

**Increased Student Engagement with Transformative Learning Pedagogy: An Ex Post Facto
Study**

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Abstract

Transformative learning pedagogy in higher education leads to increased student engagement. The problem with transformative learning in higher education is deficiencies in research on increased student engagement obtained with transformative learning pedagogy. This research study addressed unanswered questions in the literature by exploring engagement measured by academic achievement and retention when transformative learning pedagogy is fostered. Transformative learning pedagogy served as the theoretical framework. The quantitative ex post facto study consisted of archival data obtained from the University of Central Oklahoma (UCO), which was then tested, and results rendered. An independent samples *t* test and a chi-square test on the collected archival data revealed student engagement increases with transformative learning pedagogy instruction as measured by higher academic achievement and retention, supporting the research purpose. The statistical analysis indicated students at UCO in the Student Transformative Learning Record (STLR) program had significantly increased classroom engagement than students who had not been instructed with transformative learning pedagogy, as indicated by higher academic achievement and retention.

Keywords: transformative learning, engagement, academic achievement, retention

Dedication

This dissertation is dedicated to my family. Jen, Amya, Anya, and Ava, you have supported me on this journey. I cannot forget Gracie, our dog either; she got up early with me several mornings and accompanied me in the man-cave while writing. Even though she is not with us anymore, we now have little Faith to inspire us and awake each day with a new adventure. Without all of you in my life, I would not have the drive to go to the places we have gone. You all motivate me to do better, not for myself but for you. I look forward to what the future holds as we continue our journeys together.

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Chapter 1: Introduction

In recent years, transformative learning has gained popularity among higher education leaders. Still, little research exists on how students' engagement in the classroom increased through transformative learning pedagogy as indicated by academic achievement and retention. When people experience transformative learning, framing occurs. Mezirow (1975, 1990) defined transformative learning as deep learning where new knowledge is framed with and reframed with once learned information to make new meanings. Understanding, referred to as the transformation of ideas and concepts, is considered transformative. Transformative learning allows students to mix traditional knowledge combined with new experiences from what was previously learned (John, 2016). In higher education, faculty members work diligently to offer students experiences to supply real-world knowledge and learning beyond the classroom (Prosek & Michel, 2016). Students are at the forefront of the workforce and need transferable skills to succeed professionally. With transferrable skills being the driver in higher education, faculty and staff invent pedagogies to support student engagement through the curriculum designed.

After reviewing existing research on transformative learning, a gap in research existed on transformative pedagogy's effectiveness regarding how student engagement increases in the classroom with transformative learning pedagogy instruction as indicated by higher academic achievement and retention. Based on the literature gap, the study focused on obtaining increased student engagement in school by implementing transformative learning pedagogy at the University Central Oklahoma (UCO) Student Transformative Learning Record (STLR) program. Chapter 1 highlights the study's background, statement of the problem, the purpose, significance,

research questions, theoretical framework, the definition of terms, assumptions, scope, delimitations, limitations, and chapter summary.

Background of the Study

Since 1975, when Mezirow developed concepts about transformative learning (John, 2016), universities have deployed a form of transformative learning, and researchers have been studying the outcomes. Leaders at UCO encourage the use of transformative learning extensively. The goal of transformative learning is deep learning, where the learner takes an intrinsic look at the current knowledge state and how it can apply to real-life situations resulting in a paradigm shift to a new model of thinking (John, 2016).

Higher education faculty members using transformative learning pedagogy can connect better with students by providing open communication forms to explore holistic learning (Nielsen, 2016). Leaders at UCO have promoted transformative learning since 2014 and have kept a record of the learning outcomes. Though over 400 UCO faculty and staff have trained on transformative learning practices, university leaders have not conducted empirical research to reveal if students' engagement increased with the instruction of transformative learning pedagogy while in the STLR program. The STLR program provides students with transformative learning opportunities to further knowledge and transferrable skills, transferring beyond higher education to the workforce (King et al., 2017). More insight into the effectiveness of transformative learning in higher education and how student engagement increases by fostering transformative learning pedagogy materialized with this study.

Statement of the Problem

The problem was research has not indicated if efforts to increase student engagement have led to increased student academic achievement and retention. Starting in 2014, faculty

leaders designed and taught individual classroom pedagogy at UCO to bring transformative learning into the classrooms (King et al., 2017). There has not been empirical research to determine if student engagement increases with transformative learning pedagogy instruction as indicated by higher academic achievement and retention levels. Transformative learning is beneficial for fostering transformative pedagogy in the classrooms regularly—in contrast to traditional learning pedagogy. The study results can help leaders determine if students' engagement increases through transformative learning pedagogy in the higher education learning environment as indicated by higher academic achievement and retention levels.

Since 2014, more than 400 faculty and staff members at UCO have been trained to lead transformative learning in the classroom through the STLR program. Supplied with new knowledge, several faculty members at UCO implemented transformative learning practices. Transformative learning allows the student to have deep intrinsic times of reflection on something learned, helping students develop new knowledge (Hullender et al., 2015). The lack of research on transformative learning and increased classroom engagement existed, and research contributed to filling the void.

Purpose of the Study

The study's purpose was to test for statistically significant differences in academic achievement and retention between students instructed with transformative learning pedagogy and those who are not. The research sought to advance the field of transformative learning in higher education. Data from the literature review revealed methods to educate students, faculty members, and higher education stakeholders on student engagement, fostering transformative learning in classrooms. Data were gathered from UCO classrooms that employed transformative

learning pedagogy. An ex post facto quantitative research design occurred with archival data from the STLR program at UCO.

Significance of the Study

Research indicated if students at UCO in the STLR program have increased classroom engagement due to transformative learning pedagogy versus students who had not been in the STLR program as indicated by academic achievement and retention. With the implementation of an ex post facto study, real insight was gained from the archival data collected. A nonbiased approach from outside research helped guide UCO on implementing transformative learning pedagogy. Upon the study's conclusion, results can be shared with UCO students, faculty members, staff members, and other higher education entities. For positive social change, the research can supply universities with insight into how transformative learning increases student engagement or does not from the students having to interact to solve problems.

Research Questions

The research questions guiding the study were based on the theoretical framework of transformative learning theory. Transformative learning theory was selected because it allows profound intrinsic observations to occur. With an ex post facto research design, two research questions were designed to identify and guide this study:

Research Question 1: To what extent was there a statistically significant difference in student academic performance as measured by GPA between those who received transformative learning pedagogy versus those who did not?

Research Question 2: To what extent was there a statistically significant difference in student retention between those who received transformative learning pedagogy versus those who did not?

Hypotheses

There were four hypotheses proposed in this ex post facto study. A theory of change was rendered during the study as foretold by the hypotheses. The hypotheses proposed:

H1₀: There was no statistically significant difference in academic performance as measured by GPA between those students who have received transformative learning pedagogy versus those who did not.

H1_a: There was a statistically significant difference in academic performance as measured by GPA between those students who have received transformative learning pedagogy versus those who did not.

H2₀: There was no statistically significant difference in retention between those students who have received transformative learning pedagogy versus those who did not.

H2_a: There was a statistically significant difference in retention between those students who have received transformative learning pedagogy versus those who did not.

Theoretical Framework

The theoretical framework for the study was based on transformative learning theory. Transformative learning allows learners to make profound intrinsic observations to discover what learning has taken place and what knowledge will be produced (Mezirow, 1990). In the transformative learning environment, learners have latitude on how education can occur and be sustained through future lifelong learning. Transformative learning is about critical self-reflection, and when compared to traditional knowledge, transformative learning offers real-world experiences for the learner (Lavrysh, 2015). The hypotheses are in alignment with the theoretical framework of transformative learning theory. Research surrounding transformative

learning and the literature gap regarding the existing body of knowledge on transformative learning is shared in Chapter 2.

Definitions of Terms

Definitions of the terms help explain transformative learning and increased student engagement based on higher academic achievement levels and retention. Alignment between the definitions and the proposed theory of transformative learning occurred. The definitions which guided the study derived from current research on the topic defined:

Communication – Communication is the act of sending and receiving messages through verbal and nonverbal methods, allowing a mutual understanding of ideas between all parties involved (Fashiku, 2017).

Confidence in skills – The ability based on knowledge obtained to decide and complete tasks with little or no direction due to the mastery of skills developed over time is called confidence in skills (Chapman & Sellheim, 2017).

Empowerment – Empowerment is considered a sense of confidence developed from valued beliefs applied by having options to make informed decisions (Úcar Martínez et al., 2017).

Engagement – Engagement is a sense of self-direction taken up by learners to complete tasks and achieve goals (Edwards et al., 2020).

Independent learning – Independent learning is the concept of learning responsibility with minimal guidance from an instructor leads to more reliable learning methods to complete tasks (Sumantri & Satriani, 2016).

Lifelong learning - The process of knowledge attainment coupled with applying skills and having a continuous learning cycle throughout life is referred to as lifelong learning (Watson, 2003 as cited in Li, 2016).

Teamwork – Teamwork occurs when a group of people who share similar goals works toward the goals, communicates, and shares responsibilities (Lantz et al., 2015).

Transformative learning – Transformative learning allows learners to explore with other learners through communicative dialogue the traditional preconceived learning assumptions. When preconceived learning habits occur, the learners can change old learning habits to new learning habits (Christie et al., 2015).

Assumptions

Assumptions were defined by Simon and Goes (2013) as preconceived notions that cannot be proven and are necessary components of any study. Several assumptions were made about the research; though researchers may be conscious, beliefs are seldom correct (Simon & Goes, 2013). The archival survey data were gathered with accurate responses from the students is one assumption of the study. Another assumption of the study was that student engagement could be assessed by measuring academic achievement and retention.

Scope and Delimitations

The scope of the study was focused on the problem of the lack of research to indicate if efforts to increase student engagement have led to increased student academic achievement and retention. Student engagement can also be gauged by examining other variables, including attendance, a journal, student feedback, and assessments (White & Nitkin, 2014). Still, this study's scope was limited to academic achievement and retention data. The parameters in which the study operates, the way it relates to the problem of the study is how the scope of the study

was defined (Simon & Goes, 2013). For the study, archival data were obtained from the UCO STLR program, which supported the scope of the study.

Delimitations occur in a study when the investigator sets boundaries, so the scope or objective of the study is achievable (Theofanidis & Fountouki, 2018). The delimitations of this research included undergraduate first-year freshmen students who had been instructed with transformative pedagogies and undergraduate first-year freshmen students who had not been taught with transformative learning pedagogies. Research delimitations were specific to this population of students and from the Fall 2018 cohort to the Spring 2019 cohort.

Limitations

The limitations to the research were an ex post facto chosen design, the statistical independent *t* test and chi-square, bias, and time. Theofanidis and Fountouki (2018) defined limitations as uncontrollable by the investigator as they are associated with the chosen research design, the statistical test, and other uncontrollable factors. For this study, the chosen ex post facto design met the rationale for the research and provided replicable results. The statistical independent *t* test met the parameters for statistical testing as two groups were tested and discover a difference between the means. The chi-square test was used to measure the differences in retention between groups. Bias was controlled as no internal or external bias could materialize throughout the research. Time was limited to the constraints of the COVID-19 Pandemic as some offices at UCO were still closed, which resulted in delays with data collection. Data collection still transpired and allowed for the study to proceed.

Archival data were collected from the UCO archives to enhance the inference and generalization of findings. Due to the lack of internal affiliations with UCO, there was no researcher bias or need to control any confounding variables or internal validity threats. As

indicated in the study, the research was limited in time, with a designated completion by June 2021. With the confounding limitations, the study still transpired and met replicable results.

Chapter Summary

In Chapter 1, the introduction provided a snapshot of transformative learning and transitioned to the problem's background. Background of the issue led to the problem statement and advised on the lack of data to provide further evidence of students' engagement increased by measuring student academic achievement and retention. Transformative learning pedagogy offers students an avenue to transform thoughts and ideas (Prosek & Michel, 2016). When exposed to transformative learning, students can have a worldview change (Hoggan, 2016). In the chapter, the study's purpose was to explore if student engagement increased with the instruction of transformative learning pedagogy in UCO classrooms as indicated by academic achievement and retention. Other topics discussed in Chapter 1 included the study's significance, research questions, theoretical framework, definitions of terms, assumptions, scope and delimitations, and limitations. Research on the theoretical foundation and increased student engagement when faculty members teach with transformative learning pedagogy is discussed in Chapter 2.

Chapter 2: Literature Review

The problem was research has not indicated if efforts to increase student engagement have led to increased student academic achievement and retention. The study's purpose was to test for statistically significant differences in the academic achievement and retention between students instructed with transformative learning pedagogy and those who were not. The research sought to advance the field of transformative learning in higher education. Literature on transformative learning describes transformative learning as deep holistic learning. In transformative learning, the learner takes time to reflect critically on experiences and frame those experiences to achieve meaningful learning outcomes (Martin & Strawser, 2017).

Leaders at the University of Central Oklahoma (UCO) and other institutions fostering transformative learning have a vested interest in knowing if undergraduate students have increased classroom engagement with the instruction of transformative learning pedagogies by higher academic achievement levels and retention. A study exploring these research questions can address the gap in the literature. The chapter includes the literature search strategy, the theoretical framework, a synthesis of the literature reviewed, the literature gap, and a summary of the chapter.

Literature Search Strategy

A search of the following online American College of Education (ACE) library databases resulted in peer-reviewed research on transformative learning, published between 2013 and 2020: ProQuest Education Database, ProQuest Educational Resources Information Center (ERIC), Google Scholar, and ERIC. Exploration of the Journal of Transformative Learning

(JTL) produced relevant articles as well. Table 1 lists the keywords from the literature search strategy.

Table 1

Keywords

| Transformative learning types | Quantitative | Qualitative | Mixed methods |
|-------------------------------|---|---|---|
| Empowerment | Transformative learning empowerment a quantitative study | Transformative learning pedagogy and empowerment a qualitative study | Transformative learning pedagogy an explanatory sequential mixed-methods study |
| Communication | Transformative learning pedagogy and communication a quantitative study | Transformative learning pedagogy and communication a qualitative study | Transformative learning pedagogy and communication an explanatory sequential mixed-methods study |
| Teamwork | Transformative learning pedagogy and teamwork a quantitative study | Transformative learning pedagogy and teamwork a qualitative study | Transformative learning pedagogy and teamwork an explanatory sequential mixed-methods study |
| Independent learning | Transformative learning independent learning a quantitative study | Transformative learning pedagogy and independent learning a qualitative study | Transformative learning pedagogy and independent learning an explanatory sequential mixed-methods study |

Keywords

| Transformative learning types | Quantitative | Qualitative | Mixed methods |
|-------------------------------|--|---|--|
| Engagement | Transformative learning pedagogy and engagement a quantitative study | Transformative learning pedagogy and engagement a qualitative study | Transformative learning pedagogy and engagement an explanatory mixed-methods study |
| Confidence in skills | Transformative learning pedagogy and confidence in skills a quantitative study | Transformative learning pedagogy and confidence in skills a qualitative study | Transformative learning pedagogy and confidence in skills an explanatory mixed-methods study |
| Lifelong learning | Transformative learning pedagogy and lifelong learning a quantitative study | Transformative learning pedagogy and lifelong learning a qualitative study | Transformative learning pedagogy and lifelong learning an explanatory sequential mixed-methods study |

Note. Keywords were entered in each database to find the most relevant articles for the research.

The research reviewed considered the most recently developed theories related to higher education. Articles searched provided efficient explanations of the transformative learning theory. Older empirical articles do exist, but recent reports are referenced to define subsequent methodologies and findings.

Theoretical Framework

Transformative learning theory transpired to develop the theoretical framework, which guided the research. Mezirow (1975) first developed transformative learning in the 1970s, which he described as deep learning. The student's perspective transforms, giving new insight into intrinsic understanding (Maiese, 2017). The shift in knowledge is a disorienting dilemma or point of crisis for students where transformative learning occurs by exploring what was once assumed. Even though students immersed in transformative learning environments are experiencing learning, a lack of research indicates if the students' classroom engagement increased with transformative learning pedagogy by higher academic achievement and retention levels.

Faculty and administration at UCO and other higher education institutions who employ transformative learning pedagogy in the classrooms lack data to support student classroom engagement increases from transformative learning pedagogy. A study occurred to address the obtainment of increased engagement from transformative learning pedagogy. Relevant research to corroborate the idea student engagement increases with transformative learning pedagogy was examined.

When the student experiences transformative learning, the student's mind is not at ease as a personal crisis is experienced (Maiese, 2017). According to Mezirow (2000), "learning occurs in four ways: by elaborating existing frames of reference, by learning new frames of reference, by transforming points of view, or by transforming habits of the mind" (as cited in Hullender et al., 2015, p. 59). The student's mind is no longer the status quo or relaxed state, leading the

student to uncharted waters. Transformation occurs from a new worldview discovered through the ideas explored through a new frame of reference.

For transformative learning to be a successful pedagogy at UCO and other higher education institutions, students needed to know if classroom engagement increases from transformative learning instruction in the classroom. Research provided evidence to inform the students of these potential gains. Transformative learning requires all constituents involved in the higher education classroom to place students outside the traditional classroom's usual comfort zone (Haigh, 2014). Once students have experience with transformative learning, classroom engagement is gained, and new learning stress is reduced (Haigh, 2014). Critical reflection, a fundamental attribute of transformative learning, may cause discomfort and help students build transferable skills which are taken beyond higher education to the workforce (Christie et al., 2015). The increased classroom engagement was based on transformative pedagogies robust learning experiences and allowed for transferrable workplace skills. The transferrable skills noted during the research were empowerment, communication, teamwork, independent learning, engagement, confidence in skills, and lifelong learning.

Review of Current Literature

The review of the literature focused on scholarly articles and publications that informed on transformative learning pedagogy. Review of pedagogy methods objectively was the first central theme found in the literature. The first section below shows this theme concentrated on how transformative learning sets the stage for students to gain new frames of reference, active learning, and moving from pedagogy learning to andragogy or more self-directed learning. Transformative learning sustains real-world knowledge, which served as the second significant

theme found in the current literature. This theme informed researchers about the power of students who engaged in transformative learning in the context of workplace-style education.

The third central theme of the current literature illustrated the importance of faculty training on transformative learning pedagogy. Specifically, this theme showed how vital faculty training on transformative learning pedagogies is because they enable students with the tools necessary to be successful and sustain classroom engagement. The fourth central theme addressed how projects yield learner-to-learner sharing of real-world knowledge transpired to show the importance of student-led projects. College administration deciding pedagogy/andragogy, the fifth central theme of the research literature, addressed how transformative learning offers robust opportunities for learning in different contexts and the need to consider offering transformative learning pedagogy. A visual map was constructed and showed the review flow while also discussing the unanswered questions of how student engagement increased with the instruction of transformative learning pedagogy as reflected by higher academic achievement and retention were not covered through the literature review.

Transformative learning requires the active engagement and collaboration of people pursuing an idea under investigation while transforming thoughts (White & Nitkin, 2014). White and Nitkin (2014) researched the Simmons World Challenge (SWC), a program implemented every year at Simmons College. The SWC gave transformative learning experiences to sophomore students selected to participate by studying real-world issues of social problems and how communities are affected. Similar to the STLR program at UCO, the SWC teachers instructed with transformative learning pedagogies that allowed for higher student engagement to transpire, which the SWC documented in their student feedback and student self-assessments (White & Nitkin, 2014). Faculty members acted as mentors in the study and gave students

projects where student collaboration was necessary to accomplish the tasks. White and Nitkin (2014) found the value of transformative learning over traditional learning by higher levels of student engagement being obtained and new frames of reference sustained through the comprehensive assessment data. The students in the research found significant value because of exposure to a transformative learning environment (White & Nitkin, 2014).

Reviewing Pedagogy Methods Objectively

An argument is made about the value of transformative learning over traditional learning. The discussion would question if transformative learning better fosters higher classroom engagement attainment for students over formal classroom learning. Transformative learning needs explanation to counter the argument as it relates to offering students higher classroom engagement. Transformative learning shocks students into new thinking, giving them new frames of reference to draw from while being immersed in an active learning environment (Prout et al., 2014). Discomfort, one of the transformative learning strategies, occurs due to students having more open communication and self-directed learning opportunities. Transformative learning replaces the old learning methods with new ideas to foster a sense of lifelong learning or learning from within (Lavrysh, 2015).

New Frames of Reference

Seatter and Ceulemans (2017) discovered how transformative learning produced new frames of reference in adult learners. The transformative learning environment causes independent learning to occur. Students make more rational decisions by analyzing and reflecting on problems, creating a new learning paradigm. Traditional education does not offer multiple frames of reference, like transformative learning environments. Students in traditional

learning environments do not have numerous reference frames to draw from and others to communicate with to form a paradigm shift (Seatter & Ceulemans, 2017).

Independent learning allows the learner to be more engaged with what is occurring in the learner's life. In the transformative learning environment, the learner frames experiences, which causes a frame of reference development inside the learner from being immersed in a real-world problem-solving learning environment (Allen & Withey, 2017). Independent learning and engagement provide real-world knowledge to the learner by encouraging transformative learning in the classroom.

Active Learning

Chung-Kai and Chun-Yu (2017) produced active, transformative learning where students had experiences collaborating. In the research, students developed higher motivation levels by being empowered to work with each other and achieve goals in a flipped, active transformative style learning environment. Active learning contributes to a sense of being self-engaged, which transforms a learner from pedagogy to andragogy (Samaroo et al., 2013). Transformative learning produces a classroom where engagement is fostered through active learning and critical reflection to marinate on developed learning experiences.

Engagement encourages the learner to be more motivated in the classroom, facilitated by faculty members, and led by the learner. Students lack preparedness to transform alone, but active collaboration with others helped sustain transformative learning (Haigh, 2014).

Transformative learning is an empowering experience as the learner developed a new lens to draw upon when faced with a specific real-world problem to solve.

To compare traditional learning and transformative learning, Lavrysh (2015) depicted traditional education as a singular form of learning. Transformative learning offered several

modules of learning in the learning environment (see Table 2). Transformative learning is a blend of traditional knowledge and nontraditional learning methods, which leads to sustainable lifelong learning (Lawton & La Porte, 2013). Traditional knowledge does not harbor a mix of learning methods like transformative learning offers to adults, fostering transformative ideas. Even with adults from different generations or intergenerational learning environments, transformative learning has shown to have positive outcomes (Lawton & La Porte, 2013).

Table 2

Comparison of Traditional Learning and Transformative Learning

| Components | Traditional learning | Transformative learning |
|----------------------------|---|--|
| Knowledge | Static, limited, and linear | Dynamic and multidimensional |
| Learning | Instructive model: the instructor gives students information | Constructive model: information is searched, explored, and analyzed together with an instructor |
| Instructor's role | "Knowledge carrier." | "Preceptor" |
| Professional certification | By facts and information reproduction while testing | By analysis and synthesis of information and successful professional problem solution while problem learning |
| Evaluation | Based on the instructor's experience and skills, curriculum limited | Based on the student's needs, progress, achievements |

Note. Adapted from "Transformative Learning as a Factor of Lifelong Learning by the Example of Vocational Education in Canada," by Y. Lavrysh, 2015, *Comparative Professional Pedagogy*, 5(4), 62–67. <https://doi.org/10.1515/rpp-2015-0067>

The context of traditional learning environments may not be as robust as transformative ones due to the unique educational delivery of learning (Lavrysh, 2015). Transformative learning engages students by allowing engagement in critical self-reflection while immersed in learning environments. Critical self-reflection enabled students to form paradigms to begin a shift toward

new learning (Prout et al., 2014). Transformative learning offers more options for engagement in education.

From Pedagogy to Andragogy

Prout et al. (2014) discovered how student collaboration in a mixed learning environment caused transformation by allowing students to have multiple viewpoints, fostering self-development. Independent learning is described as a self-directed learner and moves from a pedagogy style of learning to andragogy learning (Allen & Withey, 2017). Andragogy is a form of self-driven learning which allowed learning to occur individually (Allen & Withey, 2017). Mezirow proposed how the independent learner would become more self-engaged in the classroom and coined the famous term andragogy (Samaroo et al., 2013).

Real-World Knowledge Is Sustained

When immersed in transformative learning, students experience life-altering changes in perspectives resulting in the way learning occurs (Naudé, 2015). Students gained a sense of self-responsibility when empowered to make decisions in the transformative classroom (Hoggan, 2016). As Hoggan (2016) depicted, the students continued to grow and become more empowered to take on more laborious tasks when given projects with the development of real-world applications. Transformative learning afforded students the ability to solve problems and gain knowledge.

Hullender et al. (2015) researched and studied transformative learning in higher education and the workforce to reveal if students had learned transferrable knowledge and skills through the process of service-learning. In the service-learning environment, students give back to community efforts while gaining valuable knowledge. Naudé (2015) discovered how higher education students' exposure to real-world service-learning projects caused a transformation of

ideas to occur in the students. The students' change resulted in a paradigm shift, and the students saw the world through a different lens. In the transformative learning environment, students dive into deep personal reflections and uncover old strengths, which led to personal competence (Naudé, 2015). Critical self-reflection was an essential trait evident in the transformative learning environment.

When immersed in the transformative learning environment, higher education students' worldview changed due to collaborating with others to solve real-world problems (Hullender et al., 2015). Ngui et al. (2017) produced research on service learning, which was done through transformative education. The study focused on service learning, which involved community engagement. The students' engagement increased due to transformative learning pedagogy. Transformative learning had positive outcomes in a service-learning environment (Ngui et al., 2017).

Based on the diversity of higher education classrooms of the 21st-century, traditional learning pedagogies may not offer learning environments in which learners come together and share cultural learning as transformative learning would offer (Jurkova & Shibao, 2018). Globalization played a large part in cultural learning environments. In higher education learning environments, all learners should be immersed in local education and exposed to a global education environment (Jurkova & Shibao, 2018). The global environment changed the landscape for learning, attributed to the implementation of real-world problems assigned to students.

Faculty Training on Transformative Learning Pedagogy

The training of faculty members on transformative learning pedagogy was critical for preparing students for the workforce and beyond. Benson et al. (2014) interviewed students in

one-on-one and group interviews. Peer-to-peer interaction was discovered by Benson et al. (2014) was critical for faculty training to facilitate a transformative learning environment. Peer-to-peer exchange helped prepare students for the kind of real-world problems to be dealt with after college. Some areas where change was prevalent in the transformative learning environment included self-esteem, confidence, motivation, and knowledge (Benson et al., 2014).

Benson et al.'s (2014) research spanned over four years and revealed themes to corroborate how the students' enthusiasm was higher after being in the transformative learning environment. The study showed how students gained confidence in skills through the transformative learning environment. Being able to build confidence in the transformative learning environment allows for transferrable skills to be developed.

Keane et al. (2016) found how training faculty members on transformative learning pedagogy allowed students to gain valuable, sustainable learning outcomes. Cooley and De Gagne (2016) studied novice nursing faculty members, noting the nurses gained more confidence in skills after exposure to the transformative learning environment. Students' ability to share inner translations was part of the transformative learning environment. Collaboration should transpire openly where transformative learning occurs. Cooley and De Gagne (2016) showed how transformative learning changed the paradigm and opened the door for independent life-long learning. In Cooley and De Gagne's (2016) research, interviews showed how nurses gained confidence through being exposed to transformative learning.

McAllister (2015) found how faculty members who instructed with real-world projects facilitated greater peer-to-peer collaboration, which allowed for powerful learning experiences with lifelong implications. E-learning was studied by Glancy and Isenberg (2013), which showed independent learning and engagement occurred through transformative e-learning. E-learning

helped students become more independent learners (Glancy & Isenberg, 2013). Independent learning occurred by students staying engaged with faculty members and other students through self-direction.

Glancy and Isenberg (2013) described how 21st-century employers seek students who can collaborate to solve real-world problems. Transformative learning required learners to have a new experience, something the learner engaged in by deciphering thoughts, exploration, engagement with others, and critical reflection on what the new learning experiences have brought (Mezirow, 1990). Independent learning fostered a new world view through peer-to-peer interaction, which occurred in the transformative learning environment. Real-world projects assisted in developing independent problem solving, similar to the workforce lens of applying developed real-world learning skills to solve problems.

Noy et al. (2017) explored how online course faculty members could design real-world projects when fostering transformative learning pedagogy. Real-world projects employ peer-to-peer collaboration between students, which added to the transformative learning experience (Noy et al., 2017). Students are empowered to make decisions with each other and solve the real-world problems faculty members assigned. The survey data revealed how lifelong learning had occurred, and the journal data themes showed commonalities among students having positive outcomes on lifelong learning. Themes emerged, which supported work-integrated learning linked to engaging in transformative learning. The common theme gained from interviews indicated how critical self-reflection was essential to sustaining lifelong learning in the transformative learning environment (McRae, 2015).

Provident et al. (2015) studied online doctoral students' experiences and identified ways in which faculty members could design courses that enable student collaborations to solve real-

world problems. Students in the environment needed time for critical reflection and collaboration, which led to engagement. Provident et al.'s (2015) study revealed how student engagement increased as student motivation increased, which allowed for intuitive thinking and helping students develop as independent learners.

Provident et al. (2015) found engagement in the transformative learning environment significant among the students who gained independent learning. The independent learning and engagement attainment of real-world knowledge fostered a sense of ownership in the learners' minds exposed to a transformative learning environment (Provident et al., 2015). Students, faculty members, and workers often experience a paradigm shift when exposed to the transformative learning environment, contributing to increased knowledge. Collaboration was critical as relationship forming contributed to increased engagement for the students and faculty members.

In research on self-paced online faculty development courses, Rizzuto (2017) studied full-time and part-time faculty members and found faculty member thoughts transformed with time for self-reflection linked to independent, engaged learning. Rizzuto (2017) referenced Mezirow's thoughts on self-reflection as a form of transformative learning, allowing adults in higher education to become more independent learners. Higher education faculty members immersed students in a transformative learning environment to provide self-reflection, which gave more skills to engage learners when entering the workforce. The faculty members in Rizzuto's (2017) research transformed through self-reflection. Critical self-reflection showed how transformative learning could be taught in several venues to keep learners independent with thoughts and engaged with learning. Rizzuto (2017) identified a link between self-reflection and

independent learning. Similar themes discovered self-reflection contributing to independent learning.

Tassone et al. (2017) found empowerment as a catalyst helping student learning outcomes to become more sustainable in the transformative learning environment. Tassone et al. (2017) employed the Educating Yourself in Empowerment (EYE) learning tool to measure educational empowerment and sustainability. The EYE tool mimics a pair of glasses the learner wears daily to focus on worldview through the learner's lens (Tassone et al., 2017). Students in the study completed the projects, and the faculty members acted as mentors providing minimal input. Tassone et al. (2017) described the lens as understanding, enacting, positioning, and awakening.

Tassone et al.'s (2017) study focused on empowerment by the students exposed to transformative learning and was noted in the research how the students were engaged in several aspects of learning while using the EYE tool for four weeks. The research called for further studies to expand research and investigate the long-term effects of educational empowerment programs similar to a long-term STLR program UCO has implemented for sustainability. Transformative learning environments keep the learner engaged through constant problem solving, enabling the learner to act and make rational decisions through collaboration with others (Lavrysh, 2015).

Projects Yield Learner-to-Learner Sharing of Real-World Knowledge

Beynon (2017) revealed that through research with students immersed in a choir program involving real-world projects, integrated transformative learning occurred. Additionally, students were more empowered to make continued progress toward learning new paradigms. Research showed how transformative learning could empower people of various ages and skills to set the

stage for lifelong learning. Empowerment was an essential function in transformative learning, as it leads to more sustainable outcomes in learning through the sharing of knowledge (Beynon, 2017). When active learning through constructivist projects occurs in the classroom, students share knowledge through transformative collaboration (Christie et al., 2015). Projects allowed students to facilitate knowledge transfer with one another.

Dal Magro et al. (2020) found how communication and teamwork were essential to goal attainment. Collaboration and communication created a shift in the student frame of reference, allowing reflection, making sense of independence, and engaging with the learner to enhance knowledge. Mann and DeAngelo (2016) described how transformative learning-enabled active participation with a different understanding, not a single learning format. Through service-learning, transformative learning was an example in Mann and DeAngelo's research, which provided active, participative learning evidence. Service-learning education created the sustainment of classroom projects to attain collaboration and achieve goals (Mann & DeAngelo, 2016). Mann and DeAngelo (2016) provided research on active participation, which enabled empowerment through service-learning but called for more investigation to investigate if empowerment was sustained beyond the classroom.

Ross-Gordon et al. (2015) discovered for a transformative learning environment to occur, the environment should include team cohesion, theory development, and collaboration (Ross-Gordon et al., 2015). Students should be comfortable working together to solve problems—not in a single format but in a collaborative team environment, which leads to independent learning and engagement. Reflection on detailed information in learning is transformative learning (Zipp et al., 2017).

Zipp et al. (2017) revealed how students with projects to work toward or an active learning environment increased student motivation more than the traditional learning environment. Transformative learning was active and empowering for students. Students explored endless possibilities through transformative education, which drives motivation. Zipp et al. (2017) showed how student motivation was higher in the transformative learning environment in which real-world projects were solved.

Student Engagement and Academic Achievement

Student classroom engagement was shown to increase academic achievement. Flynn (2014) researched the importance of student engagement in the classroom to champion academic achievement. Both classroom activities and out-of-classroom activities keep students engaged. A relationship is forged between the teacher and student in the transformative learning environment, further developing engagement through a psychological contract (Margareth et al., 2017). Students engaged in a more open dialogue with teachers, which allowed them to believe in the work submitted.

Connection with the students in the learning environment was critical to academic achievement. Zyngier (2017) discovered how transformative learning pedagogies allowed students and teachers to have a mutual connection, learning from each other. Students were engaged with more open dialogue with teachers, which caused collaboration to transpire. Langendyk et al. (2016) designed pedagogy for students, which focused on transformative learning, where the students were engaged through communication with each other and with teachers. Students involved with communication corroborates how active, communicative learning was transformative and occurred in several higher education learning settings.

Student Engagement and Retention

On the educational journey, first-year college students were at a critical stage. New college students might become unengaged unless study habits were transformed into engaged learning. Nielsen (2020) found how project-oriented knowledge offered transformative learning experiences to new college students and sustained classroom engagement. Through engagement, the students were retained because of the desire to be in attendance.

A transformation in the default of the designed traditional learning landscape was what the new college students desired (Almond, 2020). First-year students needed to be entertained with transformative learning pedagogies. For student sustainability, worldviews changed into new engagement paradigms (Almond, 2020). A shift from what was once a habit of the mind to something new is transformative. Moments to reflect on the transformations that occurred in the students' minds.

College Administration Deciding Pedagogy/Andragogy

Adams et al. (2015) presented research on male and female students from Central Queensland University, Australia. Adams et al. (2015) examined how the students gained confidence after completing transition mathematics courses taught through transformative classroom pedagogies. The students' response rates on the pre-surveys were low going into the class, with men 60% confident in learning in a transformative learning environment and women 37% secure (p. 25). After exposure to transformative learning, confidence increased to 78% for men and 66% for women (p. 25). The data showed confidence levels before the intervention was low and how post-intervention confidence levels were higher after being exposed to transformative learning.

The results from Adams et al.'s (2015) research showed a significant increase in confidence among the students studied. Transformative learning was a pedagogy to help build confidence. Students needed the encouragement of faculty members to guide and facilitate learning because it enabled students to become self-directed learners (Adams et al., 2015). Faculty members became more of a guide to instill independent, driven knowledge, which opened the door to andragogy.

With coaching, the theories of andragogy and transformative learning are supported, causing the learner to experience a sense of greater self-direction in the learning process (Cox, 2015). Storey and Wang (2017) described andragogy as a self-directed learner through all phases of learning. Coaching mixed andragogy and transformative learning due to the self-direction, which occurred, and moments of critical self-reflection occurred (Cox, 2015). The outcome correlated to a coach on the field with self-driven athletes who aspire to win. When people undergo transformative learning, faculty members mimic a coach—not instructing but mentoring and guiding others to reach goals.

Habits of the Mind

Transformative learning occurred when students were immersed in the transformative learning environment and develop habits in mind, causing more robust learning outcomes (Gibson & Jacobson, 2018). Learning environments fostered transformative learning-enabled self-led learning where students communicated with each other on service-learning projects, community-based projects, and research-based projects. These learning environments were geared toward giving the students a new perspective on learning. Students needed experiences that allowed for the transformation of ideas to occur. Transformative learning happened when

students were allowed to participate in experiential learning, which sustained lifelong learning for the future (Gibson & Jacobson, 2018).

Blake et al.'s (2013) research showed how lifelong learning could be sustained through transformative learning to have multiple learning ways occur in a transformative learning environment. Blake et al.'s (2013) research revealed how several students found lifelong learning sustainment in a transformative learning environment through survey data. A transformative learning environment helped students build a new mind capable of being sustainable, structured, and open for new opportunities to evolve (Iyer-Raniga & Andamon, 2016). Higher education administrators considered pedagogy designed, which fostered a transformative learning environment. For lifelong learning experiences in higher education, transformative learning would be optimal (Iyer-Raniga & Andamon, 2016).

Workplace Learning

Workplace learning was linked to transformative learning and offered students sustainable outcomes of knowledge and skill development. Work-integrated learning occurred in several higher education institutions where students collaborated with workplaces and gained valuable experiences and skills to become more versed in the work environment (McRae, 2015). McRae (2015) researched four relevant case studies of students, managers, and facilitators from universities to see the connections work-integrated learning had with transformative learning. McRae (2015) conducted interviews about when transformative learning had occurred through work-integrated education.

According to McRae (2015), work-integrated learning allowed for (a) teamwork to occur, (b) a supportive work environment to develop, (c) opportunities to learn and apply skills, and (d) time for critical reflection. In the transformative learning environment, the students learned not

only from one viewpoint but from multiple perspectives. Hodge (2014) researched workplace learning and suggested how transformative learning took in new views and readdressed the old ones during a time of critical reflection. The transition allowed more time to reflect critically about a produced action. Through reexploration of thoughts and ideas, learners immersed in transformative learning experienced a keen sense of defined concepts allowing self-efficacy to occur (Hodge, 2014).

Transfer of Knowledge

Kumi-Yeboah (2014) found communication to correlate positive student responses, both quantitative and qualitative. After exposure to the U.S. higher education system's transformative learning environment, African students who lived in the United States volunteered to take the Learning Activity Survey developed by King (Kumi-Yeboah, 2014). Learning Activity Survey measured students' transformative learning experiences. The data showed how 84% of the students had a positive transformative learning experience, and 15.2% reported none (Kumi-Yeboah, 2014).

Kumi-Yeboah (2014) highlighted how one student had an enhanced transformative experience when open communication in the classroom occurred. Kumi-Yeboah (2014) revealed communication and teamwork transpired in the transformative learning environment. The data on students' exposure to the transformative learning environment showed a significant number of learning experience changes due to being exposed to transformative learning. Transformative learning exposure allowed communication and teamwork to occur with each other by directing students (Kumi-Yeboah, 2014). Acquiring knowledge and skills and using developed attributes were part of the transformative learning process (Cox, 2015). Open communication allowed

students to have deep, meaningful conversations on ideas explored to conclude an assigned problem.

Robust Learning Experiences

Levkoe et al. (2014) studied graduate students in the transformative learning environment where natural learning occurred due to teamwork and collaboration with open communication. Levkoe et al. (2014) revealed how graduate students experienced deeper understanding when engaged in a transformative learning environment, fostering open communication and teamwork to accomplish projects given by faculty members. Collaboration and communication were highlighted by Bergh et al. (2016), which produced similar themes on how students gained positive learning outcomes through being immersed in the transformative learning environment. Collaboration was another attribute contributing to transformative learning pedagogy in classrooms. A dialogue between all stakeholders involved created open communication in the school. Mezirow (2012) identified dialogue as a necessary transformative learning attribute to frame reference points during problem-solving discussions. Open communication included the faculty-to-student transfer of information and student-to-student communication.

Adapt to Change

Change is a constant occurrence in the workforce. Some of these changes include a promotion, job redesign, and job placement, all of which can cause a crisis to occur within one's perspective. The ability to deal with a situation was discovered by Miller et al. (2016) to be a trait linked to transformative learning. Based on change being a constant occurrence in the workplace, transformative learning was present due to the ever-changing environment workers experience. Yukawa (2015) found how practitioners considered practicing change as a method to

gain discipline and understanding to sustain knowledge when deciding on adult transformative learning pedagogy.

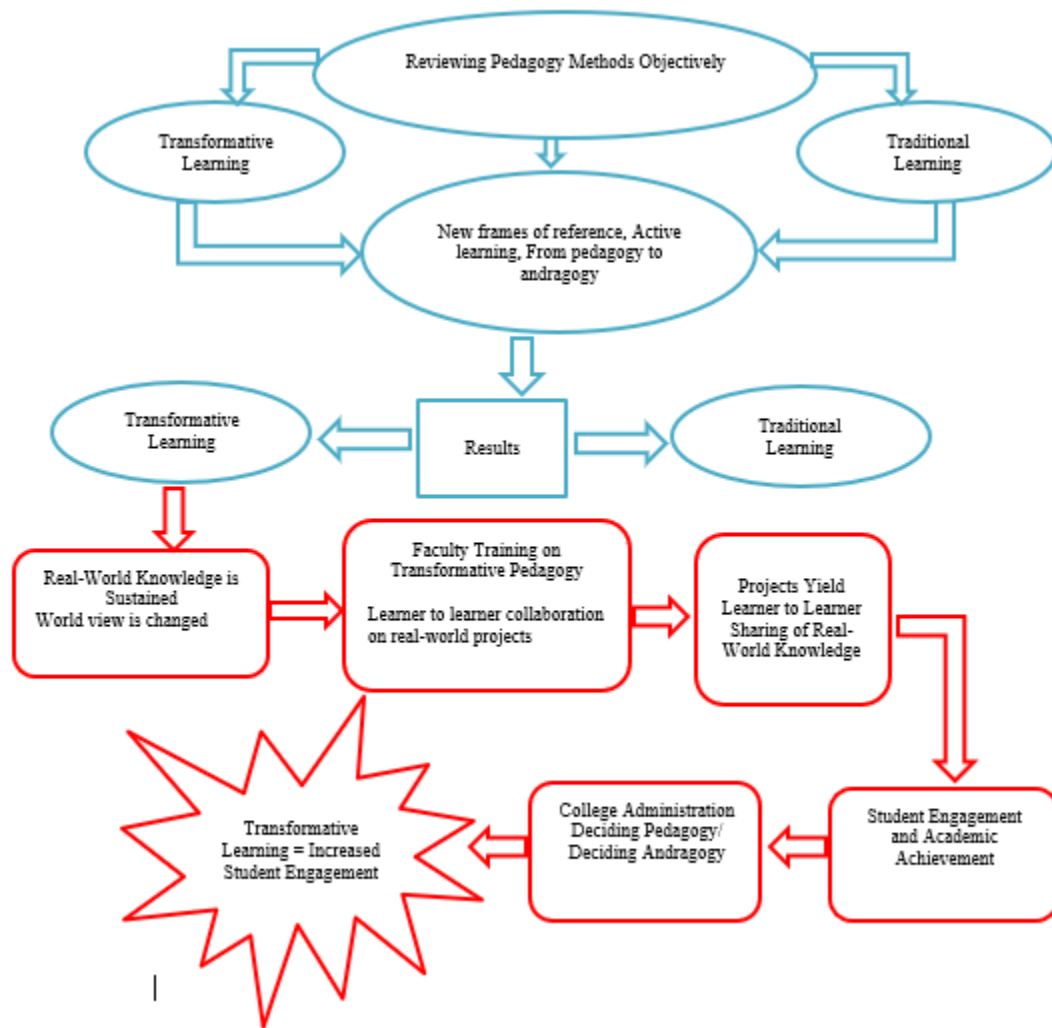
Miller et al. (2016) conducted interviews with female nurses. The research highlighted how preceptor nurses, instructors, were in nursing to observe if transformative learning existed for the nurses. All the subjects involved were skilled nurses who held associate degrees, bachelor's degrees, and master's degrees. One of the themes developed during the research found how critical reflection was crucial to the nurse preceptors. Through workforce transformations, lifelong sustainable learning occurred for the nurses. Based on the study, administrators in higher education need to consider transformative learning pedagogy when deciding on pedagogy.

Visual Map of the Literature Review

The visual map of the literature review provided an alternative; words may not fully account for the constructed framework for the reader. Grant and Osanloo (2014) suggested how visual representation can function similarly to a blueprint for building a home. The home builder has a general idea of how the construction should occur, but visual representation gives more guidance on the home builder's plans. Given the visual presentation, people processed a specific topic, the idea under investigation, and the category of events investigated (Collins & Olson, 2014). Instead of transcribed language, visualization enabled learners to have multiple methods to draw from instead of one way. Visualization occurred to enhance a learner's knowledge (Collins & Olson, 2014). The visual map of the literature review is shown in Figure 1.

Figure 1

Visual Map of the Literature Review



The visual map started with the foundational concepts and the flow of logical ideas that funnels down by inserting shapes, arrows, and pictures to give a concise presentation for the reader (Grant & Osanloo, 2014). In similarity to the concept map used by Grant and Osanloo (2014), the concept map of the literature review in this study started with a logical flow of how the literature supported transformative learning being multi-faceted learning. Compared to traditional learning as depicted in the visual map, the multi-facets of learning were reflected in the visual map. Chan (2017) produced research on nursing students who found the usefulness of

concepts to convey creative ideas when nurses treated patients. The concept maps in the study provided the nurses an opportunity for deep learning and reflection, a catalyst for nursing education (Chan, 2017). As depicted in this study, the visual map was a valuable tool to pinpoint ideas in higher education logically.

The Gap in Literature

The literature showed the current state of research on transformative learning and its significance in higher education. Though many articles have been produced on transformative learning, a lack of research existed to show if student engagement was increased with the instruction of transformative learning pedagogy as indicated by academic achievement and retention. Future research suggested by Provident et al. (2015) and Ngui et al. (2017), Christie et al. (2015) and Glancy et al. (2013), McRae (2015) and Flynn (2014), Zyinger (2017), and Langendyk et al. (2016), Nielsen (2020) and Almond (2020) included looking at engagement, academic achievement, and retention. Existing research sought to provide insight into whether increased student engagement occurred in the transformative learning environment and if the following skills were developed: empowerment, communication, teamwork, independent learning, engagement, confidence in skills, and lifelong learning as transformative learning was shown to build these skills. There were still unanswered questions with the research as to how student engagement increased with the instruction of transformative learning pedagogy, as demonstrated by higher academic achievement and retention.

Data gained for the research still left unanswered questions with the literature on the instruction of transformative learning pedagogy and how engagement increases based on higher academic achievement and retention. Articles referenced were the most recent literature on transformative learning. Several of the reports failed to show relevant findings to answers

questions in the literature. The study sought to fill the unanswered questions and provide several institutions with data on transformative learning pedagogy, as it fosters engagement as reflected by higher academic achievement and retention.

Research to Further Advance Transformative Learning Pedagogy

To further advance the theory of how transformative learning increases engagement in the classroom, Archer-Kuhn et al. (2020) advised how the learning activities in and out of the school need to allow students to have open dialogue while also allowing time for critical reflection. Students who have time for critical reflection have more efficient time to digest what was learned. The social interactions in the classroom and within local communities were discovered to give students higher engagement levels and a sense of being immersed in real-world problems that needed solving (Archer-Kuhn et al., 2020). Advancement of the transformative learning theory required engagement by being more involved with the learning that occurred.

The lack of research existed on increased engagement from the instruction of transformative pedagogy as indicated by higher academic achievement and retention. Classroom engagement increases from transformative learning pedagogy, but the literature supports transformative learning pedagogy in other contexts. Archer-Kuhn et al. (2020) advised how an effective learning environment encompassing transformative learning has deep learning contexts to keep the students engaged. The review of several dissertations highlighting how transformative learning increases student engagement based on higher academic achievement and retention materialized for an ex post facto quantitative research design. This research design appeared to be the most efficient method to obtain archival data and close the literature gap.

Quantitative research seeks to quantify larger samples of data (Park & Park, 2016). Park and Park (2016) depicted a table in the study to compare qualitative and quantitative analysis. A comparison of qualitative and quantitative research methods is shown in Table 3 and explained further in Chapter 3.

Table 3

The Comparison of Qualitative and Quantitative Methods

| Comparison | Qualitative | Quantitative |
|-------------------|---|---|
| Objective/purpose | To gain an understanding of underlying reasons and motivations; to provide insights into the setting of a problem, generating ideas and hypotheses for later quantitative research; to uncover prevalent trends in thought and opinion. | To quantify data and generalize results from a sample to the population of interest; to measure the incidence of various views and opinions in a chosen sample; sometimes followed by qualitative research, which is used to explore some findings further. |
| Sample | Usually, a small number of nonrepresentative cases respondents selected to fulfill a given quota. | Usually, many cases coupled with data sets representing the population of interest randomly selected respondents. |
| Data collection | Unstructured or semi-structured techniques, e.g., individual depth interviews or group discussions. | Structured techniques such as on-site structured interviews. |
| Data analysis | Nonstatistical. | Statistical data was usually in the form of tabulations; findings are conclusive and usually descriptive. |
| Outcome | Exploratory and investigative; findings are not conclusive and cannot be used to generalize, about the population of interest, develop an initial | Used to recommend a final course of action. |

| Comparison | Qualitative | Quantitative |
|------------|---|--------------|
| | understanding and sound base for further decision making. | |

Note. Adapted from “Qualitative Versus Quantitative Research Methods: Discovery or Justification,” by J. Park & M. Park, 2016, *Journal of Marketing Thought*, 3(1), 1–7.

<https://doi.org/10.15577/jmt.2016.03.01>

Chapter Summary

The research strategy and theoretical framework for the study were reviewed in Chapter 2. Other material reviewed in Chapter 2 included the most recent and significant studies correlated to increased classroom engagement from the instruction of transformative learning pedagogy to students in the higher education learning environment. The mix of scholarly articles in the literature review showed a gap in the literature. Explicitly, the problem of identifying if students had increased classroom engagement through academic achievement and retention was not addressed. In Chapter 3, the methodology, the research design, rationale, the researcher’s role, research procedures, data analysis, reliability and validity, and ethical procedures are addressed.

Chapter 3: Methodology

The study's purpose was to test for statistically significant differences in how students instructed with transformative learning pedagogy have increased engagement by academic achievement and if those same students were retained at higher numbers. The research sought to advance the field of transformative learning in higher education. Research questions occurred to guide the study. The following research questions guided the study:

Research Question 1: To what extent was there a statistically significant difference in student academic performance as measured by GPA between those who received transformative learning pedagogy versus those who did not?

Research Question 2: To what extent was there a statistically significant difference in student retention between those who received transformative learning pedagogy versus those who did not?

Along with the research questions, the hypotheses were developed to discover if there is a change in the theory:

H1₀: There was no statistically significant difference in academic performance between treatment and control of those students who have received transformative learning pedagogy versus those who did not.

H1_a: There was a statistically significant difference in academic performance between treatment and control of those students who have received transformative learning pedagogy versus those who did not.

H2₀: There was no statistically significant difference with increased retention between treatment and control of those students who have received transformative learning pedagogy versus those who did not.

H2_a: There was a statistically significant difference with increased retention between treatment and control of those students who have received transformative learning pedagogy versus those who did not.

The use of an ex post facto research design for the proposed research is discussed in the chapter. The research design met the rationale for the study, as the research design provided new insights for higher education administrators on transformative learning and increased student engagement as a result. Adherence to the American College of Education (ACE) ethical requirements was maintained throughout the study.

Research Design and Rationale

The research method for the study is a quantitative ex post facto research design. Ex post facto research occurs after the variation in the variables has already transpired in the natural environment (Ary et al., 2019). Independent variables identified for the study were students instructed with transformative learning pedagogy and students who were not taught with transformative learning pedagogy. The dependent variables identified for the research were student retention and academic achievement. At the University of Central Oklahoma (UCO), the Student Transformative Learning Record (STLR) program UCO allows students to explore transformative learning through multi-learning methods.

Students in the STLR program are measured for academic performance and retention compared to students who have not attended the STLR program. Throughout the study, alignment was maintained as the research design was consistent with archival data collection. Another research design would not have aligned for collecting archival and analysis as this chosen ex post facto method.

Research produced replicable results based on the archival data collected through a systematic process. The study addressed the research questions, and the results from the hypotheses tests were supported. The research aligned with the Institutional Review Board (IRB) approvals from UCO and ACE. January 2021 was when the data was projected to be obtained but was not obtained until March 2021.

Assessment staff at UCO have conducted internal studies by recording data on transformative learning through the STLR program. The study assessed increased student engagement gained from the instruction of transformative learning pedagogy. Since 2015, the STLR program staff have tracked transformative learning pedagogy. Still, no external studies have been conducted to assess how transformative learning pedagogy's instruction increases student engagement or does not increase student engagement. The STLR program combines program participation with active degree-seeking student status. Students who participate in the STLR program keep an online journal to record the transformative learning experience.

The STLR program supports student engagement in transformative learning through faculty guidance and tracks student engagement by reporting their findings while in the STLR program. Students keep a journal, and whenever an assignment is completed, the students write about their experiences. The journal enables faculty to experience how engaged the students were through their expressive written work. The goal at UCO has been for students to gain transferable skills while engaged through STLR and potential employers to benefit from student participation in the STLR program.

Leaders at UCO support an annual Transformative Learning Conference to foster discussion among researchers worldwide concerning the benefits of transformative learning in higher education. Administrators in higher education and at UCO who champion transformative

learning in the classroom can benefit from a definitive study providing clarity on the influence of transformative learning in higher education programs. The current body of knowledge on transformative learning can be added based on findings from the study results.

Role of the Researcher

My role in the study was to gain archival data and report the findings. I had no interaction in the study except in requesting archival data to explore the hypotheses (Davis et al., 2016). The collection of archival data from UCO was imperative to the research. As advised in the ACE IRB guidelines with data collection, I did not violate any archival data collection procedures. In the study, no internal bias occurred as there were no conflicts of interest to impede or threaten the study's reliability and validity. For the study, there was no control of the variables as the data collected was archival. Ary et al. (2019) advised the researcher has no intervention in ex post facto research, allowing the data to occur naturally.

Research Procedures

The study's research procedures included the population and sample, the instrumentation, data collection, and data preparation. Collaboration with the UCO staff occurred to collect the data requested. All data gathered was anonymized to keep the strict anonymity of all subjects contained in the archival data. Data were prepared for analysis, reviewed, and analyzed using an independent *t* test and a chi-square.

Population and Sample

A sample of full-time UCO freshmen students from Fall 2018 and Spring 2019 cohorts was the study population. The sample was drawn from active STLR program students and students who were not involved in the STLR program, making the sample two categorical groups. Staff at UCO collaborated to provide archival data to fit the research criteria. Archival

data included student retention and cumulative grade point averages of both students in the STLR program and students not instructed in the STLR program.

The program director for the STLR program at UCO was consulted to gain archival data from the UCO STLR program. An email was sent to the STLR program director requesting archival data from the UCO STLR program (see Appendix A). A priori sample size was calculated using G Power and resulted in a sample size of 210. Faul et al. (2007) explained G Power is a proven statistical power program for the statistical sciences and should be used before running the data analysis in research.

Instrumentation

The instrumentation used for the research was archival data. In ex post facto research, the phenomenon research has already occurred, and the collection of archival data was used to navigate the study's outcome (Martirosyan et al., 2015). Data were collected from Fall 2018 and Spring 2019 cohorts at UCO on first-year full-time freshmen students. Collected data were considered valid and reliable. The UCO STLR program is federally funded and required to collect valid and reliable data.

Data Collection

Archival data were collected from the UCO STLR program. The program had collected data from the Fall 2018 and Spring 2019 cohorts of first-year full-time freshmen students. Data collection included dependent variables, which were student academic performance and student retention in the study. Storage and transfer of data occurred on Microsoft Office programs, including Excel. All data was anonymized and maintained in a password-protected file on a private computer. Confidentiality of the data occurred by strict access to the personal computer

and the electronic protected file. After 3 years, the data will be destroyed (U.S. Department of Health and Human Services, 2018).

On January 16, 2021, a permission letter was sent to UCO IRB (see Appendix A) to approve archival data collection from the STLR program to complete the study. Consent was given by UCO IRB on January 19, 2021, and advised permission was given to collect archival data (see Appendix B) from previous research conducted. Contact was made with UCO IRB again on January 25, 2021, and reported the original data collection granted still stood for this study (see Appendix C). The data collection materialized with the approval of ACE IRB to continue the proposed research.

Data Preparation

Data were prepared for statistical analysis with Microsoft Excel. Two columns separated the independent variables of students instructed with STLR and those not taught with STLR. The independent variable consisted of student STLR program participation. All columns were checked to ensure the accuracy of the data collected, and no mistakes occurred. Two separate sheets were produced for the dependent variables. Dependent variables consisted of academic performance and retention. Data cleaning was performed to ensure accurate data analysis occurred. Upon completion of the cleaning of data, the analysis happened.

Data Analysis

Once data were prepared, the analysis occurred with the independent statistical two-tailed t test. Assumptions for the independent statistical t test are based on one independent variable. The independent variable for the tests was STLR program participation. Students who have participated in the program and students who have not participated were the categorical groups. The independent statistical t test is concerned with a difference, constituting a nondirectional

two-tailed test (DeMoulin & Kritsonis, 2009). The study investigated if a statistically significant difference existed between students' academic performance and retention, the two dependent variables. Academic achievement was measured by the cumulative GPA collected from the students active in STLR and students who were not involved in STLR. These GPAs were compared using a *t* test. Retention was calculated by the number of students recorded as both students who were retained in the fall semester to the spring semester, active in STLR, and students who were not involved in the STLR program. A chi-square test was used to examine retention due to the dichotomous nature of the variable. Chi-square tests are utilized to determine if differences exist between binomial proportions (Laerd Statistics, 2017a).

Data analysis started with a Microsoft Excel spreadsheet. Two columns were formed which listed the independent variables of STLR participation and non-STLR participation. Sheet one contained the student GPA, and sheet two contained the student retention. The spreadsheets were imported into IBM SPSS Statistical Grad Pack Version 27 software for statistical analysis.

Data analysis was conducted with the SPSS program, followed by comparing means and an independent samples *t* test. The selection of analysis was chosen, followed by the independent samples *t* test and by defined groups. GPA was placed in the test variable, and STLR/non-STLR were selected in the group variables. Chi-square was used to examine retention due to the dichotomous nature of the variable. Chi-square tests are utilized to determine if differences exist between binomial proportions (Laerd Statistics, 2017a). Analysis occurred, and the output was generated and is described in further detail in Chapter 4.

The assumption of homogeneity of variance did not occur throughout the research. The homogeneity of variance assumes the groups are equal in the study (Mara & Cribbie, 2018). Leven's test occurred through SPSS software to test for the homogeneity of variance. If there

were violations of the assumptions, Welch's *t* test would have happened as a default program in SPSS and is considered reliable to produce valid statistical results (Delacre et al., 2017). Welch's *t* test occurred for the independent statistical *t* test in the study. Sufficient sample size is a basic assumption that must be met to utilize a chi-square test (Laerd Statistics, 2017a). Failing to meet the assumption of an adequate sample size could result in a Type II error. For a chi-square test to yield accurate results, cell counts must be equal to or greater than five. All samples used in the study included cell counts beyond that threshold.

Reliability and Validity

Validity is confirmed when a study is conducted as designed and measures what it is expected to measure (Cortina, 2020). No perceived threats to external validity existed as archival data were collected for the research. Construct validity in quantitative studies occurs based on how the theory is operationalized into a reality (Afzal, 2017). The study maintained content validity through the research as internal validity was secured. Internal validity received threats by the testing factors and instrumentation. Testing factors were controlled by following a 7-step process to hypotheses testing. The 7-step process advised by DeMoulin and Kritsonis (2009) was described as the following: (a) formulate a hypothesis, (b) establish an alpha level, (c) determine appropriate sample distribution, (d) develop a decision rule, (e) gather data and perform the proper statistical procedure, (f) summarize strategies based on the decision rule, and (g) draw logical conclusions from results.

Strict inclusion criteria materialized to enhance internal validity. Strict inclusion occurs when the target population is defined and meets the intended research (Patino & Ferreira, 2018). The study's target population was defined as first-year full-time freshmen students who have

participated in the STLR program and students who have not been instructed with transformative learning or non-STLR students.

Threats to reliability were minimal with the ex post facto research design due to the archival data being investigated, and no control is maintained over the variables. The STLR program staff ensured the data released had been thoroughly checked, were valid, and reliable for the study's intended purpose to maintain reliability. Staff in the STLR are trained to collect data at UCO following IRB procedures. Variables in the study were the student's academic performance and retention. In ex post facto research, the variables have already been established, and the researcher cannot control variables (Davis et al., 2016).

Ethical Procedures

Training in ethical procedures occurred in 2016 through the National Institute of Health (NIH) in "Protecting Human Research Participants" (see Appendix D) about legal requirements for human subjects, ethical guidelines, procedures from all institutions involved, and data treatment. Legal requirements were not required due to the collection of archival data. No conflicts of interest occurred as the data collected for the research occurred through archival data collection. Minimal threats to objectivity occurred throughout the study.

Data were obtained, starting with approval from ACE IRB and UCO IRB. Once permission was granted, the data were requested and released from the STLR program staff. The staff had direct control and released the data.

Strict anonymity occurred with the data collection as no personal identifiers were collected with the archival data. The data collected during the research maintained the participants. Confidentiality was achieved by keeping information protected by encryption, password on one computer hard drive with one person access, and locked in a file cabinet. Per

federal guidelines of maintaining archival data during research, the data may be kept securely for a minimum of three years and destroyed after (U.S. Department of Health and Human Services, 2018). The requirements were in line with archival data protection, which conformed to the ACE IRB Handbook and the U.S. federal guidelines on archival data obtained from human subjects.

Chapter Summary

The chapter described how research materialized and followed the stated methodology. A quantitative ex post facto research design occurred with the collection of archival data from UCO. Reliability and validity were maintained throughout the research as no research interferences occurred as depicted with ex post facto research (Davis et al., 2016). The confidentiality of archival data occurred by storage in a safe location and limited access to one person. All ethical requirements in the ACE IRB Handbook (2015) were followed. Research findings are reported in Chapter 4 and depicted through text and tables.

Chapter 4: Results

Since 2014, faculty members at the University of Central Oklahoma (UCO) have employed transformative learning pedagogy. From the inception of the Student Transformative Learning Record (STLR) program, data were collected on the impact of transformative learning pedagogy. Still, little research has indicated if the transformative learning environments impact engagement as indicated by academic achievement and retention compared to traditional learning environments for the undergraduate students at UCO. The study's purpose was to test for statistically significant differences in the academic achievement and retention between students instructed with transformative learning pedagogy and those who are not. Research questions occurred to guide the study. The following research questions guided the study:

Research Question 1: To what extent was there a statistically significant difference in student academic performance as measured by GPA between those who received transformative learning pedagogy versus those who did not?

Research Question 2: To what extent was there a statistically significant difference in student retention between those who received transformative learning pedagogy versus those who did not?

Along with the research questions, the hypotheses were developed to discover if there was a change in the theory:

H₁₀: There was no statistically significant difference in academic performance between treatment and control of those students who have received transformative learning pedagogy versus those who did not.

H1_a: There was a statistically significant difference in academic performance between treatment and control of those students who have received transformative learning pedagogy versus those who did not.

H2₀: There was no statistically significant difference with increased retention between treatment and control of those students who have received transformative learning pedagogy versus those who did not.

H2_a: There was a statistically significant difference with increased retention between treatment and control of those students who have received transformative learning pedagogy versus those who did not.

Chapter 4 begins with an explanation of the data collection. This chapter will discuss the data analysis based on the chosen ex post facto research design. Discussion of the reliability and validity of this chosen design will occur along with the chapter summary.

Data Collection

Data collection occurred with the collection of archival data from the UCO STLR program. The data collected involved first-year full-time freshman undergraduate students in the Fall 2018 and Spring 2019 cohorts. Dependent variables collected were student academic achievement as represented by cumulative grade point averages (GPA) and student retention. A Microsoft Excel document was received from the UCO STLR program, which contained the unmanipulated archival data requested. There was no deviation from the original data collection plan. Still, a delayed collection of the data occurred due to the UCO staff's remote work being implemented during the COVID-19 pandemic.

Data Analysis and Results

Data analysis was conducted using IBM SPSS Statistical Grad Pack Version 27 software.

The independent t test was selected for the data analysis due to the nominal independent and continuous GPA dependent variables. Chi-square was used to examine retention between the first-year freshman undergraduate students from Fall 2018 and Spring 2019 cohorts. Data were cleaned and placed into two columns: the STLR students and the non-STLR students. After the data was put into the columns, it was transferred to SPSS. Group 1 was the STLR students, and Group 2 was the non-STLR students. A random sample from the data was conducted in SPSS to return a sample of 105 students from each independent variable for a total of 210 students as indicated with a priori sample size calculation with G Power software. Statisticians recommend the a priori calculation in G Power software to return the most valid and reliable data analysis based on appropriately setting the medium's effect size at .5 (Faul et al., 2007).

The GPA scale ranged from 1.0 to 4.0, and the retention had values of 1.0 or 2.0. If the students had attended one semester, the students received a one, and if both semesters had been attended, the students received a two. Table 4 and Table 5 both display the samples transferred from SPSS.

Table 4

Samples of Mean GPA

| | STLR versus Non-STLR | N | Mean | Std. deviation | Std. error mean |
|-----|-------------------------|-----|--------|----------------|--------------------|
| GPA | Group 1 | 105 | 2.6030 | 1.16026 | .11323 |
| | Group 2 | 105 | 1.8489 | 1.27957 | .12487 |

Table 5

Samples of Retention

| | STLR versus Non-STLR | N | Number Retained | % |
|-----------|-------------------------|-----|--------------------|------|
| Retention | Group 1 | 105 | 76 | 79.8 |
| | Group 2 | 105 | 46 | 43.3 |

A 95% confidence value was selected for the independent samples *t* test. Data analysis from the GPA of the students who attended the STLR program and those who did not participate in STLR revealed a statistically significant difference between the variances from .037, which was less than the .05 *p* value. Unequal variance is computed in Levene’s test in SPSS data output, and based on the result, and data should be read from the second row labeled as equal variances not assumed. The second row of data were considered Welch’s *t* test. Welch’s *t* test results revealed a statistically significant difference of .000013 from the stated *p* value of .05, which supports rejecting the null hypothesis and accepts the alternative hypothesis H1_a. Table 6 displays the data analysis conducted on GPA rendered from SPSS.

Table 6

Independent t Test on STLR and Non-STLR GPA Results

| | | Levene’s test | | <i>t</i> test for equality of means | | |
|--------------------------|-----------------------------|-----------------|-----------------------|-------------------------------------|-----------|-----------------|
| | | <i>F</i> | Sig. | <i>t</i> | <i>df</i> | Sig. (2 tailed) |
| GPA STLR versus Non-STLR | Equal variances assumed | 4.395 | .037 | 4.474 | 208 | .000013 |
| | Equal variances not assumed | | | 4.474 | 206.038 | .000013 |
| | | Mean difference | Std. error difference | Lower | Upper | |
| GPA STLR versus Non-STLR | Equal variances assumed | .75419 | .16857 | .42187 | 1.08651 | |
| | Equal variances not assumed | .75419 | .16857 | .42187 | 1.08651 | |

Data analysis was conducted on the retention of the STLR students and non-STLR students in SPSS. A chi-square test of homogeneity was run, with adequate sample sizes. Two multinomial probability distributions were not equal in the population, $\chi^2(1) = 17.604$, $p < .001$. Of the 210 students in the overall sample, 105 experienced transformative learning. Of these 105

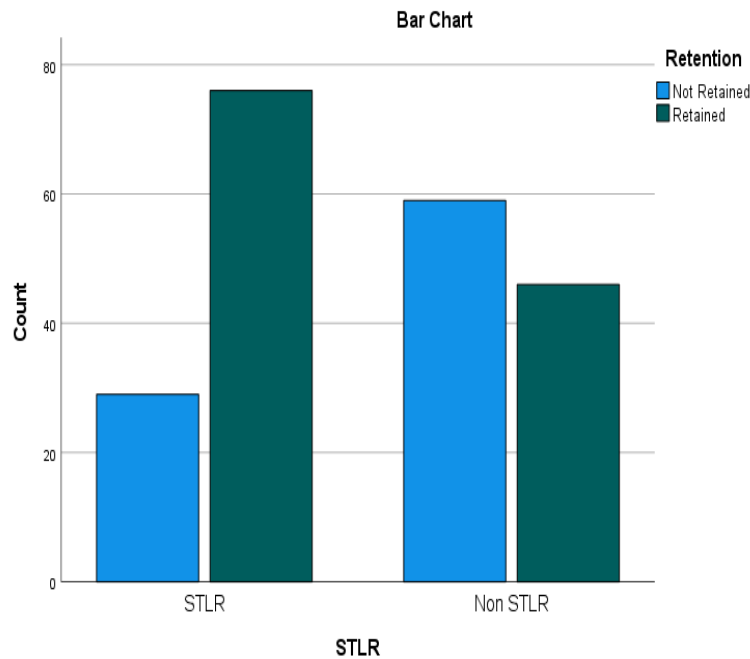
students, 76 (79.8%) were retained from one semester to the next. By comparison, 46 (48.3%) of the 105 students who did not experience transformative learning were retained. Proportionally, more students who experienced transformative learning were retained at a significantly higher rate ($p < .001$). The null hypothesis (H_2_0) was therefore rejected. Table 7 displays the data analysis produced on retention and the results from SPSS.

Table 7
Crosstabulation of STLR and Non-STLR Retention

| | <i>Not Retained</i> | <i>Retained</i> |
|----------|---------------------|-----------------|
| STLR | 29 (30.45%) | 76 (79.8%) |
| Non-STLR | 59 (61.95%) | 46 (48.3%) |

Note. Adjusted residuals appear in parentheses below observed frequencies.

The chi-square statistical test revealed a significant difference in retention between those 105 students who had been instructed with transformative pedagogies in the STLR program and those 105 students who had not. As part of the data analysis, a bar chart was generated, which shows the STLR attended students to have 29 who attended one semester, and 76 attended both semesters. For the non-STLR students, 59 had attended one semester, and 46 students had attended both semesters. The bar chart in Figure 2 shows a visualization of the data output on retention produced by SPSS.

Figure 2*Bar Chart of STLR and Non-STLR Retention*

Reliability and Validity

The threats to reliability were reduced by having no control over the variables. All data obtained transpired from the UCO STLR program staff trained to collect and report data. There is no control over the ex post facto research variables due to historical or already-collected data (Davis et al., 2016). Validity was maintained throughout the study as all data was obtained with the intended purpose of the content investigated on transformative learning versus nontransformative learning. Internal validity was controlled by following the 7-step process described by DeMoulin and Kritsonis (2009) for hypotheses testing and not deviating from the process.

Before the data analysis was produced, the a priori sample was calculated again using G Power software, which renders an accurate sample size test in SPSS and is recommended by statisticians before performing data analysis (Faul et al., 2007). A random sample from data

collected on GPA and retention were produced with SPSS as SPSS is considered reliable software for creating valid statistical analysis results. Due to the unequal variances with the GPA data, Welch's *t* test transpired for the analysis. Welch's *t* test is considered reliable compared to the student's *t* test as Type 1 errors are controlled due to less dependence upon assumptions, unlike the student *t* test (Delacre et al., 2017). SPSS runs both tests by default as both *t* tests are considered reliable for producing valid data analysis results. Sufficient sample size was met to utilize a chi-square test minimizing Type II error (Laerd Statistics, 2017a).

Chapter Summary

Chapter 4 contained data collection, data analysis, results, and evidence of reliability and validity. Data collection included archival data from the UCO STLR program. The data analysis was conducted with SPSS statistical software. Statistically significant differences between the GPA data and retention of the students who had been instructed with transformative learning pedagogies and those who had not were revealed in this chapter. The statistically significant differences allowed for the null hypotheses to be rejected based on the findings of this research, and both alternative hypotheses were accepted. Findings, interpretations, conclusions, limitations, recommendations, and implications for leadership are presented in Chapter 5.

Chapter 5: Discussion and Conclusion

Chapter 5 begins with a discussion of the research findings, interpretations, and conclusions. Recommendations and implications for future research also occur in Chapter 5. The overall summary of the research findings, interpretations, and conclusions concludes the chapter.

The study's purpose was to test for statistically significant differences in the academic achievement and retention between students instructed with transformative learning pedagogy and those who were not. University of Central Oklahoma (UCO) staff members collected data for undergraduate students who participate in the Student Transformative Learning Record (STLR) program. This study occurred with a shortage of empirical research on how transformative learning raises engagement by academic achievement and retention in the classroom.

The study may benefit UCO leaders and other institutions interested in transformative learning pedagogy by narrowing this literature gap. An ex post facto research design was implemented to obtain archival data from the UCO STLR program on student academic achievement/grade point average (GPA) and retention. Archival data were tested for statistically significant differences in students instructed with transformative learning pedagogies and those who were not. A nonbias research approach helped provide future students, faculty members, and staff members at UCO. Advancement of knowledge occurred through specific research on the outcomes of the STLR program. Sharing of results with other higher education leaders with interest in transformative learning pedagogy can occur.

Findings, Interpretations, and Conclusions

To answer Research Question 1: To what extent was there a statistically significant difference in student academic performance as measured by cumulative GPA between those who

received transformative learning pedagogy versus those who did not? The findings of the data analysis revealed a statistically significant difference between the student samples of GPA. Students who had been instructed with transformative learning pedagogies obtained a higher GPA. Students who had not been engaged with transformative learning pedagogies had a lower GPA.

Research supported McRae's (2015) work on learning research based on the multifaceted learning environments the STLR program offered students at UCO. McRae found how students immersed in work interrogated learning environments obtained transformative higher engagement levels. Student engagement increased and allowed for the students to become more involved with what was being instructed. Ngui et al. (2017) discovered how students who are given service-learning projects have higher engagement levels due to having a sense of community ownership. As mirrored in the workplace, transformative learning sets the student engagement stage and develops vital workplace skills to help students sustain college graduation.

To answer Research Question 2: To what extent was there a statistically significant difference in student retention between those who received transformative learning pedagogy versus those who did not? The data analysis revealed a statistically significant difference between the student samples of retention. Students taught with transformative learning pedagogies had higher retention for the first entire semester as undergraduate freshman students. Research supported Langendyk et al. (2016) study on how transformative learning occurred in students when communication was open in the learning environment and caused the students to become more engaged with what knowledge was obtained. Students in the STLR program gained transformative learning knowledge by being exposed to learning where engagement was

fostered. Transformative learning allowed students to engage with one another and open dialogue with the instructor (Zyngier, 2017).

Limitations

Transformative learning pedagogy being implemented in the STLR program at UCO inspired the research's focus to reveal if students in the STLR program had increased engagement levels from being exposed to transformative learning. Data collection and analysis occurred with slight delays due to the COVID-19 pandemic, which caused the campus employees to have telework schedules. This caused some time constraints to obtain the data due to the employees not having access to the secure data stored on campus servers. Another limitation occurred due to the study being limited to the UCO campus. Future studies should include other institutions that instruct with transformative learning pedagogies. Even though there were limitations, the results and conclusions may not benefit all higher education institutions, but the institutions interested in transformative learning curricula or similar transformative learning programs may benefit.

Recommendations

The research revolved around transformative learning. Students instructed with transformative learning pedagogies had higher engagement as indicated by higher academic achievement and retention when compared to students who had not been taught with transformative learning pedagogy. Future studies focused on transformative learning in higher education, and its impact on student engagement could occur with a similar STLR program as UCO fosters. Students are tracked by attendance, student reflective journals, GPA, and retention. Higher education institutions interested in transformative learning could promote engagement in the classroom based on using these strategies. As this study occurred with undergraduate

students, advanced degree students could be studied to render the findings. As the study occurred at one institution, multiple data collection points would provide more information for the body of knowledge on the efficacy of transformative learning theory.

Universities could also benefit from replicating the UCO policies and practices that supported the STLR program's success. The STLR program was a beacon of knowledge obtainment for students, as the results from the data analysis pointed out participation in STLR increased academic performance and retention for students. UCO's STLR program could be an impetus for other colleges and universities to establish a similar program. Students were collectively enabled to take on self-directed learning and collaborate with others, including the faculty and staff members. The self-direction of knowledge encouraged high engagement as the students worked toward completing projects and achieving higher academic achievements in the first and second semesters as first-year students.

Transformative learning pedagogy could benefit the workplace too. The tasks given to students in the STLR program have similarities to projects tasked in the workforce. Transformative learning and the attainment of real-world knowledge could occur in different learning environments, not limited to only educational settings. No limitation should appear on what transformative learning can provide in education or other learning environments.

Future research can be conducted on transformative learning using qualitative, quantitative, or mixed methods research. The research could expand to other cohorts in academia, which include graduate programs and doctoral programs. Unless the study occurs on the transformative learning environment phenomenon, no added knowledge in transformative learning may occur.

Implications for Leadership

Higher education leaders can expand on the practice's success by integrating transformative learning pedagogies in the classroom. Data analysis from the study indicated that students trained in the STLR program at UCO with transformative learning pedagogies had higher engagement levels by a statistically significant difference in GPA and retention. The literature's addition narrows the gap between research on how transformative learning pedagogy impacts classroom engagement development.

Students in the STLR program had more exposure to active learning, such as projects and research, not typically assigned in traditional classrooms. With active learning, transformative learning experiences materialize. Transformative learning provides critical self-reflection moments into the learning plans, enabling the students to develop knowledge transformation. Students immersed in active learning projects have robust transformative learning experiences (Christie et al., 2015).

The research unveiled how transformative learning inspires engagement to occur and knowledge obtained in different learning environments. The students in STLR participated in service-learning, community-based education, and global awareness learning. A traditional classroom setting is not the only location where students can learn. Students who participated in the STLR program gained real-world knowledge from active learning environments where research transpired, teamwork occurred, and students focused on real-world projects and problems. Based on the research's findings, student engagement can be increased by implementing transformative learning pedagogies. On university campuses, staff and students would benefit from furthering the practice of transformative learning.

Conclusion

A shortage of data existed in the literature on this subject. An ex post facto research design transpired to discover if students who were instructed with transformative learning pedagogy had statistically significant higher engagement levels based on their academic achievement and retention. Rejections of the null hypotheses and the acceptance of the alternative hypotheses supported students who were instructed with transformative learning pedagogies have increased classroom engagement as indicated by higher academic achievement and retention. Replication can occur with the findings of this study at other higher education campuses who have a vested interest in transformative learning. This study furthers research on transformative learning and serves as a guide for future educators.

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Appendix A

Letter to UCO IRB to Collect Data



1/16/2021

Permission to Collect Data

Dear UCO IRB:

My name is Timothy Ellis, and I am a doctoral candidate at the American College of Education (ACE) writing to request permission to receive archival data from the STLR program. This information will be used for my dissertation research related to Increased Student Engagement with Transformative Learning Pedagogy: An Ex Post Facto Study. The study's purpose is to test for statistically significant differences in how students instructed with transformative learning pedagogy have increased engagement or do not have increased engagement.

Principal Investigator:

Timothy Ellis

XXX@gmail.com or XXX@my.ace.edu

Phone: XXX-XXX-XXXX

Dissertation Chair:

Dr. Elizabeth Johnson

XXX@ace.edu

Thank you for your attention to this issue and your prompt response. I appreciate your time and consideration of my request.

Regards,

Timothy Ellis

Appendix B**Approval Emails by UCO IRB**

Tim Ellis <XXX@gmail.com> Sat, Jan 16, 2021, at 1:36 PM
To: IRB <irb@uco.edu>, XXX@my.ace.edu

Hello,

Please see the attached request to collect data.

Thank you,

Timothy Ellis

IRB <IRB@uco.edu> Sun, Jan 17, 2021, at 4:12 PM
To: Tim Ellis <XXX@gmail.com>

Haven't we already approved you to recruit for this project?

Cheers,

XXXXXX

Tim Ellis <XXX@gmail.com> Sun, Jan 17, 2021, at 5:52 PM
To: IRB <IRB@uco.edu>

XXXXXX,

I have to go back through my IRB to get another approval for a study that has changed to an Ex Post Facto one. Essentially, I am still collecting data from the STLR program, but it is something they require. I would appreciate an email just advising I have the approval to collect archival data from STLR.

Thanks,

Tim

IRB <IRB@uco.edu> Tue, Jan 19, 2021, at 11:32 AM
To: Tim Ellis <XXX@gmail.com>

For our position, the letter that was previously sent covers this effort.

Tim Ellis <XXX@gmail.com> Tue, Jan 19, 2021 at 11:46 AM
To: IRB IRB@uco.edu

Thank you!

Tim Ellis <XXX@gmail.com> Mon, Jan 25, 2021 at 5:09 PM

To: IRB <irb@uco.edu>

Bcc: Elizabeth Johnson XXX@ace.edu

XXXXXX,

I know you said I was good to go on the last email, but to pass my IRB, I will need an approval letter with the new study reflected on it advising the approval, so it is more official. I appreciate your time and dedication to my research.

Thanks,

Tim

IRB <IRB@uco.edu> Tue, Jan 26, 2021, at 9:31 AM

To: Tim Ellis <XXX@gmail.com>

Tim,

That would be the exact same as the letter we already sent, previously the first time. Nothing has changed for us, as we are not the Board of record. We are not approving anything regarding the study, just recruitment. So, the original letter would stand.

Cheers,

XXXXXX

Tim Ellis <XXX@gmail.com> Tue, Jan 26, 2021 at 9:45 AM

To: IRB <IRB@uco.edu>

Copy, thanks!

Appendix C

Original Permission Letter Received from UCO IRB



13 March 2019

STUDY TITLE: Real-World Knowledge Gained from Transformative Learning Pedagogy in Higher Education at the University of Central Oklahoma: A Mixed Methods Study

Timothy Ellis
Elizabeth Johnson
American College of Education

Dear Mr. Ellis:

The University of Central Oklahoma Institutional Review Board has reviewed your submission materials and accepts the decision made by the Institutional Review Board at the American College of Education (ACE) in regards to IRB Application titled above.

This approval for recruitment at UCO is granted with the understanding that the the research will be conducted in a manner consistent with the regulatory requirements in section 45 CFR 46, and under the policies and procedures as outlined in the Standard Operating Procedures of the ACE Institutional Review Board, as they are the board of record.

If there are any modifications to the application, adverse events, or allegations of non-compliance, the UCO IRB must be notified.

If you have any questions, please do not hesitate to contact us. We wish you all the best with your research.

Sincerely,

XXXXXXXX XXXXXX, Ph.D.
Chair, Institutional Review Board
XXX-XXX-XXX
irb@uco.edu

Appendix D

National Institute of Health Certificate of Training

