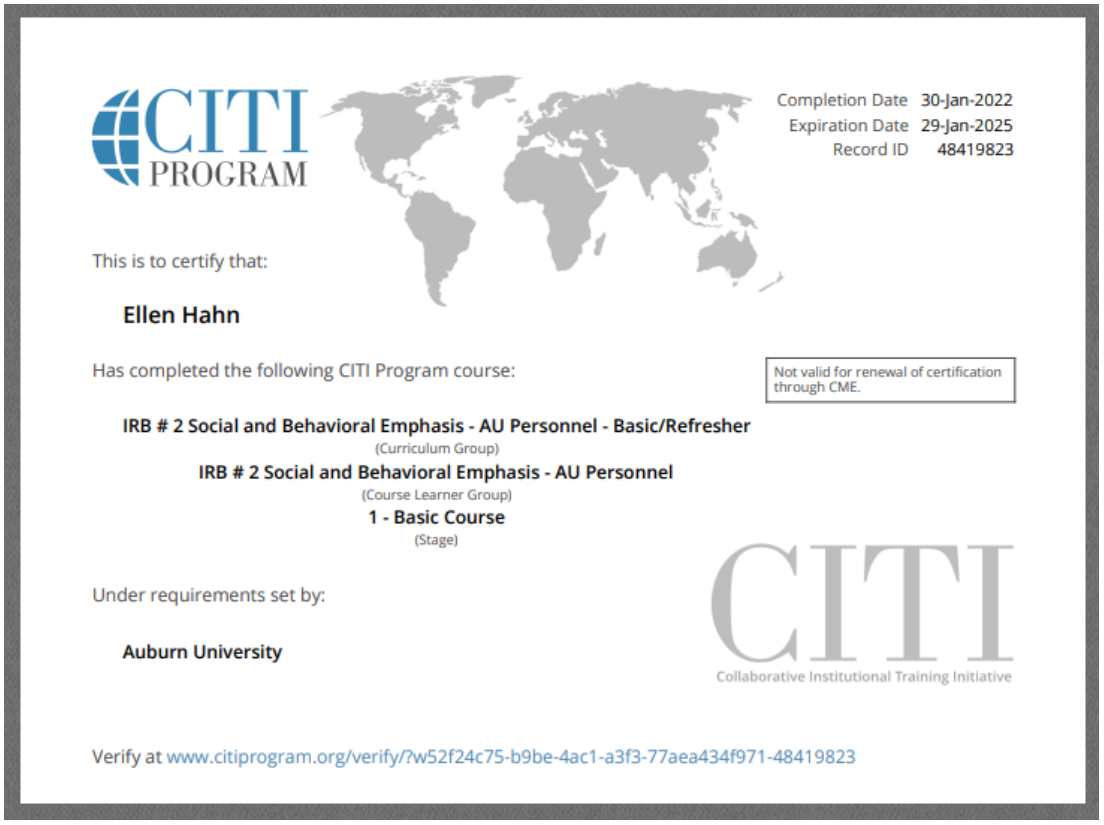


CITI PROGRAM

Completion Date 30-Jan-2022
Expiration Date 29-Jan-2025
Record ID 48419823

This is to certify that:

Ellen Hahn

Has completed the following CITI Program course:

Not valid for renewal of certification through CME.

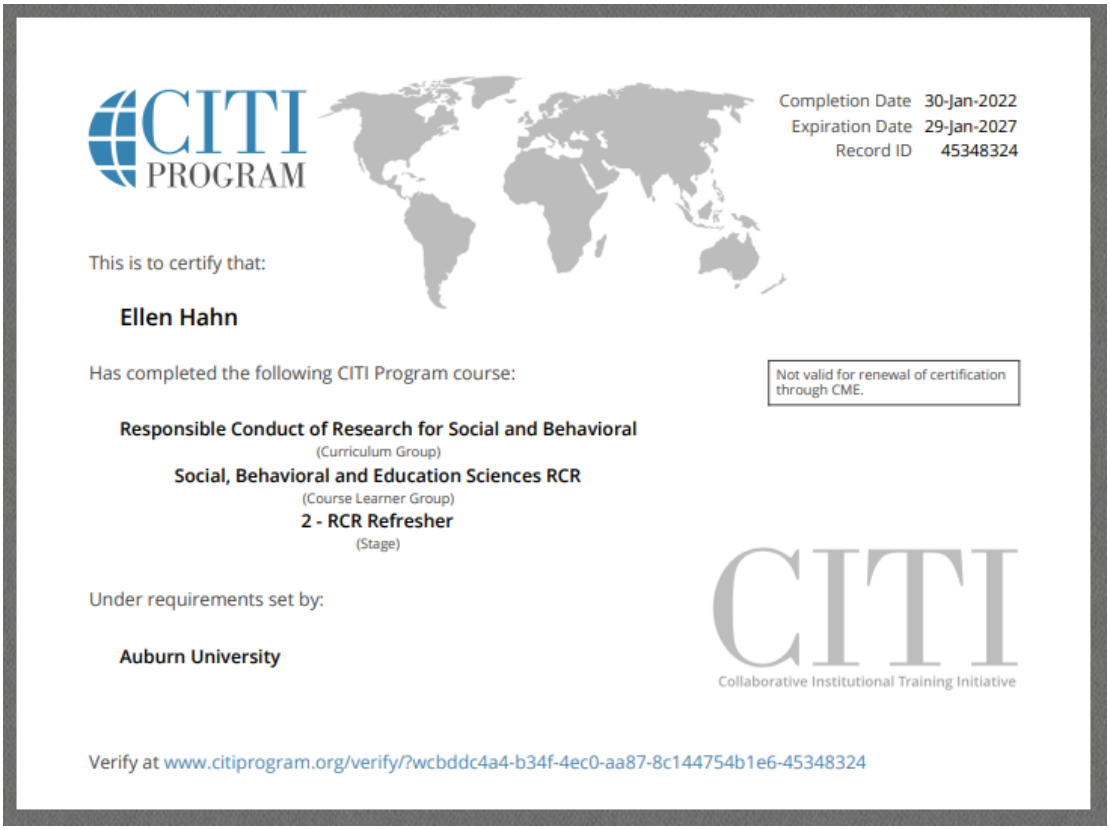
IRB # 2 Social and Behavioral Emphasis - AU Personnel - Basic/Refresher
(Curriculum Group)
IRB # 2 Social and Behavioral Emphasis - AU Personnel
(Course Learner Group)
1 - Basic Course
(Stage)

Under requirements set by:

Auburn University

CITI
Collaborative Institutional Training Initiative

Verify at www.citiprogram.org/verify/?w52f24c75-b9be-4ac1-a3f3-77aea434f971-48419823



CITI PROGRAM

Completion Date 30-Jan-2022
Expiration Date 29-Jan-2027
Record ID 45348324

This is to certify that:

Ellen Hahn

Has completed the following CITI Program course:

Not valid for renewal of certification through CME.

Responsible Conduct of Research for Social and Behavioral
(Curriculum Group)
Social, Behavioral and Education Sciences RCR
(Course Learner Group)
2 - RCR Refresher
(Stage)

Under requirements set by:

Auburn University

CITI
Collaborative Institutional Training Initiative

Verify at www.citiprogram.org/verify/?wcbddc4a4-b34f-4ec0-aa87-8c144754b1e6-45348324

CITI PROGRAM

Completion Date 30-Jan-2022
Expiration Date 29-Jan-2025
Record ID 48419807

This is to certify that:

Ellen Hahn

Has completed the following CITI Program course:

Not valid for renewal of certification through CME.

IRB Additional Modules
(Curriculum Group)
Research in Public Elementary and Secondary Schools - SBE
(Course Learner Group)
1 - Basic Course
(Stage)

Under requirements set by:

Auburn University

CITI
Collaborative Institutional Training Initiative

Verify at www.citiprogram.org/verify/?w68c8bfb7-704b-41eb-8c8f-1d73bbf2340c-48419807

AUBURN UNIVERSITY
Harrison College of Pharmacy

INFORMATION LETTER
For a Research Study Entitled:
"A Case Study of Innovative Pharmacy Curricula and Leadership Behavior"

You are invited to participate in a research study which explores leadership behaviors and pharmacy curricular innovation. The study is being conducted by Lindsey Moseley (PI), BS, PharmD, MEd, Office of Academic Programs in the Harrison College of Pharmacy, Auburn University, and PhD Candidate, Educational Leadership, Auburn University. You are invited to participate because you are full time faculty member within the Harrison College of Pharmacy and are currently serving **or** previously served as a course coordinator for an integrated pharmacy course in the Practice Ready Curriculum (PRC).

What will be involved if you participate? Your participation is completely voluntary. If you decide to participate in this research study, you will be asked to participate in a 1:1 interview with the PI on Zoom. Your total time commitment will be 30-60 minutes. There are no costs or compensation for participating.

Are there any risks or discomforts? The risks associated with participating in this study are minimal. Interview questions ask about perceptions and experiences of being a course coordinator (a 'curricular leader') during design, implementation, and/or maintenance phases of the PRC. Interview questions are not polarizing nor contentious and relate largely to innovation. Due to the small population of participants, indirect identification is possible. Interviews will be recorded for transcription purposes only. Information related to age, gender, race, or ethnicity will not be gathered nor reported.

Are there any benefits to yourself or others? If you participate in this study, you can expect to have your perceptions and experiences heard. In addition, you have the opportunity to inform innovative curriculum and leadership practices for the next revision of pharmacy curricular standards (2025).

Participation in this study is completely voluntary. If you change your mind about participating, you can withdraw from the survey at any time. Your decision about whether or not to participate or to stop participating will not jeopardize your future relations with the PI, Auburn University, or the College of Pharmacy.

Any data obtained in connection with this study will remain confidential. Information collected through this study will be used to fulfill educational requirements for a doctoral dissertation.

If you have any questions about this study, please contact Dr. Lindsey Moseley at (334) 844-8372 or lre0001@auburn.edu, or Dr. Ellen Hahn at (706) 573-7563 or reameh@auburn.edu.

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

HAVING READ THE INFORMATION PROVIDED, YOU MUST DECIDE IF YOU WANT TO PARTICIPATE IN THIS RESEARCH PROJECT. IF YOU DECIDE TO PARTICIPATE, THE DATA YOU PROVIDE WILL SERVE AS YOUR AGREEMENT TO DO SO. THIS LETTER IS YOURS TO KEEP.

The Auburn University Institutional Review Board has approved this Document for use from 08/31/2022 to ----------
Protocol # 22-398 EX 2208