DISSERTATION

TEACHING FOR TRANSFER: EXPOSURE, EXPERIENCES & INSTRUCTIONAL BEHAVIOR OF INSTRUCTORS IN HIGHER EDUCATION

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ABSTRACT

TEACHING FOR TRANSFER: EXPOSURE, EXPERIENCES, & INSTRUCTIONAL BEHAVIOR OF INSTRUCTORS IN HIGHER EDUCATION

Learning transfer, the ability to apply learning from one situation to another, is expected of students and underlies the entire structure in higher education. Yet, many instructors in higher education do not know what learning transfer is or how to accomplish it. In an effort to understand how instructors in higher education came to teach for transfer, this study investigated the exposure, experiences, and instructional behavior of university and college instructors who self-identified as those who "teach for transfer." The purpose of this study was to understand the context and circumstances of instructor's experiences surrounding teaching for transfer, and how those experiences ultimately affected their instructional behavior.

Using a basic qualitative study, the researcher recruited instructors in higher education who self-identified as those who teach for transfer in a university or college setting to take part in semi-structured interviews. Six major themes emerged from the analysis including leaning transfer experiences as students, role modeling as a teaching assistant, formalized content experiences, improving teaching for transfer, barriers to teaching for transfer, and unfamiliar with learning transfer terminology. The findings highlight how experiences affected instructional behavior of those teach for transfer. The study can help academics understand the link between experiences and instructional behaviors and address the barriers present which affect teaching for transfer.

TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION

Introduction

In institutions of higher education, the use of effective pedagogical course instruction supports higher quality outcomes for students (Henard & Roseveare, 2012) and one of the ways to utilize effective pedagogical instruction is to foster learning transfer outcomes. “Learning transfer, simply stated, is the ability of a learner to apply skills and knowledge learned in one situation or setting to another” (Kaiser et al., 2013, p. 1). Learning transfer is a worthwhile goal; students should utilize what they have learned throughout their coursework in their subsequent education, careers, and personal lives (Jensen, et al., 2019). Learning transfer is an important issue for faculty to consider because learning transfer underlies the entire educational system and universities are predicated on the belief that students will be able to apply what they learned in the classroom to the world (Lightner et al., 2008). Sousa (2017) in discussing the role teachers play in the transfer process stated, “A review of any curriculum reveals that transfer is an integral component and expectation of the learning process” (p. 156).

However, despite the critical need for learning transfer outcomes of students in higher education, many instructors are unaware of what the nature of learning transfer entails and which intentional instructional practices support transfer friendly instruction (Cox, 1997; Fink, 2012; Halpern & Hakel, 2003; Scharff et al., 2017). Subsequently, instructors in higher education who do not foster learning transfer outcomes may lead to poor learning transfer outcomes by students.

Problem Background

Research regarding learning transfer has been documented in education for well over a century (Thorndike & Woodsworth, 1901). Researchers and scholars have referred to learning transfer as a foundational concept underlying all education and the ultimate goal of teaching and

learning (Bransford & Schwartz, 1999; Lightner et al., 2008; Marini & Genereux, 1995; McKeough et al., 1995). However, despite many institutions, practitioners, and researchers emphasizing the importance of learning transfer for students, research has indicated many instructors in higher education do not intentionally utilize transfer friendly instruction (Cox, 1997; Fink, 2012; Halpern & Hakel, 2003; Scharff et al., 2017).

Thus, there is a troubling and serious disconnect between the expectation of learning transfer as an outcome by students in higher education and its intentional practice and facilitation by instructors (Jansen et al., 2019) and although faculty complain about the lack of transfer by students, few have taken positive steps to make transfer more likely to occur (Halpern & Hakel, 2005). This is particularly troubling given previous research has extensively reported on the benefit of transfer friendly instructional techniques and strategies to foster learning transfer, including purposeful reflection, rehearsal, scaffolding, and explicit abstraction among others (Billing, 2007; Hajian, 2019; Hung, 2013; Kaiser et al., 2013; Perkins & Salomon, 1987; Roumell, 2018; Sousa, 2017; Wiggins, 2012).

A study by Scharff et al., (2017) sought to determine the pervasiveness of learning transfer in higher education by asking instructors to correctly define learning transfer. Nearly 50% of the instructors either had “no idea” what learning transfer was or were mistaken on the correct definition. Learning transfer by students is unlikely to occur when instructors in higher education do not know the concept or know how to accomplish it.

One of the reasons for a dearth of understanding of learning transfer could be a lack of learning experiences of instructors. According to Fink (2012) only 10 to 15 percent of college instructors in higher education receive formal instruction on college teaching and even less of that instruction is focused on learning transfer. Davis and Arend (2013) stated “Two-thirds of all

institutions of higher education in the United States still do not have substantial, meaningful faculty development programs that can provide in-service programs on teaching for professors" (p. x). Thus, when instructors in higher education are not exposed to concepts of learning transfer, they may not effectively teach with transfer friendly instruction.Very few of the formal training college professors receive focuses on how to incorporate transfer strategies into their classrooms (Halpern & Hakel, 2003). Halpern and Hakel continued:

> Virtually every college teacher consists of in-depth study in an academic discipline: chemistry professors study advanced chemistry, historians study historical methods and periods, and so on. Very little, if any, of our formal training addresses topics like adult learning, memory, or transfer of learning. And these observations are just as applicable to the cognitive, organizational, and educational psychologists who teach topics like principles of learning and performing, or evidence-based decision-making. We have found precious little evidence that content experts in the learning sciences actually apply the principles they teach in their own classrooms (p. 37).

If teachers are unfamiliar with the concept of learning transfer, and do not know how to make instruction transfer friendly, there is little chance these concepts will pervade throughout their instruction. As Kaiser and Foley (2013) stated, "One of the most basic barriers to transfer is overlooking it in the design and facilitation phases" (p. 9). Halpern and Hakel (2005) were even more direct when they stated, "very few faculty ever teach for transfer, expecting it to happen magically, oblivious to the fact that they can make transfer more likely to occur by the way they direct learning activities" (p. 361). Halpern and Hakel continued: "We urge instructors to teach for transfer if they want it to occur" (p. 365).

While some researchers have emphasized the need for learning transfer to be more

recognizable by instructors in higher education, some have suggested the lack of explicit expectation of learning transfer by instructors in higher education has led students to deemphasize learning transfer outcomes (Scharff et al., 2017). Because of the lack of focus on learning transfer outcomes by instructors in higher education, many students may focus on term-based assessments and summative grades instead (Wyatt et al., 2005). Thus, learning transfer is often not a goal of students in higher education. A study by Scharff et al., (2017) asked students about their primary learning goal in their higher education coursework. Fifty-five percent of first year undergraduate students indicated their primary goal was to pass their next test. The authors did not express surprise given this result and wrote, "if one spends little time explicitly thinking about learning transfer, it is unlikely that one would put much intentional effort into developing it as an instructor or notice efforts to develop it as a student" (p. 9). This orientation is problematic because students are more concerned with passing course assessments instead of realizing how their learning can and will be applied in contexts beyond the classroom. Thus, students are not as likely to make learning transfer a reality if their instructors are not explicitly mentioning it.

Similarly, Roumell (2018) stated a common theme among instructors is adult learners should self-direct the transfer of learning. This assumption may be responsible for a significant loss of transfer between initial learning and future transfer. Many educators in higher education assume students learn as a by-product of the curriculum sequencing, integrative learning, and a general accruement of learning outcomes from a collection of university courses and that transfer that occurs is somewhat incidental rather than an intentional outcome (Scharff et al., 2017). This assumption affects the degree to which learning transfer is emphasized as an important course outcome.

In higher education, professors' approach to instruction is influenced by their conceptions of teaching and the manner in which they instruct is influenced by their previous experiences (Postareff et al., 2007). Studying the experiences of instructors in higher education who already know about and teach for transfer could potentially help researchers understand the link between their experiences in learning how to teach for transfer and how those experiences affected their decision to incorporate friendly instruction to the courses they teach. Little is known about how those who teach for transfer in higher education came to know about the concept. Although outside of higher education, a study conducted by Hutchins et al., (2010) examined the methods training professionals use to learn about learning transfer practices. The survey results suggested professionals sought knowledge from informal experiences more often than formal ones. When the researchers followed up by asking participants about the connection between their learning experience and why these learning sources were chosen to inform their practice, participants indicated individual motivation, interest, accessibility, and source quality as primary factors affecting the application of their experience to their training. These factors, or lack thereof, may affect how instructors in higher education come to know about and teach for transfer.

While the learning experiences of those who teach for transfer in higher education is not well understood, it is also unclear if or how their experiences are affecting their instructional behavior. It is possible instructors are receiving education on how to teach for transfer, but they are not utilizing these instructional techniques in the courses they teach. Instructors may show reluctance to change their instruction as a result of receiving formal, nonformal, or informal education for a variety of reasons.

Significance of the Problem

Students often struggle to transfer what they have learned beyond their courses and when

expected or assumed learning transfer does not take place, it is a major problem in regard to learning outcomes for students (Halpern & Hakel, 2003; Larsen-Freeman, 2013; Sousa, 2017). Despite the emphasis placed on transfer outcomes by researchers, studies suggest students' ability to apply knowledge to new situations is limited. When students do not retain or apply their learning it results in learning scrap (Berk, 2008). The absence of transfer friendly instruction is more likely to result in learning scrap by students (Halpern & Hakel, 2003).

Research into learning and learning scrap has found significant problems regarding learning transfer outcomes by students. Sousa (2017) stated "70 to 90 percent of new learning is forgotten within 18 to 24 hours after the lesson" (p. 80). According to Silverman (2012), learners have forgotten 90% of learning content after a year, posing a serious problem in regard to learning transfer. Schooler (1989) in searching for evidence of transfer wrote "the question for which we do have some empirical answer has to do with how much generalizable cognitive training is from one subject area to another. As of now, the answer is not very much" (p. 11). Haskell (2001) stated, "despite the importance of transfer of learning, research findings over the past nine decades clearly show that as individuals, and as educational institutions, we have failed to achieve transfer of learning on any significant level" (xiii). A study of transfer by Gick and Holyoak (1983) found students could not effectively utilize what was learned in one scenario to solve a similar scenario immediately thereafter.

When instructors in higher education fail to incorporate transfer friendly instruction, domain specific content, as well as broad skills, may suffer. Scharff et al., (2017) stated transfer friendly instruction supports student outcomes including employability and an orientation to lifelong learning. Not only will domain specific transfer suffer (when students are expected to develop a particular skill) but thinking skills, teamwork, approaches to learning by students may

suffer as well (Scharff et al.).

However, when instructors make an intentional effort to instruct with learning transfer outcomes in mind, students can improve their transfer. A meta-analysis conducted by Billing (2007) concluded learning transfer was possible for students to achieve if certain instructional conditions were met including proper motivation, requiring meta-cognition assignments by students, placing learning in context, and using brain friendly instruction. Hajian (2019) stated one way to minimize the poor learning transfer outcomes is for instructors to teach for transfer. Instructors can degrade learning scrap and poor learning transfer outcomes by students by teaching for transfer. However, previous literature has suggested instructors in higher education are not well versed in how to teach for transfer.

Purpose Statement

Understanding the connection between learning experiences and instructional behavior is a crucial first step in addressing the dearth of transfer friendly instruction in higher education. Previous research has failed to explore the experiences of instructors who know about and teach for transfer in the courses they instruct in higher education. Specifically, research failed to understand their exposure to transfer friendly instruction, what formal, non-formal, and informal experiences they had, and how their experiences affected their instructional behavior to teach for transfer. Understanding the experiences of instructors in higher education who do teach for transfer could help researchers understand the connection between their experiences and the subsequent decision to teach for transfer.

Additional research into these areas cannot be completed until researchers first understand the link between learning experiences and the decision to teach for transfer. After this is understood, further research may explore how to expose instructors in higher education to

teach for transfer, how differing learning experiences are regarded by instructors, and how learning experiences affect instructional behavior. In turn, this could help to increase the prevalence of learning transfer in higher education by helping stakeholders know the important factors in getting instructors to teach for transfer. The increased use of transfer friendly instruction by instructors in higher education could reduce rates of learning scrap and result in better transfer outcomes for students.

Research Questions

1. How did instructors first come to know about the concept of learning transfer?
2. What experiences did instructors in higher education have in learning about learning transfer? How did they regard this instruction?
3. Did the experiences of instructors affect their decision to incorporate transfer friendly instruction to the courses they teach?
    a. If so, why and how?
    b. If not, what encouraged them to implement transfer friendly instruction?

Definitions of Terms

Community of practice: a "commitment to the domain, and therefore a shared competence that distinguished members from other people" (Wenger, 2011, p.1).

Far transfer: Occurs when the original and new situations are dissimilar (Kaiser et al., 2013).

Formal learning: Formal learning is defined as structured learning that takes place 'off the job' and outside of the working environment, typically in classroom-based formal educational settings (Marsick & Watkins, 2001).

Informal learning: non structured learning outcomes which can occur intentionally or

unintentionally (Hutchins et al., 2010).

Learning: "Learning can be broadly defined as any process that in living organisms leads to permanent capacity change and which is not solely due to biological maturation or ageing" (Illeris, 2017, p.3).

Learning Transfer: Consisting of learning, retention, and generalizability (Baldwin & Ford, 1988), learning transfer is the ability of a learner to apply skills and knowledge learning in one situation or setting to another (Kaiser et al., 2013).

Learning transfer strategy: the intentional instructional choice to foster or aid the learner in applying skills and knowledge learned in one situation or setting to another (Kaiser et al., 2013).

Near transfer: Refers to when a new situation is closely similar to the original learning situation (Kaiser et al., 2013).

Non-formal learning: "any organized, systematic, educational activity carried on outside the framework of the formal system to provide select types of learning to particular subgroups in the population" (Nelson et al., 2006, p. 252).

Self-directed learning: Self-directed learning is a process in which individuals take the initiative to diagnose learning needs, set goals for meeting those needs, figure out resources and strategies to make learning happen, and evaluate the process (Knowles, 1990).

Transfer friendly instruction: Instruction which aids and supports learning transfer outcomes.

Delimitations

According to Terrell, (2016) “Delimitations are further limitations actively put into place by the researcher in order to control for factors that might affect the results, or to focus more specifically on a problem” (Terrell, 2016, p. 42). The study only collected data from instructors in higher education in a university or college setting. These settings are most likely to represent experiences in higher education. Participants were allowed to self-identify as those who teach for transfer; however, no attempt was made to verify the instruction of participants. Thus, data from participants emanated from their perceptions rather than a verified truth. While attempts were made to gather data from participants in differing academic departments, data cannot be generalized to the entirety of higher education. This study only asked about some aspects of learning transfer and learning transfer related experiences of participants, notably their informal, nonformal, and formal experiences. Thus, the results did not portray a comprehensive reporting of all experiences regarding learning transfer by instructors in higher education.

Researcher's Perspective

The researcher’s background is in training and development and educational sciences, and thus felt particularly suited to examine the aspects of learning transfer from the HRD dominant perspective as well as its potentiality in adult learning courses (including college classrooms). The researcher was exposed to psychology and training emphases on learning, hence an epistemological perspective residing in the post positivist paradigm. However, the researcher has since evolved his perspective away from the rigidity of falsification which is a pillar of post-positivism to a dynamic understanding of human learning from a constructivist perspective. Thus, to determine when “learning has occurred” (or perhaps more aptly, when learning has transferred) is an exercise in understanding the dynamic between person and

learning, and how said amalgamation results in a new co-construction of what is known.

Though the researcher uses many of the axiological, ontological, and epistemological assumptions to form an understanding, he is also keenly aware of how the perspectives of other paradigms have great value and can be used to understand differing issues on the basis of the stated research questions, assuming there is alignment. It is quite a revelation to put on different paradigm hats, to change basic assumptions regarding the world in order to clearly understand a problem. It seems necessary, as a researcher, to utilize these differing paradigms and to become comfortable with the notion of a changing, dynamic viewpoint.

Furthermore, boundaries between the paradigms are necessary to categorize and explain them, and yet, the researcher realizes these boundaries are not permanent, nor are they concrete. Guba (1990), in discussing the lack of concrete definitions regarding differing paradigms, wrote "Some persons view that lack of clear definition as an unfortunate state of affairs. But the researcher believes it is important to leave the term in such a problematic limbo, because it is then possible to reshape it as our understanding of its many implications improves" (p. 17).

CHAPTER TWO: REVIEW OF LITERATURE

Chapter Overview

To understand the pervasiveness of learning transfer friendly instruction in higher education, the researcher reviewed and analyzed the previous literature to answer the following questions:

- What is learning transfer and how is it conceptualized?
- Which theoretical frameworks guide knowledge and meaning making of learning transfer?
- What are the forms of learning transfer?
- What constitutes transfer friendly instruction?
- How do college and university professors learn about learning transfer?
- What form do non-formal, informal, and formal learning experiences of instructors in higher education have?
- What is the gap and why is it important to study the connection between learning experiences and instructional behavior in higher education?

The literature on learning transfer (or similarly interchangeable terms) emerged from a number of disparate sources. To conduct the literature review, the researcher started by defining learning transfer from a variety of contexts including human resources development (HRD), training, adult learning and education, psychology, education, and human performance improvement. Next, common models and theories regarding learning transfer were examined such as Baldwin and Ford's (1988) seminal Model of the Transfer Process. Finally, the researcher focused on studies which examined learning transfer instruction in higher education settings.

Search Process

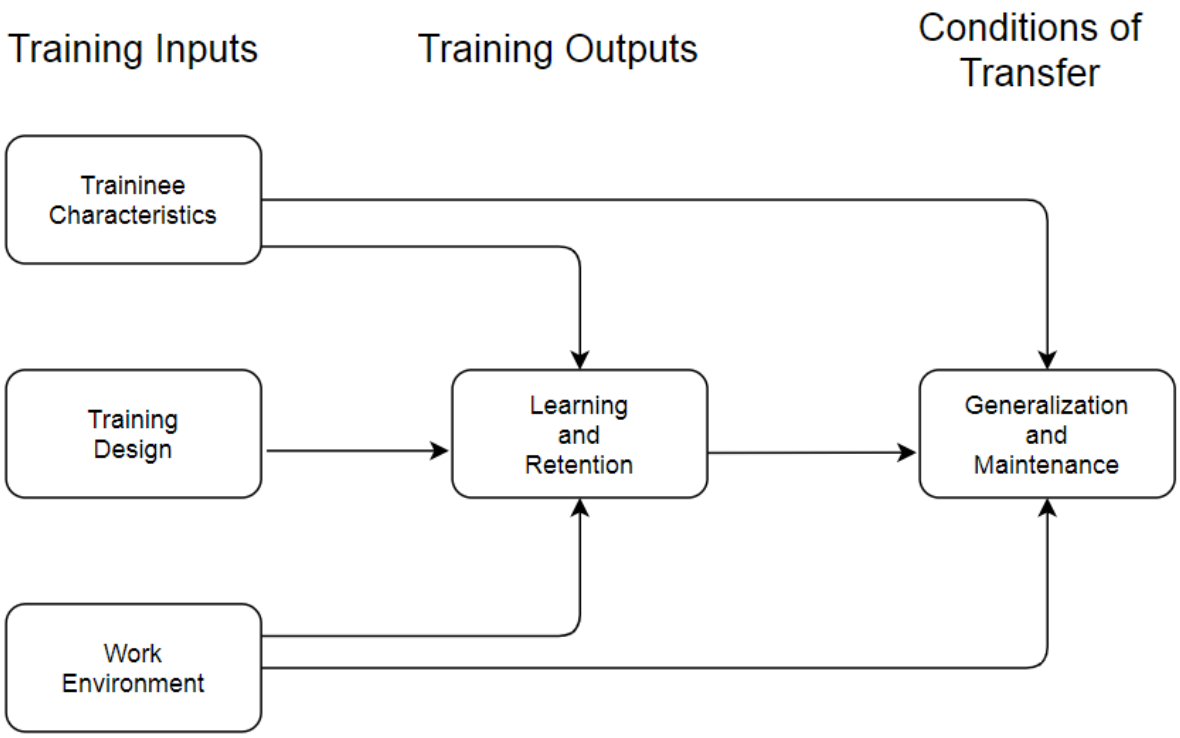
The search processes consisted of reading refereed, peer reviewed journals were selected from online databases including ERIC, Academic Source Premier, Psycinfo, and others. Utilizing key words, the researcher searched for: learning transfer, transfer of learning, transfer, training transfer, and transfer of training for a conceptual understanding of the literature. The researcher searched other terms, such as communities of practice, formal learning, informal learning, continuous professional development, adult learners, and learning. It was important to review the previous literature conducted on learning transfer and closely related concepts to better understand historical context on what has been studied and what remains to be further explored.

What is Learning Transfer?

"Learning transfer, simply stated, is the ability to a learner to apply skills and knowledge learned in one situation or setting to another" (Kaiser et al., 2013, p. 1). Learning transfer can take multiple forms, is frequently associated with adult learners, and is found in a variety of fields. Learning transfer has often been measured in the form of skills transfer from workplace training to the job, especially in the corporate and HRD environments (Merriam & Leahy, 2005). Other instances of learning transfer include transferring learning to the home or to the community (Broad, 1997). Burke and Hutchins (2007) describe learning transfer via three components: learning transfer must be generalized to a lived context, successfully applied to that context, and maintained over a period of time. Barak et al., (2016) described learning transfer as "a process in which the learner is able to function in a new situation, (answer questions, solve problems, carryout assignments), according to what s/he learned in a previous situation" (p. 2).

Components of Learning Transfer

Baldwin and Ford's Model of the Transfer Process (1988) focused on three key components: learning, retention, and application (Figure 1); learning examines whether the student truly learned the content to be transferred, retention asks whether the learning has survived over time, and application discusses whether transfer was applied or not.



Note. This figure was produced by Baldwin and Ford in 1988 summarizing the transfer of training process. Readapted from "Transfer of training: A review and directions for future research," by T. T. Baldwin and K. J. Ford, 1988, *Personnel Psychology*, *41*(1), p. 65.

Figure 1

Baldwin and Ford's Model of the Transfer Process

When learning does not transfer it because one of the three components is missing. The concept of learning transfer is layered, meaning without the first level of learning, the following aspects of retention and application cannot take place and without retention, application fails. Thus, when examining the learning transfer problem post hoc, one can usually examine the sequence of transfer and determine specifically where the process of transfer breaks down. The

preceding delineation may seem asinine, yet a deconstruction of the transfer problem is an important step.

The Role of Learning in Transfer

According to Halpern and Hakel (2005) "Measurement of learning is inherent in any study of transfer because it is the only way we can infer conceptual or other changes in the learner's understanding and behavior" (p. 366). For learning transfer to occur, learning must be retained (the internal psychological process) and applied (learning is constructed by the individual and utilized dynamically in their environments). Though differing paradigms and philosophies emphasize one or the other, an accurate, robust understanding of learning must include both processes if learning is to take place (Illeris, 2018). Understanding how educators make sense of learning is important to understanding how learning is transferred. To understand how well learning has transferred, instructors must first specify the goals of the course which indicate learning is happening and the measures that reflect it (Halpern & Hakel, 2005).

Learning Retention

For learners to be able to transfer learning content, learning must also be retained. Learning retention is measured via how well learning has not been forgotten over time. Learning retention covers simple and complex forms of learning alike and occurs when such declarative knowledge is remembered after initial learning. Thus, a large aspect of learning retention is remembering information, knowledge, and skills over time. Sousa (2017) stated "retention refers to the process whereby long-term memory preserves learning in such a way that it can locate, identify, and retrieve it accurately in the future" (p. 97).

Learning, Retention, and Memory

Students will not retain much information unless they get actively involved in fixing the

information in their memory (Davis & Arend, 2013). An emphasized approach to learning, memory, and recall can help students retain key information by using specific instructional strategies to transfer learning from short term memory and working memory to long term memory.

A critical component to learning transfer is retention, but how must learning be remembered in order for it to be retained? Most researchers equate retention with learning storage in long term memory. Retention can be operationalized as learning stored to long term memory. If a learner can remember a key fact 24 hours after initially learning, it is considered to have reached storage in long term memory (Davis & Arend, 2013). While there are no standard parameters to determine whether something has transferred over time, there is a relationship between retention of learning and learning which has made it to long term memory storage.

When a learner processes information from a lesson, it stays in working memory until it either becomes forgotten or stored in long term memory. According to Sousa (2017) "extensive research on retention indicates 70 to 90 percent of new learning is forgotten within 18 to 24 hours after the lesson" (p. 80). However, the learning which is retained will enter long term storage during sleep and is likely to not decay (Ruch et al., 2012). Ushering learning into long term memory, instructors must ensure learning content has reached this critical stage to foster successful transfer. Sousa recommends three testing criteria to determine if learning has reached long term storage:

1. The test cannot be given sooner than 24 hours after learning
2. The test should measure precisely what information or skills should have been retained
3. The test should be a surprise to the learner, with no warning or preparation time

Because sleep is a critical component of long-term memory, conducting the test prior to this time constraint would not measure learning in long term memory. Furthermore, tests or exams should be given as a surprise; students who are aware of an impending exam may replicate answers on the exam through working memory. To gather appropriate evidence that learning is in long term storage, learners must do so without storing learning in working memory.

Application

According to Blume et al., (2010) application, in regard to learning transfer, is measured by whether learning is used and whether learning is effective. Many studies on training transfer have not explored how the two differentiate from each other and affect the measurement of the learning transfer construct. The use of knowledge or skill suggests the presence of a behavioral change, while effectiveness adds the additional component of standards and competency. When deciding between philosophies of transfer measurement, it seems measuring transfer as a matter of effectiveness as opposed to a matter of use is a more complete in defining transfer (Blume et al., 2010). Use can be thought of as an attempt at transferring learning, while effectiveness implies successful transfer.

Adding to the complexity, learning transfer is defined by the stated goals of the learning objectives. Some educators view successful learning transfer when students are able to retain and apply domain specific content, while others view the chief aim of learning transfer is to develop learning and adaptive strategies to prepare them for eventualities outside of the classroom (Marini & Genereux, 2010). Baldwin and Ford (1988) suggested maintenance is a key component for successful transfer; maintenance is defined as keeping and using knowledge and skills in a transfer setting for a defined time, usually one year.

Forms of Learning Transfer

Because of the myriad of learning transfer forms, previous research has examined learning transfer via many differing aspects. Specific distinctions have been made between different types of transfer.

Near and Far Transfer

Once such delineation describes learning transfer based upon how closely the learning and transfer environment are related. According to Foley and Kaiser (2013), "Near transfer refers to when a new situation is closely similar to the original learning situation. Far transfer occurs when the original and new situations are dissimilar" (p. 7). An example of far transfer could be applying the learning content in different settings, times, or scenarios (Blume et al., 2010).

High-Road and Low-Road Transfer

Another delineation of learning transfer concerns the complexity of the transfer practiced. Perkins and Salomon (1992) suggested learning in a well-defined setting can more easily be replicated in a future setting where transfer conditions are similar. This is known as low road transfer; the closely matching learning environment to transfer produces more of a reflexive response in participants. For instance, "reflexive (low road) transfer requires well-automatized patterns of response that are thus easily triggered by similar stimulus conditions - and it requires stimulus conditions enough like prior contexts of learning to act as triggers" (Perkins & Salomon, 1992, p. 9). High road transfer, conversely, concerns the transfer of learning when a student must abstractly think about the material and apply those principles to an unconnected, novel setting. High road transfer requires a deeper understanding of the initial learning to be able to apply it effectively (Perkins & Salomon).

Positive and Negative Transfer

Learning a new skill or acquiring new knowledge interacts with a current way of thinking about something. In positive transfer, the new knowledge or skill complements the existing way of thinking or doing things. In other words, it supports the current schema of the learner (Foley & Kaiser, 2013). In negative transfer, the knowledge or skills acquisition of the learning session does not transfer due to the individual's prior experience. For instance, teaching someone how to play soccer may negatively affect transfer for a person with prior experience in a distinctly different sport.

Theories of Learning Transfer

There are many different definitions of learning transfer provided by the literature. According to Leberman et al., (2006) "Learning transfer is best accomplished when it meets the specific needs of the context and cannot be regarded as a set of standard, procedural guidelines" (p. xi). Appropriately, various perspectives of learning and instructional practices have affected conceptualization of learning transfer (Blume et al., 2010). According to Green (2013) conceptions of learning transfer have been traced to either cognitive psychology or socio/cultural perspectives. Each discipline favors differing aspects of learning transfer; when learning transfer is incorporated into instruction different aspects of transfer are emphasized. Ideology is evident in the ways instructors teach (Apple, 1979). According to Son and Goldstone (2009) "There is a tension between the concretely experienced and personally relevant on the one hand and the transportable and general on the other hand that is appreciated by researchers in both cognition and education" (p. 56). On one hand, specific and concrete examples of learning transfer are criticized by the socio-cultural camp because they ignore the situated and context dependent perspectives of the individual (Son & Goldstone). On the other, some advocate for direct instruction which then focuses on the brain friendly practices which aid in understanding and

retention, an important component for learning transfer to occur. According to Green (2013) the cognitive approaches to learning transfer often pay less attention to the learner and the learning environment and more intention to instructional, brain friendly strategies.

Cognitive Approach

A cognitive approach to understanding learning transfer is concerned with understanding the cognitive and metacognitive processes which occur during the learning process. Cognitive psychologists have often cited recommendations for learning on the basis of universalistic assumptions of what works for learners (Green, 2013). According to Son and Goldstone (2009) "Successful pedagogy recognizes the potentials and pitfalls of decontextualized abstractions in the attempts to impart knowledge of general forms, stripped of situational details, actions, and perspectives" (p. 52). A decontextualized view of transfer (opposed to the highly contextual, sociocultural view) emphasizes a learning transfer friendly instructional strategy which can be abstracted and generalized beyond the personalized contexts of the individual learner. A series of studies conducted by Son and Goldstone indicated "the ways we personalized instruction hurt performance on quizzes that hinged on knowledge of abstract principles (p. 75). Sousa (2017) agreed and stated, "When new learning is too tightly bound to the context, then learners may fail to transfer that knowledge or skill to different contexts" (p. 160). This sentiment was backed by Gruber et al. (1995) which stated, "the situated cognition camp…[k]knowledge is not conceived as an abstract entity that is independent of situations. On the contrary, knowledge is principally bound to situations. The question then is how transfer can occur at all" (pp. 169-170).

This may be due to students' inability to understand how underlying information can be different than operationalization in their personal constructs. According to Philpott (2006) "Within a cognitive psychology paradigm, transfer results from storing general knowledge

structures ‘in the head’ of individuals that can be deployed in specific situations” (p. 291). These stores of general knowledge exist outside of a situated learning environment and can be deployed by learners in situations dissimilar from the ones learned in their original context.

According to Greeno et al. (1993) “for an activity learned in one situation to transfer to another situation… the second situation has to afford that activity and the agent has to perceive the affordance” (p. 102). One criticism of situated learning in relation to learning transfer is knowledge and skills are highly independent of domain specific knowledge and thus does not transfer to other contexts (Billing, 2007). According to Greeno et al., (1993) when we adopt the view that cognition is situated, the issue of transfer is social in a fundamental way. However, Resnick and Collins (1994) wrote situated learning supports learning transfer in both domain specific knowledge but also of an ability to learn in the future.

Socio-cultural Approach

A more constructivist, socio-cultural approach to learning transfer grew out of the concerns of those who saw the cognitive approach ignore the contextual aspects of transfer (Green, 2013). In contrast to cognitive psychology, a socio-cultural approach investigates the interaction between learning and its effects on relationships between the learner and the world. Compelling learners to engage with learning through inquiry in lieu of the acquisition of factual knowledge results in a deeper understanding (Piaget, 1970). According to Greeno et al., (1993) the degree and outcome of transfer ought to focus on the constraints and affordances of situated learning and how that may affect future learning. According to Son and Goldstone (2009) “Instruction abstracted from specific and concrete examples is frequently criticized for ignoring the context-dependent and perspectival nature of learning” (p. 51). Bransford et al., (1989) criticized decontextualized knowledge which is unconnected to the learners transfer

environments. For example, statistical tests can measure how well students can conceptualize abstract formulations but students are often at a loss as to when to actually implement them beyond their classroom examinations (Schwartz & Martin, 2004). Out of such criticism grew a need for contextualized learning, with contextualized learning focusing on student centered learning to give meaning to the learning and enhancing transfer outcomes for the student (McCombs & Whister, 1997). Son and Goldstone (2009) advocated for contextualized learning: "considering the potential gains in motivation and knowledge that may come through personalization, it is worthwhile to consider how to personalize learning in traditional instruction" (p. 52). Other learning theories have suggested contextualized learning which takes place in concrete, real world scenarios are more authentic (Bransford & Schwartz, 1999; Lave, 1988). Billings (2007) noted transfer can occur from contextualized environments given the structure is the same between the learning and the situation which is the target for transfer.

Forms of Learning Transfer

While there are broad perspectives of learning transfer which guide definitions and meaning making by academics, scholars, and practitioners, there are specific ways learning transfer can operationalize.

Direct Application

While learning transfer measures how well learning in one setting transfers to a future setting, the learning objectives set at the start of the course heavily shape how learning transfer is conducted. In some views, learning transfer is equated with a final transfer task. Learning transfer is successful and valued if learning is transferred to activities which make it useful or relevant to specific task-based outcomes. Detterman (1993) referred to this as direct application. Here the assumption is learning is a well-defined product, learned in one setting and transferred

to another. This is referred to as replicative transfer, where critical knowledge, defined by the basis of a particular domain, is learned, retained, and applied in a future scenario (Hodkinson, 2005). In this view of transfer, the supposed learning is static and unchanging when transferred from one area (such as the classroom) to another (work).

Integrative Learning

In higher education, learning integration (an aspect of learning transfer) occurs when students adapt the skills learned in one class to solve problems encountered in another by drawing on knowledge from various disciplines (Huber & Hutchings, 2004; Sousa, 2017). According to Benander and Lightner (2005) "A successful general education program relies on the assumption that learning is transferred from one context to another to create a broad, integrated educational experience" (p. 206). According to Sousa (2017) "students need to be successful in recognizing how the skills and knowledge they learned in school apply to new situations they encounter in other classes or outside of school" (p. 157).

Although integrative learning is a pertinent and valued transfer outcome in higher education, many studies find students do not engage in integrative learning at an acceptable rate. Huber and Hutchings (2004) pointed out the unique challenges in higher education to foster student's learning transfer among courses as a desired outcome of learning transfer noting integrative learning is unlikely to occur without commitment and creativity from institutions of education. A study conducted by Bergmann and Zepernick (2007) found high school students did not make the connection between the skills they learned in a composition course to the skills needed to complete writing assignments in other courses. One way instructors may foster integrative learning is through the use of institutional scaffolding, such as assigning capstone projects and creating learning portfolios (Huber and Hutchings, 2004). Sousa (2017) suggested

integrative learning can be supported by educational institutions by advocating for thematic lessons and a more integrated curriculum, with the approach resulting in students making more transfer connections with their learning and meaning for future application.

Despite the need for more integrated learning in higher education, many academic departments are focused on their specific disciplines than general integration. These structural barriers often work against the interests of integrative learning outcomes as disciplines are more concerned with developing domain specific learning outcomes (Schneider & Shoenberg, 1999). Furthermore, integrative learning outcomes are often stunted because instructors tacitly believe students should bear the responsibility to make connections between their courses (Huber and Hutchings).

Non-Technical Skills

Increasingly, the goal of courses in higher education is requiring students to not only have the required disciplinary knowledge in their field but to also possess the non-technical skills needed to succeed in a variety of contexts (Jackson & Handcock, 2010). This skill set is described as being generic and possesses the same composition across differing disciplines and workplace contexts (Jackson & Handcock) and are known by other names including soft skills, generic skills, non-specific, & general transfer. Detterman (1993) stated evidence of non-technical transfer outcomes included principles, concepts, and strategies. Leberman et al., (2006) suggested the transfer of non-technical skills such as flexibility**,** adaptable, creative, critical thinking, problem solving and the ability to learn are important learning transfer outcomes. According to Billing (2007) generic skills such as problem solving, communication, teamwork, and critical thinking are the most sought-after outcomes of students by employers.

Learning Transfer Challenges in Higher Education

The effort to research, measure, and implement learning transfer in higher education is more difficult than other fields which learning transfer is better understood. Practitioners in HRD enjoys significant advantages over those in higher education; notably, researchers have indicated specific advantages of HRD in understanding learning transfer over higher education in the following ways:

1. Robust literature on learning/training transfer in HRD (Hutchins & Burke, 2005).
2. Financial backing (Merriam & Leahy, 2005).
3. Mandating transfer as a condition of employment (Darkenwald & Merriam, 1982).
4. Certainty of measuring transfer as behavioral based outcomes (Hodkinson, 2005).
5. Access to trainees post training (Kontoghiorghes, 2001).

Learning transfer has predominantly been understood, studied, and operationalized in HRD environments and subsequently much of the literature regarding learning transfer has been understood in these contexts (Foley & Kaiser, 2013; Hutchins & Burke, 2005; Saks & Belcourt, 2006). When learning transfer is utilized in an academic context there are significant differences in the way transfer is regarded, implemented, and evaluated.

Robust Literature

Much of the research on learning transfer is conducted in HRD environments; educators, trainers, and instructors in this environment are well versed in knowing about learning transfer (Merriam & Leahy, 2005). Many professionals find the research into learning transfer is of specific relevance to their contexts (e.g. HRD and training environments), and are much more likely to consult such research to inform their practice. Conversely, instructors in higher education are not well versed in what learning transfer is or how to accomplish it (Halpern & Hakel, 2003; Kaiser et al., 2013). This may contribute to a dearth of understanding regarding

learning transfer among instructors in higher education because the literature on learning transfer does not address learning within their specific circumstances (Kaiser et al.).

Financial Backing

Learning transfer in HRD is critical to the success and survivability of their programs. Subsequently, professionals in this field make learning transfer a priority both during learning and follow through. They invest time, energy, and resources to facilitating learning transfer outcomes. Foley and Kaiser (2013) noted "These are settings in which a return on investment of the time, energy, and financial resources dedicated to training is key to both the success of the business and the continuation of training programs" (p. 6). As a result, significant funds are allocated by these areas in order to understand learning transfer and measure how well it succeeds. Comparatively, learning transfer is a somewhat novel concept in higher education settings and very few instructors receive educational and training to meet learning transfer needs (Foley & Kaiser).

Explicit Expectation of Learning Transfer

In HRD environments, learners are expected to transfer the context of their training back to their jobs as a part of their job responsibilities. Yet, in higher education environments, instructors often assess student learning in the duration of the course, but they rarely assess student degree of transfer beyond the course. In HRD, learners are expected to transfer as a condition of employment. In higher education, learning transfer is far more autonomous, with educators and instructors often leaving the responsibility of learning transfer with the student, even if those expectations are explicitly stated to students.

Behavioral Based Outcomes

According to Merriam and Leahy (2005), much of the learning which takes place in HRD

environments takes the form of behavioral based outcomes. This form of learning is conducive to these environments because learners are typically learning at work to develop a particular skill. When skill-based outcomes are of interest, particularly when it comes to measuring learning transfer, the criteria for measuring learning transfer is more tightly defined than other learning outcomes. When learning is assessed via behavioral based outcomes, it can be easier to measure and determine if it transfers back to the workplace (Hodkinson, 2005).

Learning transfer in other contexts, including higher education, often extends far beyond behavioral based outcomes (Foley & Kaiser, 2013). Davis and Arend (2013) identify seven ways of learning; each of the ways of learning have differing learning objectives and thus, different learning transfer goals. As there are different criteria for measuring transfer depending on the learning orientation, measuring and facilitating learning transfer can be more complex in higher education than HRD environments.

Access to Learners Post-Training

A significant barrier to measuring learning transfer in higher education is the lack of access to learners after the course has concluded. The unfortunate reality is learners in higher education often must take the responsibility to ensure learning transfers. Lightner et al., (2008) noted when instructors assume learners will take on the responsibility of learning transfer it is less successful. Compared to HRD environments, in which learning facilitators have access to learners, instructors in higher education are limited in their ability and scope to ensure learning transfers beyond the course.

Evidence of Learning Transfer in Higher Education

In institutions of higher education, the use of effective pedagogical course instruction supports higher quality outcomes for students. According to Henard and Roseveare (2012)

"There is a demand for meaningful and relevant teaching. Students as well as employers want their education to lead to gainful employment and will equip them with the skills needed to evolve professionally over a lifetime" (p. 8). However, those who examine the ability of students to transfer what they have learned in both laboratory and experimental formats have reported troubling findings. Detterman (1993) stated general transfer has failed and advocated for educators to focus on domain specific outcomes by asking learning to exactly reproduce what instructors want them to learn.

However, Greeno et al., (1993) was critical of Detterman's conclusions, and stated the parameters used to determine if transfer occurred was too narrow. Reed (1993) using a schema-based theory of transfer, was optimistic regarding transfer outcomes. Cox (1997) was also critical of Detterman's conclusions and advocated for "active learners" and called for a reconceptualization of learning transfer to the adaptation of learners to new learning challenges. Bassok and Holyoak (1993) conducted a study to determine the extent of learning transfer across domains with undergraduate students in higher education. They explicitly stated students were able to transfer what they learned in one domain and apply the concepts to a differing context.

However, Perkins and Salomon (1989) determined transfer is often obtained by learners when general instructional principles are combined with self-monitoring and reflection exercises. Furthermore, they also objected to the idea of general transfer and domain specific skills are dichotomous when it comes to categorizing learning transfer outcomes. Carraher and Schliemann (2002) agreed with Greeno et al. (1993) that parameters used by Detterman were too narrow and resulted in a pessimistic view of transfer outcomes. They suggested reconceptualizing how learning transfer was understood and measured because many of the assumptions of transfer relied on knowledge directly being carried over from one situation and applied to another.

The disparate conclusions and forms of transfer led Billings (2007) to conclude "overall there is more evidence in favour than against transfer" (p. 511). A study conducted by Doyle (2002) found both general and specific learning transfer occurred as outcomes for students in a vocationally oriented education program as long as it was continuously supported socio-culturally. Thus, much of the previous literature supports the idea that learning transfer is possible if it is supported by facilitators and instructors.

Teaching for Transfer

Although previous research on learning transfer outcomes has been mixed, Marini and Genereux (1995) stated "cases of transfer failure are inconclusive, in that failures may reflect inappropriate teaching rather than inherent limits to the transfer of learning" (p. 5). "Teachers are the instruments of transfer for students" (Sousa, 2017, p. 158), and "significant and efficient transfer occurs only if we teach to achieve it" (p. 165). When teachers understand the aspects and factors which affect transfer, they can be good agents to facilitating retention of learning over time (Billings, 2007; Perkins & Salomon, 1987; Wiggins, 2012). Many students, as neophytes in their respective fields, may not possess the educational acumen to understand the need for specific transfer strategies, or even if they do, don't know the best practices to make learning transfer a reality. When it comes to learning transfer, instructors can influence students' learning transfer outcomes.

Without the potential transfer expertise of an instructor in well versed best practices, many opportunities to enhance transfer may otherwise be lost. Instructors, who understand the importance and relevance of addressing the learning transfer problem can objectively employ transfer strategies into the development of their instructional design. Educators can utilize many educational aspects to enhance the likelihood that learning is transferred. Roumell (2018)

suggested instructors can help students transfer their learning by "bridging the gap between facilitating a learning event and the eventual successful, and supposedly natural, integration of what is learned" (p. 18), which is an often-overlooked part of instruction. The last part of Roumell's quote is key; many instructors perceive transferring knowledge and skills is a natural outcome of the course which does not require additional facilitation or maintenance by the instructor. Roumell suggested the term "mindful transfer," the reflective and intentional actions taken toward improved application of learning, or deliberately developing the ability to critically, thoughtfully, and intentionally integrate new perspectives and skills into daily lives. Roumell stated, "mindful transfer is a process of ongoing strategies to help learners actively apply newly acquired knowledge beyond the learning event, and to further develop active competencies" (p. 18).

Learning Transfer Attitudes

According to Lightner et al., (2008) "Research into the process of transfer shows how problematic it is to assume that transfer happens automatically" (p. 58). Attitudes differ regarding who, the instructor or the student, should be responsible for ensuring learning is transferred. One of the most significant ways to achieve learning transfer outcomes is to explicitly state its goals as a desired course outcome. A study conducted by Lightner et al., sought to ask both students and instructors who should be responsible for transfer. The researchers discovered students perceived learning transfer as less important as faculty. The authors speculate this is an outcome of instructors not emphasizing the importance of learning transfer outcomes to their student's success beyond the course. According to Lightner et al. (2008) "Faculty might assume it is the student's responsibility to transfer knowledge, and leave it entirely up to the student to make the necessary connections" (p. 63). It makes a significant

difference in learning if the teacher assumes some of the responsibility for retention rests with the teacher, as opposed to thinking the students are on their own.

Responsibility for Learning Transfer

When instructors take the responsibility for transfer, they take steps to ensure students learning is retained and applied. In this approach, instructors make instructional choices in their teaching to foster learning transfer outcomes. Engle (2006) noted when instructors explicitly tied learning to potential outcomes, they were better able to describe the role learning would transfer in those instances.

Learning transfer outcomes can be strengthened if instructors get students involved in creating learning transfer outcomes (Pea, 1987). When students are asked to play a role in transfer, they are better able to make connections between learning and how it could potentially be utilized in real life. Pea concluded students should play an active role in transfer by determining the form it will take and how it will operationalize outside of the classroom. Conversely, when students are not actively informed of their participation in learning transfer outcomes, transfer outcomes suffer. According to Lightner et al., (2008) "If we want to promote transfer of learning, students and faculty need to share an expectation of transfer as a foundation for promoting it" (p. 60).

According to Sousa (2017) "students need to be successful in recognizing how the skills and knowledge they learn in school apply to new situations they encounter in other classes or outside of school" (p. 157). A major barrier to learning transfer may exist if instructors do not make explicit attempts to help students connect their learning to outcomes beyond the classroom. Lightner et al., (2008) suggested instructors who assume learners should take the responsibility of transfer are less likely to transfer their learning. A study by Benander and Lightner (2005)

examined the role of the instructor in aiding in student's transfer outcomes. When students were compelled by the instructor to reflect on how they could transfer what they learned in the course, they performed much better on a subsequent pretest than students who did not participate in reflection.

Learning Objectives and Learning Transfer Goals

Outputs of learning transfer depend on the initial learning goals or objectives set by the instructor. The learning objectives drive the course content and may have a significant impact on the degree of future transfer. To this end, transfer strategies should match the learning objectives with alignment between what students are expected to learn and what they are expected to transfer. Learning objectives and learning transfer goals should be closely aligned, and be relevant to the transfer goals as well. However, as learning transfer is an assumed outcome of all learning, many learning transfer goals are not explicitly stated as objectives by educators. This assumption "learning will transfer" is a significant barrier to learning transfer outcomes (Lightner et al., 2008). Learning transfer probability is enhanced when it is stated explicitly as learning outcome by the instructor (Billings, 2007; Kontoghiorghes, 2001; Lee & Pucil, 1998). According to Lee and Pucil, transfer of learning is aided by designs where the goal or objectives of a learning statement are explicitly stated. A study by Kontoghiorghes (2001) found when instructors explicitly stated in their learning objectives that learning transfer was a desired educational outcome, future transfer was more likely ($r = .37$, $p < .05$). The authors speculate this was because participants were well informed by the subject matter experts what outcomes and subsequent transfer was expected of them after the learning session. When learning transfer is an intentional exercise the learning objectives dictate what is to be transferred. A study by Axtell et al., (1997) examined the relationship between learning transfer outcomes by participants and the

relevance of instruction to matching transfer outcomes. Transfer is significantly strengthened when training or learning objectives matches the knowledge and skills needed in the future transfer environments of students immediately after training ($r = .61$, $p < .01$) and again when measured one month later ($r = .45$, $p < .01$).

Students perceptions of learning transfer has been documented as a barrier to transfer outcomes. A study conducted by Lightner et al., (2005) determined students may view learning objectives and course outcomes set by the instructor to be too idiosyncratic for transfer purposes. Thus, students see the learning gains they've made as being important to passing the course and not much else. When students do not see the role of transfer in their current learning it may lead to a "learn and dump" orientation which focuses on passing the test and not much else (Fink, 2012). Lightner et al., (2008) suggested instructors should clearly delineate future circumstances for transfer, use their experience with the subject matter to help students to practice the implementation of knowledge and content to their future scenarios. The use of an audience analysis to understand transfer contexts defined by students can be helpful to contextualize learning material with future experiences.

Planning for Future Transfer

Often instructors will deliver content but not strategically plan for facilitating learning transfer in their instruction. One of the potential issues with learning transfer outcomes is the way content is presented by teachers. When instructors emphasize the memorization of concepts and theories, it ignores the reality of the application of learning in diverse, often ill-structured environments (Hung, 2013). When students do not clearly see the potential use of their learning (the when, where, and how) students may often not understand the uses of their learning. Hung stated "situational knowledge in fact accounts for the knowledge that bridges between the

theoretical understanding and the practical application of the knowledge" (p. 30). Illeris (2009) recommended the use of transfer projects between the learning spaces to aid in learning transfer where the objects and scope of these projects depend entirely on delineated educational outcomes. Weber (2014) concurred with Illeris, and noted too much emphasis is placed on content design and the learning event, without preparing learners to transfer knowledge into their intended contexts. In order to improve successful transfer, Weber suggested emphasis on applying knowledge and skills to real-world contexts as opposed to decontextualized learning content.

For those who have clear transfer environments, in which learners know the future setting they will transfer their learning, Philpott (2006) suggested the use of cognitive apprenticeships. Cognitive apprenticeships may be particularly relevant to professional programs in higher education because their transfer environments are much more clearly defined than typically found in higher education. Cognitive apprenticeships are important for transfer outcomes and noted "cognitive apprenticeship is important for conceptualizing a situation in a way that makes the possibility and suitability of transfer of knowledge more apparent to a novice participant" (Philpott, 2006, p. 295). Building connections between formal learning and its connections to ulterior environments can help foster the transfer of learning.

Audience Analysis

Much of learning transfer depends on past learning experience of the student. Instructors can use an audience analysis to determine their level of learning and understanding in order to foster connections with new learning. Instructors are often considered experts in their field and can often design instruction on the basis of a learner's knowledge or procedural deficiencies. According to Kaminski, et al., (2013) an audience analysis supports transfer friendly instruction

because it allows the instructor to determine:

1. Who the learners are, such as age, educational background, social makeup and prior experience
2. In what environment are participants expected to transfer learning
3. The current knowledge and skill level of the learners
4. Whether any historical or evident barriers to learning that can be address via analysis (p. 86).

Sousa (2017) supported this notion and suggested new learning is highly dependent upon making connections to a learner's past. Furthermore, Halpern and Hakel (2005) suggested assessment of prior knowledge can help to correct previous misunderstandings or reinforce existing domain knowledge.

Hugging and Bridging

Two general instructional strategies have been suggested to aid in transfer: hugging and bridging (Perkins & Salomon, 1987). Hugging suggests instructional strategies should match the desired performance as much as possible. For example, "a teacher may conduct trial interviews instead of merely teaching about proper interview techniques" (Perkins & Salomon, 1992, p. 9). This suggestion is intended for the learning content to match the future transfer environment. However, hugging techniques are best suited for teaching closed skills, or those which require a stronger degree of automation. Bridging refers to creating abstract relationships between what is learned and its future application.

Stimulus Variability

The specific stimuli used by professors to convey key concepts is positively related to transfer. Stimulus variability switches up learning stimuli and experiences such as multiple

examples of a concept or practice experiences in a variety of situations (Saks & Belcourt, 2006). This instructional technique works because several techniques used to convey information may help the learner connect material to transfer outcomes in differing forms. According to Halpern and Hakel (2005) varying the conditions of learning requires more effort and may produce more errors in the short term, but subsequent performance will be improved.

Schema Theory

When students learn something new, the brain engages their past constructions in order to form new knowledge. According to Billing (2007) "prior knowledge is important in the acquisition of new knowledge, and has a substantial impact on the learning and transfer process" (p. 500). According to McGinty et al., (2013) "schema theory rests on the assumption that students utilize prior knowledge as a foundation for processing new information" (p. 50). This is a critical component of learning transfer and the way teachers present information can develop or hinder this process (McGinty et al.; Sousa, 2017). From a neurological standpoint, when students transfer their past learning to a new situation, they are growing their vast connection of neural networks. These connections are fostered through discovery and continuous reprocessing of information (McGinty et al.). According to Billing (2007) "The most helpful theories of transfer emphasise [sic] prior learning, memory, and the way knowledge is represented and compiled" (p. 511).

Scaffolding

Designing instructional goals, instructors must first consider the existing knowledge and skills base of participants. Transfer of instructional outcomes can be aided through the instructional use of metaphors or analogies to get participants to comprehend a new way of thinking. For instance, students who learn about the structure of an atom can remember the

concept by also thinking about the structure of the solar system. Transfer is aided because the explanation of new knowledge is equated with a well-established model (Perkins & Salomon, 1992). Scaffolding is used to relate new learning to prior understandings to increase the likelihood of learning and retention.

Explicit Abstraction

Transfer friendly approaches to instruction often require learners to explicitly think about what their desired learning outcomes are and to state them in their own words (Perkins & Salomon, 1989). Roumell (2018) suggested language is a primary component of thinking and explicitly using language can reveal students own motivations, future behaviors, and possible outcomes for change. By spelling out their personal objectives, (as opposed to the teacher centered delineation of objectives) learners help to place instruction into their contexts beyond the learning space. The use of explicit abstraction to illustrate an underlying principle is critical to fostering transfer. Gick and Holyoak (1983) asked participants to solve a problem with a specific, germane solution. When they solved the problem, the participants identified the underlying principle needed to solve the puzzle. When participants were presented with another problem, those participants which were better able to recognize and understand the underlying principle from the first problem were better able to complete the second. Thus, those students who are able to understand the underlying principles in the classroom or a training session are more likely to replicate the practice of the underlying principles as they use concepts to solve real world problems.

Metacognition

According to Billing (2007) metacognitive skills (self-monitoring & purposeful reflection) have been recognized as vital to enhancing learning transfer outcomes, particularly

for solving complex problems. Sousa (2017) stated metacognitive practices help students see connections between their learning and possible connections to other contexts.

Self-Monitoring

Instructors who compel students to engage in active self-monitoring are likely to enhance transfer. Self-monitoring refers to individuals "reflection on their own thinking processes" (Perkins & Salomon, 1992, p. 7). Many learning scenarios ask participants to change their cognition regarding the acquisition of new knowledge or skills often requiring a new mental framework when transferring new knowledge. Belmont et al. (1982), in working with students, discovered the enhancement of transfer when students were able to adopt a new learning strategy as well as consider how they might think differently in the future, transfer setting. Students who were aware of their old thinking, and actively made efforts to supplant their prior behaviors showed an improved ability to adopt new thinking and behaviors to support transfer.

Purposeful Reflection

Transfer of learning is aided when students are able to actively reflect on their new learning (Bransford et al., 1999; Foley & Kaiser, 2013; Hung, 2013; Sousa, 2017). According to Leberman et al., (2006) "the discussion on learning and subsequent transfer has emphasized the role of reflection regarding action is a key process to facilitate the transfer of learning" (p. 55). Purposeful reflection as a transfer strategy compels learners to think about the content in a learning session and purposely think about how to apply the content to their individual contexts. Purposeful reflection is a particularly useful transfer strategy because it gets students intentionally thinking about their existing schemata, how it developed, and how it could affect their future transfer environments (McGinty et al., 2013). Sousa (2017) stated "if we teach students to be conscious of both the new learning and the context into which it fits, we are

helping them forge strong associations for future recall" (p. 160). Depending on the type of learner centered learning strategy selected, purposeful reflection is critical in problem solving and anticipating future scenarios. Reflecting is a very effective exercise because it helps learners tie content to their personal constructs, and by extension, lives (Sousa, 2017). Sousa suggested reflection prompts such as: "How does what we learned today connect or relate to what we already know?" and "How can this help us, or how can we use this information/skill in the future?" (p. 185). A study by Bennett-Levy and Padesky (2014) used a quasi-experimental design to understand the effect of structured reflection on learning transfer of therapists. Each of the groups attended a two-day skills training session designed to help therapists transfer learning into their sessions, however the experimental group received structured reflection prompts at weeks one, four, and eight post learning. The structured reflection prompts asked participants questions regarding how learning could apply to therapists, how learning will be useful to them, and how they plan to implement the new knowledge into their practice. Participants in the experimental group reported using the learning content more frequently in their work as well as transferring the main concepts from the learning session. Roumell (2018) suggested intentional reflection of students creates a pathway for new learning and integrates the knowledge into their current conceptual framework. This integration exercise supports students as they consider how learning can provide solutions to problems, imagine how learning will manifest in the face of changing scenarios, and how the learning will be relevant to their lives (Roumell).

Memory and Emotion

The brain does not remember everything. What is remembered, however, has much to do with the importance and urgency students place on information. This urgency can be thought of as a hierarchy, with data affecting our survival prioritized first, followed by information and data

affecting emotions (Sousa, 2017). Learners who are able to make an emotional connection to learning material are much more likely to retain information and make meaning of the instruction. When learners are informed they will be designing and selecting their own personal problems to solve, the learning in more likely to relate emotionally to the student (Sousa). Consequential learning, a learning theory which touts active learner participation, "changes one's relation to conceptual practice, creating access to and valued possibilities for participation in practices at a broader scale" (Hall & Jurow, 2015, p. 173). When learning matters, information is much more likely to be retained, because students understand the utility of the information, and thus connect emotionally to the learning material. According to Davis and Arend (2013):

> We remember more easily those things that make sense to us and that we feel have meaning. If those two conditions are not met, it's much more taxing for us to integrate the information into long-term storage. For students, being told that certain information will be on the test has some meaning but not the type of meaning that makes it easier for their brains to remember (p. 92).

Neuro-education

Neuro education is defined as the multidisciplinary field consisting of educational psychology, cognitive neuroscience, educational technology, and educational theory to create brain friendly education to enhance learning and consequently, transfer. According to Nouri and Mehrmohammadi (2012) "Neuroeducation as a broad interdisciplinary and multidimensional field concerning matters pertaining to mind, brain, and education, drawing on theories and methods from a range of disciplines (p.1). Howard-Jones (2014), in his review of educational techniques using neuroscience, found support for the use neuroscience as a teaching strategy, specifically calling for the use of interleaving content, instructional novelty, spaced learning, and

testing as a means of recall to enhance learning outcomes.

Rehearsal

Sousa (2017) refers to rehearsal as the continuing reprocessing of new learning and it is a critical process in transferring learning from working memory to long term memory. Instructors should allow students ample time for secondary processing, typically conducted at the end of a lesson. This is known as closure, which gives learners an opportunity to "review the information, make sense of it, to elaborate on the details, and to assign value and relevance" (Sousa, 2017, p. 97). Brain scans of learners have shown the frontal lobe is actively involved in both rehearsal practices as well as long term memory formation (Sousa). Rehearsal has two types of forms: rote and elaborative. In rote rehearsal, the learner is tasked with remembering precisely what is being taught for future replication. Rote rehearsal is most often associated with closed based skills; as the name suggests learners are expected to reproduce learning as a matter of rote and routine. In elaborative rehearsal, learners are not directed to precisely reproduce learning, but rather to "associate new learnings with prior learning to detect relationships" (Sousa, p. 98). Elaborative rehearsal is critical for fostering open based skills, where the learner discovers underlying principles and techniques for creative application in the future.

Both rote and rehearsal-based learning have merit, however the decision to include one or both in the learning design depends on the desired outcomes of learning. Many skills-based trainers favor rote rehearsal because of its emphasis on exact replication. For instance, a skills-based trainer may lead a learning session on the operations of a new technology when the transfer is near. Learning sessions which require higher-order thinking are best suited for elaborative rehearsal, as it compels learners to deeply understand the concepts and apply them in a variety of settings.

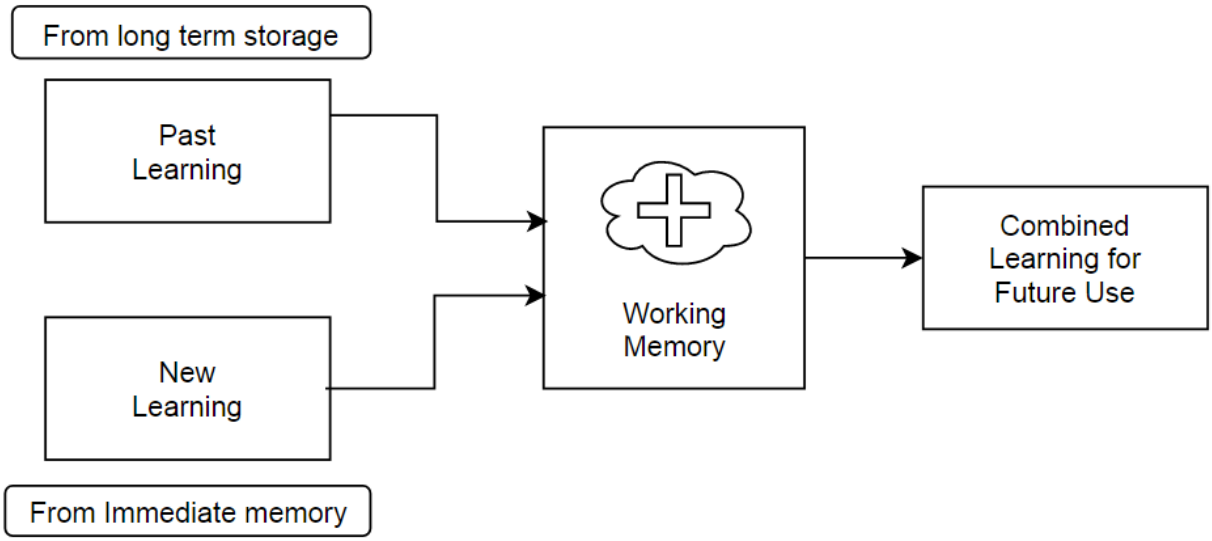
Practicing Retrieval

One strategy to help learning stick is the use of evaluation techniques as retrieval aids instead of assessments to compel learners to recall critical information. This is known as the testing effect, which is employed by teachers to compel participants to recall key concepts by answering quiz questions. The goal of the testing effect is not to measure knowledge and performance via test, but rather, to make the mental effort needed to recall key data relevant to learning material (Carpenter, 2005). Researchers have discovered memory pathways are strengthened when forgetting has occurred. Put another way, the more learners struggle to remember key content, the more likely said information will be retained for future use, and the testing effect is a catalyst for this type of retention (Halpern & Hakel, 2005).

The Brain During Learning

What happens to the brain during learning? Learning theorists describe learning transfer as a two-part process consisting of learning in (prior understandings, memories, and conceptions which represents a learner's current constructions) and learning out (how learning is then transferred to future learning situations and scenarios (Schwartz et al., 2005; Sousa, 2017). Transfer during learning is when the learner accesses and uses prior learning in the processing and acquisition of new learning (them to conceptualize new learning. Sousa (2017) describes the process of learning (Figure 2):

> Whenever new learning moves into working memory, long-term memory (most likely stimulated from the hippocampus) simultaneously searches the long-term storage sites for any past learnings that are similar to, or associated with, the new learning. If the experiences exist, the memory networks are activated, and the associated memories are reconsolidated in working memory (p. 154).



Note. This figure was readapted from Sousa (2017) summarizing the amalgamation of new learning and past learning on working memory. Adapted from "Working Memory" by D. A. Sousa, 2017, *How the Brain Learns* (5th ed.), Corwin.

Figure 2

Sousa's Description of Working Memory

There are many different factors within this process which affect its efficiency and accuracy in the learning transfer process. Sousa (2017) identified four factors which affect the learning transfer process: The context and degree of original learning to new learning, similarity between previous understanding to new learning, the ability of a learner to identify critical attributes which make new learning unique and distinct, and association, or how concepts are linked or frequently processed together.

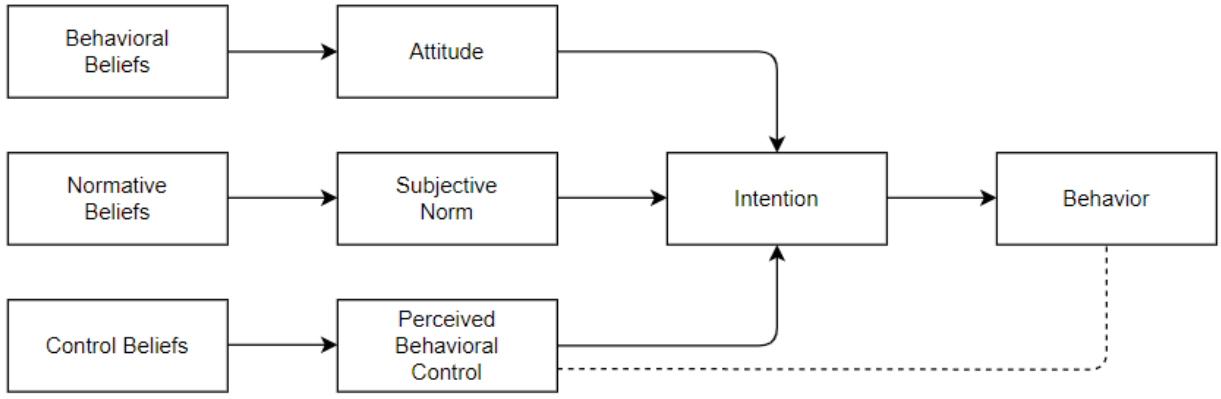
Learning to Teach for Transfer

When an instructor learns how to teach for transfer, they must update and revise their current way of teaching. Many theories examine how learning affects behavioral change.. Behavioral change refers to "developmental growth in knowledge/feelings/skills and is a personal experiential process, not merely an event occurring before institutional change"

(Leberman et al., 2006, p. 42). Change theories can be used to explain the processes and subsequent behaviors of instructors in higher education who chose to teach with transfer. When learning transfer takes place, learners are actively participating in change. Understanding models of change can help describe, conceptualize, and define the process as it relates to transfer of learning (Young, 2013).

Azjen's Theory of Planned Behavior

Instructors in higher education, who may or may not incorporate learning transfer strategies to their instructional designs, are affected by specific factors which affect their planned behavior. The theory of planned behavior (TPB) was developed to understand learner's intentions as well as the personal and contextual factors which affect subsequent learning paths (Azjen, 1991). The TPB is comprised of three basic components which affect future behavior: attitudes about the behavior, the subjective norm regarding the behavior, and perceived control over one's own behaviors (figure 3).



Note. This figure was readapted from Azjen (1991) summarizing the theory of planned behavior. Adapted from "The theory of planned behavior" by I. Azjen, 1991, *Organizational Behavior and Human Decision Processes, 50*, 179-211.

Figure 3

The Theory of Planned Behavior

Attitudes toward the behavior refers to whether or not an individual believes the future behavior will help them reach their goal. The subjective norm refers to how others in their immediate communities would think about the behavior change. Thus, individual's perceptions regarding how others are thinking will affect the subsequent planned behavioral change. Azjen (1991) indicated common players affecting normative beliefs include colleagues, supervisors, and classmates. These influences can positively or negatively affect incorporating learning transfer strategies into their instruction. Perceived behavior control refers to individual beliefs regarding how well they think they can successfully adopt new behaviors. This concept is closely related to self-efficacy, (a belief in one's own abilities), but can also be affected by "lack of resources, access, or time to implement the behavior" (Azjen, 1991, p. 77). TPB is important to understand regarding college professors to transfer both their formal, non-formal, and informal learning experiences as the conditions of the model are very individualized and specific.

Instructional Behavior in Higher Education

Instructors in higher education may have the freedom to choose how they instruct their course and many disparate factors affect their instructional behavior. A philosophical stance affects instructional practice through the beliefs, attitudes, and values of the instructor (Galbraith, 2000). Many instructors complete a written statement, known as a teaching philosophy, which guides their instruction. According to Galbraith (2000) "a teaching philosophy provides the foundation for all decisions, processes, and actions made about the instructional and learning process" (p. 11). Illeris (2018) describes the role of learning in conjunction with individual perceptions:

> One develops some general pre-understandings with in certain thematic areas, and when on meets with influences within such an area, these pre-understandings are activated so

> that if elements in the influences do not correspond to the pre-understandings, they are either rejected or distorted to make them agree. In both cases, this results in no new learning, but on the contrary, often the cementing of the already-existing understanding (p. 9).

This is an important aspect to understand the experience of college professors seeking to develop their instructional skills as it pertains to learning transfer; the pre-understanding Illeris talked about is in regard to their schemas regarding learning transfer. Depending on their view of learning transfer, the concept may not be learned and subsequently transferred by professors if it does not coordinate with their preunderstandings. A study published by Hutchins et al., (2010) examined how instructors and trainers came to learn about instructional best practices as it relates to learning transfer and which strategies they specifically employed. Many instructors reported relying on informal, self-directed learning strategies to learn about learning transfer, such as observations of other educators and searching the internet. Formal strategies, such as academic courses and internal training programs were not as prevalent.

Learning Paths

Learning paths are the differing ways in which individuals apply learning on the basis of individualized opportunities (Poell & Van Der Krogt, 2014). Teachers participate in learning paths which may include formal, non-formal, and informal learning experiences. Learning paths are highly contextualized and describe the unique experiences regarding the process of learning. The direction of the learning path is highly contextual to each person; the unique, rich experiences the learning possesses in engaging in both formal, non-formal, and informal learning experiences shaped the path of the learner.

Learning Paths to Learning Transfer

A study conducted by Hutchins et al., (2010) examined the methods training professionals use to learn about transfer of learning practices. The survey results suggested professionals sought knowledge from informal experiences more often than formal ones. When the researchers followed up by asking participants about the connection between their learning experience and why these learning sources were chosen to inform their practice, participants indicated individual motivation and interest, accessibility, and source quality as primary factors affecting the which sources they sought out and how those sources affected their practice (Hutchins et al).

As Hutchins et al., (2010) postulated:

> Given the social interaction trainers experience as a natural part of their job, and perhaps their limited opportunities to engage in formal learning…informal learning methods could be a convenient and inexpensive method in addition to or in place of formal learning (p. 602).

Formal Learning

According to Enos et al., (2003) "formal learning is structured learning that takes place in a classroom environment" (p. 370). According to Huchins et al., (2010), "Formal learning is often the primary method of instruction in professional development or competency-based learning programs and includes interventions such as training sessions, academic courses, or continuing education programs" (p. 601). Historically, learning transfer, research, and practice has focused on formal learning, notably the design of training programs and their factors on transfer outcomes (Holton & Baldwin, 2003). Formal learning is explicit; learning objectives set the desired outcome of learning and training and its success is, in some part, based upon how well participants meet those goals. Eraut et al., (2001) stated formal learning has the following

characteristics:

1. A prescribed learning framework
2. An organized learning event or package
3. The presence of a designated teacher or trainer
4. The award of qualification or credit
5. The external specification of outcomes (p. 114).

Formal learning includes learning in a college classroom, workshops, some professional conferences, and seminars.

Professional Development

According to Leberman et al. (2006) professional development (PD) is "any activity that develops an individual's skills, knowledge, expertise or other characteristics and includes personal study, reflection, and formal course participation" (p.40). Professional development is an important aspect of developing professor's teaching in higher education as teaching, research, and service comprise professor's workload (Barnes et al., 2016). Seden and Cope (2009) coined the term "dual professionalism" of professors in higher education to describe both their discipline focus (physics, chemistry, education are all examples of discipline focuses) and their focus on teaching. Interestingly, a study by Rothwell and Herbert (2007) found professors in higher education with less experience were more likely to participate and transfer learning as a result of continuous professional development than their more experienced colleagues. Attending PD programs may be a requirement of professor's job responsibilities, or it may be an extension of self-directed learning.

A willingness to attend PD sessions is affected by an individual's degree of extrinsic and intrinsic motivations. Extrinsic motivations refer to tangible rewards including pay increases and

promotions. Intrinsic motivations are met through personal achievement and recognition (Bothham, 2018). When it comes to developing their instruction to improve transfer outcomes for their students, the levels of extrinsic and intrinsic motivation have been shown to affect attendance and performance in PD, particularly in optional developmental programs (Knowles, 1990). Because of the multiple demands place on college and university professors, many dedicate themselves to their research than professional development opportunities. This is because promotions are more closely related to research outputs than improved teaching. A study conducted by King (2004) found 53% of participants indicated research demands were a significant barrier to their ability to engage with teaching-based PD. Thus, differing requirements places on college professors seemingly affect their prioritizing of developing their teaching skills.

As learning is seen as a continuous process (Hager & Hodkinson, 2009), many college professors attend professional development sessions aimed at developing their skills as teachers. Truesdale (2003) found incorporation of learning transfer strategies by college level faculty increased when they consistently attended PD and were supported by a professional development opportunity. However, the rate at which teachers attend PD sessions may differ depending on whether their community of practice supports the development of educational skills, notably incorporating transfer friendly instruction into their courses.

Because teaching for transfer is a little understood and utilized orientation in higher education (Scharff et al., 2017) there is an explicit need for PD for college and university teachers in this area. Senge (1990) wrote about the systemic need for creating work environments which emphasized continuous professional development (CPD). Watkins and Marsick (1992) suggested in order to emphasize continuous learning, departments must:

1. Create continuous learning opportunities
2. Promote inquiry and dialogue
3. Encourage collaboration and team learning
4. Establish systems to facilitate sharing
5. Inspire members to a shared vision
6. Connect the department to its students and the college environment
7. Exhibit strategic leadership

Watkins and Marsick (1996) wrote about the necessity for organizations to have systemic and planned learning experiences in order to improve the ability and job demands of employees. However, organizations who are not able or willing to provide these structured opportunities may lead its members dissatisfaction, ultimately motivating professors to non-formally and informally seek knowledge to develop their transfer friendly instructional designs in the absence of PD and CPD opportunities.

Non-formal Learning

According to Nelson et al., (2006) non-formal learning is defined as "any organized, systematic, educational activity carried on outside the framework of the formal system to provide select types of learning to particular subgroups in the population" (p. 252). Closely related to formal learning, non-formal learning distinguished itself by presenting a small subgroup of a formal population with alternative sources for learning (Nelson et al.). Examples include conferences, seminars, workshops, and clinics (Nelson et al.).

Informal Learning

Informal learning is non-structured learning outcomes which can occur intentionally or unintentionally (Hutchins et al., 2010). Informal learning occurs outside of the formal and non-

formal leaning environments, and is distinct and separate from formal learning in a number of ways. Informal learning, at its heart, is an outcome of learning which permeates throughout our everyday lives and yet, informal learning is not given the recognition and attention formal learning gets, mostly because there are no systemic ways to categorize and delineate learning which is not formalized (Wenger, 1998). Informal learning outcomes are frequently non-explicit in their objectives because informal learning is a process of discovery where the motivations and reasons for conducting informal learning are not quite clear. According to Watkins and Marsick (1992), aspects of informal learning include "self-directed learning, networking, coaching, mentoring, performance planning….and trial and error" (p. 291). Enos et al., (2003) further expanded the operationalized definition of informal learning to include experimentation, using a search engine (such as Google to look up information), and discussing issues with peers (as a way of learning). As informal learning as seen as learning which occurs outside of the classroom, it is no surprise informal learning is responsible for the majority of learning outcomes (Baldwin et al., 2017; Enos, et al.). Summing up a review of informal learning, Manuti et al., (2015) delineate characteristics of informal learning:

• It is integrated with daily routines

• It is triggered by an internal or external jolt

• It is not highly conscious

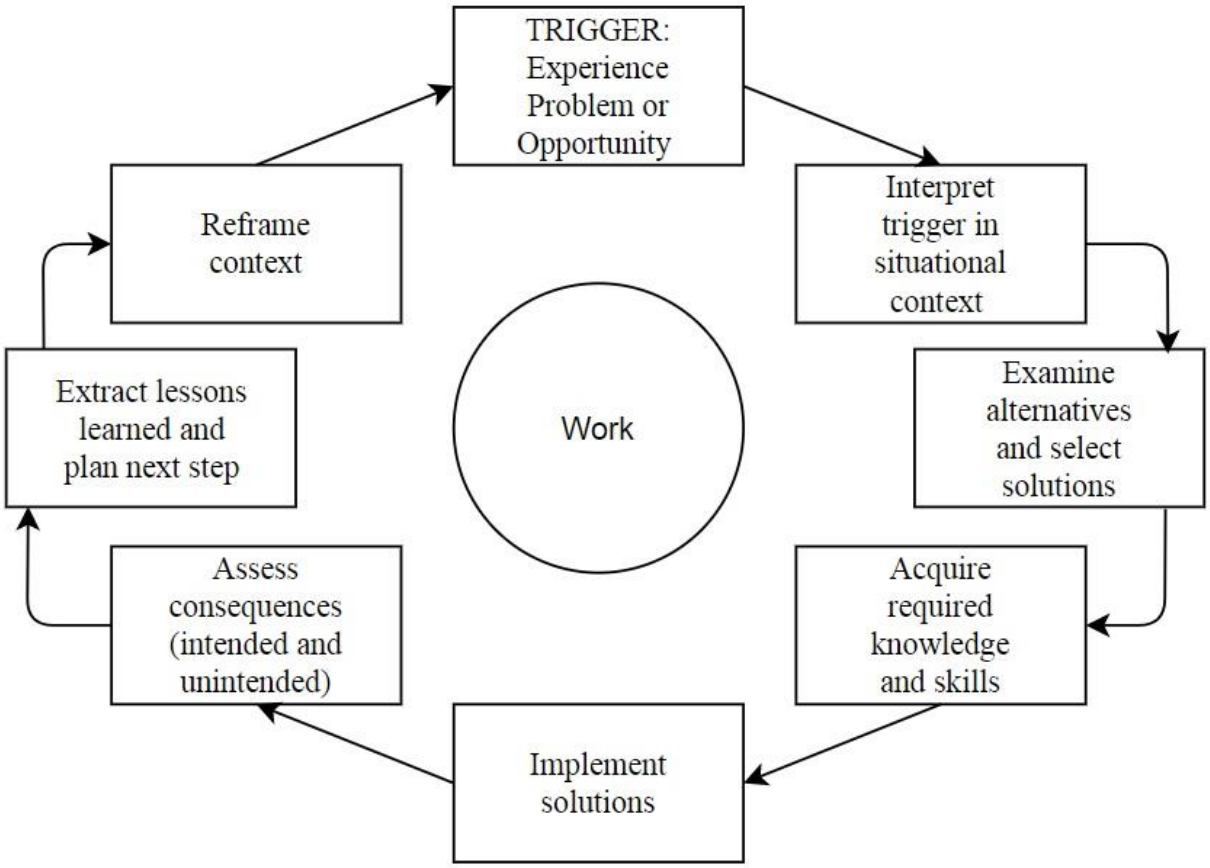
• It is haphazard and can influenced by chance

• It is an inductive process of reflection and action

• It is linked to learning of others

Informal learning can occur quite readily in many contexts (Day, 1998). Though many students are intimately familiar with formal learning scenarios, informal learning receives less attention despite the fact that informal learning dominates learning experiences. According to Marsick and Watkins (2018) an estimated 80% of learning happens outside of formal learning experiences.

Many informal learning experiences are triggered by a problem or opportunity which starts the informal learning process (Figure 4). In the case of learning transfer, college professors can begin their learning paths through a desire to know more about the concept of transfer friendly instruction, which helps future professors develop learning transfer strategies. A study by Lohman (2000) found teachers engaged in workplace learning by talking with their peers and students, observing classes, environmental scanning (seeking knowledge via external sources) and engaging in reflection.



Note. Marsick and Watkins Informal and Incidental Learning Model is a model depicting the stages of informal learning beginning with the trigger experience and ending with a reframing of the context. Readapted from Marsick, V. J. & Watkins, K. E. (2018). Introduction to the special issue: An update on informal and incidental learning. *New Directions for Adult and Continuing Education, 159,* 9-19.

Figure 4

Informal and Incidental Learning Model

A study by Enos et al., (2003) asked participants to indicate how they developed proficiency in key skills pertaining to their field. Of the 247 responses, 70 percent (173) indicated their learning pertained to informal learning, of which 63 percent related to interaction with others, 23 percent to job experience, and 12 percent to vicarious learning. Formal learning comprised 30 percent of the responses, of which 55 percent was due to formal classroom training, 12 percent was due to academic classes, 7 percent to seminars, and 4 percent to workshops, among others. The study also found a moderate, inverse relationship between organizational support for transfer and informal learning ($r = -.46$). When there is a dearth of organizational support, individuals are much more likely to utilize informal learning to develop their knowledge and skills. The triggering event behind informal learning may be a lack of formal learning opportunities. Clearly, the key skills participants utilized on the job were due to informal learning outcomes at a much higher frequency than formal learning outcomes.

Self-Directed Learning

According to Frank and Scharff (2013) "self-directed learners have the ability to learn independently by self-diagnosing their current comprehension and actively pursuing new information or experiences to fill knowledge gaps" (p. 36). When examining adult learners, researchers discovered as a person matures or becomes adult, they become more independent and self-directed (Merriam, 2017). The same is true for learning; adult learners more often self-direct

their learning and exercise independence in their learning experiences compared to children. Self-directed learning is quite ubiquitous; most adults engage in the process across a variety of personal and professional endeavors and is a part of everyday life. Self-directed learning is characterized by the learner taking the initiative in their learning; they are the catalyst and inspiration is deciding what to learn, to what extent, and when to apply learning (Merriam). Self-directed learning is, briefly put, a process in which individuals take the initiative to diagnose learning needs, set goals for meeting those needs, figure out resources and strategies to make learning happen, and evaluate the process (Hawkins, 2018). For college professors, self-directed learning is the catalyst for continued learning which is not mandated by job responsibilities or tasks.

Information seeking, a self-directed learning activity, is defined by Choo (2006) as "the process in which the individual purposefully searches for information that can change his or her state of knowledge or understanding" (p. 29). Choo suggested individuals ultimately sought information on the basis of source accessibility, source quality, and individual motivations.

Learning in Communities of Practice

Baldwin and Ford (1988) specified the work climate as a significant contributor to the likelihood of learning transfer. Fenwick (2005) suggested an organization's cultural norms, social relationships, and standard operating procedures often shaped workplace learning and transfer. Learning, situated in a community of practice, has historically been overlooked in regard to understanding its effects on learning transfer. Although communities of practice have existed as long as humans have learned together, not much attention has been placed on informal learning communities and understanding its relationship to transfer practice. One reason communities of practice receive less attention is due to the nebulous nature regarding formality;

because communities of practice are not formally labeled, it often goes unnoticed and receives less attention as a source of learning. This is especially so regarding learning transfer, a construct which has been studied predominantly by corporations HRD departments as an output of formalized learning. However, Wenger (2011) noted communities of practice do appear in educational settings, mostly notably teacher training. Wenger also notes the unique aspect of community of practice in educational settings, "In the education sector, learning is not merely a means to an end" (p. 5). The learning process itself is embedded into the educational objectives they teach. Further research is needed to understand communities of practice as it relates to the learning transfer problem from the perspective of different academic departments. Wenger (1998) wrote explicitly regarding the attention formal learning has received in meaning making compared to informal, social learning outcomes:

> Our institutions, to the extent that they address issues of learning explicitly, are largely based on the assumption that learning is an individual process, that it has a beginning and an end, that it is best separated from the rest of our activities, and that it is the result of teaching (p. 219).

Defining a Community of Practice

According to Wenger (2011) **"**A growing number of people and organizations in various sectors are now focusing on communities of practice as a key to improving their performance" (p. 1). A community of practice goes beyond a mere association of people with a common relation. A community of practice is defined by a commitment to the domain in which members exist and is a shared experience that distinguishes members from other people (Wenger). Commitment is operationalized through membership and seeing the self as belonging to a specific group. Shared competence is the learned knowledge and action in which participants act

within their domain. Wenger is clearly a proponent of socialization in informal learning practices; he sees learning as cyclical as well as social. But how does socialization help explain informal sources of learning? The specific contexts influenced by communities of practice, which Wenger defined as:

> formed by people who engage in a process of collective learning in a shared domain of human endeavor: a tribe learning to survive, a band of artists seeking new forms of expression, a group of engineers working on similar problems, a clique of pupils defining their identity in the school, a network of surgeons exploring novel techniques, a gathering of first-time managers helping each other cope (p. 1).

Wenger delineates four distinct indices which affect learning (practice, community, identity, and meaning), they are also highly related to each other as Wenger defined them as "deeply interconnected and mutually defining" (p. 221).

Practice. Socialization affects practice, or "a way of talking about the shared historical and social resources, frameworks, and perspectives that can sustain mutual engagement in action" (Wenger, 2011, p. 221). Practice is affected by the culture of the community from a historical perspective, can be thought of as "the way of doing things." The practice of the community informs operating procedure and heavily affects the behaviors of newcomers to the social community. They share a repertoire of resources, including experiences, stories, tools, and ways of addressing recurring problems as it pertains to what they do (Wenger, 2011). Examining learning transfer practices from a historical lens shows how the historical culture of the community affects learning both formally and informally. An individual, relating to their communities of practice, will be influenced by the way others in the community conduct their operations. If those in a community conduct their practice (incorporating learning transfer

strategies into the courses they teach) others in the same community will be likely to adopt that practice. The same can be said for those who do not practice learning transfer; those in the community will be less likely to use the same practices as well.

Community. Community is an important part of social learning theory. Wenger (1998) defined community as "a way of talking about the social configurations in which our enterprises are defined as worth pursuing and our participation is recognizable as competence" (p. 221). In other words, people in a community of practice learn by belonging. Commonly, learning in a community takes the form of similar, shared activities, discussions with each other, assisting each other with problems, and freely sharing information (Wenger, 2011). This may have a significant impact on the informal learning choices and behaviors of individuals relating to the communities they inhabit. Individuals belonging to a community which values continuous improvement and continuing education may affect an individual's choice to seek out additional learning opportunities. Furthermore, the observation of community elders by neophytes' shapes perceptions, cognition, and behaviors in their individual practices. One of these ways occurs through vicarious learning, in which the attitudes and behaviors of senior members of a community are adopted by the others in the community. As it relates to college professors, community can be thought of as members in the department.

Ranking members will likely have a stronger influence on neophytes in the department. In communities of practice, newcomers often look to experienced practitioners to understand what is expected of them, how to fit in their communities, and how to behave. Enos et al., (2003) state inexperienced practitioners look to experienced ones to "develop an understanding of the norms of a company, and a tacit and explicit understanding of these norms can be transferred from one manager to another, with neophytes observing, assisting, and copying behaviors of

experienced practitioners" (p. 379). The role of experienced practitioners, delineated by rank in an academic department, may have a significant, impressionable impact on modeling. Specifically, newcomers, who informally learn from their specified department, may regard learning transfer differently.

When comparing and contrasting informal learning outcomes as it pertains to learning transfer, the culture and climate of the community would likely have a strong impact on affecting the learning seeking behaviors of others who also belong to the same community. Those who reside in a department such as engineering may be more reluctant to self-direct their learning and seek out opportunities to bolster their teaching practices compared to professors in the Education departments; this is because individuals pursue learning which supports the structure of the domain. In education, learning about an educational outcome such as learning transfer may be more supported by the community of practice than in other departments. The community of practice in which they reside supports the continued development of educational practices as instructors, which can then be taught and emphasized in a learning community such as a classroom.

Identity. Wenger believed identity, or how an individual defines who they are in the context of their communities has a significant impact on learning. Identity formation is impacted by a degree of responsibility as an individual constructs their role they also actively construct what they feel responsible for. A college professor may feel responsible, via their identity as an authority and a member of significant standing in the Academy, as someone who self directs their learning to seek out and develop their instructional strategies. Ultimately, Wenger believed people fill the social roles they identify with, and those roles are heavily determined by the context of the overall community. Ideas of what role to play in communities is spurred by a

desire to fulfill that role.

Meaning. The emphasis learners place on meaning gives it a greater context and helps define the learning in relation to meeting the personal and professional motivations for doing so. Informal learning choices are informed by meaning making; the opportunities professionals seek as well as the incidental learning occurring in other life aspects which are related to other practices are at the heart of learning. Furthermore, when meaning is derived from socially contextualized learning, it is much more likely to be remembered and transferred (Davis & Arend, 2013; Sousa, 2017).

Activities. What sort of actions are characteristic of a community of practice? Wenger (2011) suggests common forms in a community or practice include "brainstorming, requests for information, seeking experience, reusing assets, coordinating efforts for increased synergy, discussing developments, documentation projects, visit peers' places of practice, and mapping knowledge and identifying gaps" (p. 3).

Community of Practices for Instructors

College professors belong to an academic community in which the aforementioned components of social learning theory are delineated: assistant professors, associates, professors, department head, and others. Wenger (2011) wrote in regard to the impact of communities of practice:

> Articulating a familiar phenomenon is a chance to push our intuitions: to deepen and expand them, to examine and rethink them. The perspective that results in not foreign, yet it can shed new light on our world. In this sense, the concept of community of practice is neither new nor old. It has both the eye-opening character of novelty and the forgotten familiarity of obviousness – but perhaps that is the mark of our most useful insights (p. 223).

A study by Hodkinson and Hodkinson (2004) examined four differing departments in higher education: art, history, information technology, and music. They found aspects of a community of practice, such as close-knit community, mutual engagement, join enterprise, and a shared repertoire of actions. These factors significantly impacted their instructional strategies, leading the authors to conclude "the cultures of subject departments, as well as other factors, have a significant influence on teacher learning" (p. 30). In discussing defining and researching communities of practice, Hodkinson and Hodkinson (2004) noted "communities of practice can be enormously varied; the research task is not to sew where they exist or not, but to identify their characteristics in relation to learning" (p. 29). They also suggest the term community of practice must be clearly defined in scope as many professors occupy multiple communities of practice.

The Learning Cycle

With both formal and informal learning influencing knowledge and skills transfer, how do they interact with one another? Enos et al., (2003) drawing from Watkins and Marsick's theory of informal learning (1991) developed a model to illustrate the ways managers coalesce both formal learning and informal learning in the development and transfer of key skills to the job. The model shows the ways in which both formal and informal learning is a cyclical process aimed at developing proficiency in a given skill. Managers start with the need or desire to solve problems through action. In formal learning circumstances, the organization initiates training in which desired outcomes are stated explicitly. This is an important point of utilizing formal training practice; previous studies have indicated participants transfer learning when they have perceptions of utility in their training sessions (Schramm et al., 2019). As formal learning completes, managers are expected to transfer the content of the learning session back to the workplace. This is the "carrying over" many academic use to describe the process of transfer

(Bransford & Schwartz, 1999).

However, if the participants perceived the formal training to be inadequate or ineffective in meeting the demands of the job experience, he or she ostensibly will seek out learning opportunities on their own, setting the stage for the informal learning process. Informal learning doesn't necessarily always follow a failure of transfer for formal learning outcomes; informal learning is initiated when additional knowledge and/or skills are needed to solve an authentic, often ill structured problem. Sometimes a failure of formal training to address workplace issues is the catalyst behind informal learning, and sometimes not.

Enos et al., (2003) in their study of informal learning and transfer, divided informal learning into three distinct areas which actively interact with each other (job experiences, social interactions with peers) which are mediated by learners' metacognitive skills, metacognitive knowledge, and self-regulation.

Job Experiences

Experience provides rich sources of informal learning; much of what managers learn about what works and what doesn't via the specific confines of their particular roles is informed by their lived experiences. This experience creates both tacit and explicit knowledge regarding effective managerial practices. In the informal learning process, job experiences create the need to begin the quest for further knowledge and skills.

Social Interaction with Peers

Many of the aspects of informal learning is grounded in socialization learning theory; the inspiration behind informal learning can be inspired by the interactions between people at work; the subsequent informal steps taken are heavily moderated by interactions with peers, bosses, organizational culture, and learning opportunities. A study by Enos et al., (2003) reported

"interactions with others" as the most prevalent informal learning activity. Citing Wenger's (2011) work, the authors suggest informal learning is contextualized socially by the relations between individuals which take on meaning contextualized by work.

Pervasiveness of Instructors in Higher Education Utilizing Learning Transfer

Although learning transfer is considered the ultimate goal of teaching and learning (Bransford & Schwartz, 1999), instructors do not incorporate transfer friendly instruction at an acceptable rate in the courses they teach (Halpern & Hakel, 2003; Schraff et al., 2017). A study by Scharff et al., (2017) sought to determine the perverseness of learning transfer in higher education by asking instructors to correctly define learning transfer. Nearly 50% of the instructors either had "no idea" what learning transfer was, or were mistaken on the correct definition. The authors suggested the problem of not knowing about learning transfer was a lack of learning experiences of instructors. The reason behind low rates of teaching of transfer could be traced back to instructors learning experiences. According to Fink (2012) only 10 to 15 percent of college instructors in higher education receive formal instruction on college teaching, and even less of that instruction is focused on learning transfer. When instructors do not know about the concept of learning transfer, they have little chance of incorporating it into their instruction (Scharff et al., 2017).

Summary of Literature Review

The review of literature discovered learning transfer was frequently equated with training transfer because of the specific way learning transfer was operationalized in those contexts. While training transfer is a notable and accepted aspect of learning transfer, they are not identical concepts; the study of learning transfer should be operationalized differently than training transfer because of the differing resources, constraints, environments etc.

An overwhelming majority of the studies which examine the outcome of training transfer focus exclusively on short, formal training programs designed to teach near, closed based skills. As a result, much of the informing literature may only be conducive to shorter educational sessions with limited objectives and behaviorally based outcomes. Because of such discrepancies, if differences exist in the key characteristics of training and educational settings, the techniques and processes characteristic of "good transfer" may prove to be less effective in broader, longer, and less focused educational settings. More research is needed to examine transfer of learning in differing educational scenarios.

Because of the dearth of articles in education focused on "teaching for transfer" the strategies most professors acquire is indirect at best, differing itself from common, targeted training scenarios and making inferences between learning and subsequent transfer quite nebulous.

Furthermore, the work environment frequently cited in literature is quite different than the transfer environments in higher education. Notably, the study of work environments are often centered on work performance via behavioral change. When considering the transfer environments in contexts which are not work related, in this case the college classroom, evidence of transfer should be expanded beyond the linkage between learning objectives and transfer objectives.

With continuing research regarding learning transfer, much has been done to expand upon the seminal work of Baldwin and Ford (1988); research has continued to view transfer as aspects of learner characteristics, design, and transfer environment. However, gaps are apparent in the discussion of training transfer. Literature has exhaustively focused on training transfer (an aspect of learning transfer where skills are evidenced on the basis of participant behaviors),

power dynamics in the transfer process (where the control of learning rests with the organization) and clearly defined transfer environments.

CHAPTER THREE: METHODOLOGY

Chapter Overview

This chapter provides details of the research methodology for this study. The research questions, research design, population, sampling, data analysis technique, and trustworthiness criteria are discussed, as well as the specific research approach, participants, justification, and research methods utilized. The researcher's perspective and ethical considerations are discussed in completing the study. This study adopted a qualitative approach by collecting data via semi-structured interviews.

Research Questions

The purpose of this study was to better understand the experiences and perceptions of instructors in higher education who teach for transfer. More specifically, the purpose was to better understand their exposure to transfer friendly instruction, what experiences these instructors had learning how to teach for transfer, and how their experiences affected their decision to teach for transfer. The research questions are stated below:

1. How did instructors first come to know about the concept of learning transfer?
2. What experiences did instructors in higher education have in learning about learning transfer? How did they regard this instruction?
3. Did the experiences of instructors affect their decision to incorporate transfer friendly instruction to the courses they teach?
    a. If so, why and how?
    b. If not, what did encourage them to implement transfer friendly instruction?

Research Approach and Design

A strength of qualitative research is to see the world from the perspective of participants

to make discoveries to contribute to the development of empirical knowledge (Corbin & Strauss, 2008). The framework used in this study was guided by the desire to understand the learning experiences of instructors in higher education who teach for transfer and how those experiences affected their intention to teach for transfer. A qualitative approach was best suited for this study as it sought to gather descriptive and interpretative experiences of participants and understand how participant's interpretations affected their decision making in relation to learning about and teaching for transfer. Understanding participant's experiences and underlying meaning is a focus of qualitative inquiry (Merriam & Tisdell, 2015).

Brink and Wood (2001) categorized all descriptive qualitative research as exploratory in nature. Because the experiences of instructors in higher education who teach for transfer has not been studied, an exploratory orientation was adapted to understand participant's exposure, experiences, and decision to teach for transfer. According to Mack et al., (2005) the use of open-ended questions in exploratory research allows participants to respond in their own words as opposed to fixed responses common in quantitative designs. This aided the researcher in gathering data relevant to answer the research questions.

Basic Qualitative Study

A basic qualitative approach was best suited for this study. A basic qualitative approach, also known as a generic qualitative approach, sought to understand the participant's perceptions, perspectives, and attitudes which was used to identify reoccurring themes (Percy et al., 2015). Basic qualitative studies are a commonly selected research approach in the field of education (Caelli et al., 2003; Merriam & Tisdell, 2015). Basic qualitative studies are interested in: "(1) how people interpret their experiences, (2) how they construct their worlds, and (3) what meaning they attribute to their experiences" (Merriam & Tisdale, 2015, p. 24).

A basic qualitative approach was the best choice for this study in lieu of other qualitative approaches. A basic qualitative approach seeks to be broader and less deep than other qualitative approaches which is preferrable for studies which seek to get a broad range of experiences and reflections (Percy et al., 2015). This approach suits the study well because its emphasis on a wider representation fits an exploratory study where not much in known about the topic (Caelli et al. 2003; Percy et al., 2015). Though phenomenology examines a participant's lived experiences via their attitudes, beliefs, and opinions, it is more focused on the inner structure of cognitive dimensions and less on the external structures which could affect those processes (Percy et al., 2015). A case study can be used to understand the operationalization of learning to practice in different contexts; however, the broad, exploratory nature of this study is not suited to a deeper, contextual contrast between cases. Thus, a basic qualitative approach was better suited to this study.

A central characteristic of basic qualitative studies is to understand how individuals construct meaning via interaction with their social worlds. Throughout this study, the researcher explored multiple experiences of participants to seek commonalities (and disparities) between the participants as opposed to analysis of a singular experience. Specifically, the basic qualitative design was used to understand the experiences of instructors in higher education who teach for transfer. More specifically, the approach was selected to understand the participant's exposure to transfer friendly instruction, the context of their experiences, and how their exposure and experiences affected their decision to teach for transfer. Therefore, a basic qualitative approach was selected to answer the research questions.

Researcher's Perspective

For the purposes of this study, the researcher adopted a constructivist lens.

Constructivists are interested in how individuals interpret and make meaning of their experiences (Corbin & Strauss, 2008). Constructivism played a role in understanding the problem and significance of the study, the formation of research questions, the data collection plan, and subsequent data analysis plan as this study sought to understand how participants perceptions learning about learning transfer affected their instructional behavior. A constructivist lens assumes each person gives meaning to their experiences as an interaction between what happened and what was experienced (Corbin & Strauss). Particular to this study, a constructivist lens was used to understand how disparate learning events regarding learning transfer and subsequent interpretations by participants affected their decision to teach for transfer. The voices of the participants and the researcher (personal biases) were represented in understanding the connection between what was experienced and what meaning was derived from those experiences.

Ontology

Lee (2012) defined ontology as the theory of existence and the nature of reality. What is known, or what is able to be known, is created through multiple realities of individual experience. Both what happens and what is experienced is an interaction between the raw senses and the individual experiencing it. In studying experiences of instructors in higher education regarding learning transfer, what happened is important to study but also how the personal interpretations of participants affected the experience as well and makes for what is real. The biases of participants were welcomed and understood that reality is co-constructed and relative. This study examined what happened in the participant's experiences, how they interpreted and made sense of their experiences, as well as the amalgamation resulting in their decision to teach for transfer. The positionality of the researcher, in determining what is real, was of respectful

reverence for the participant's subjectivity in expressing their experiences, perceptions, and interpretations.

Epistemology

What is known is gathered from understanding the relationship between the world and participant. This experience is dependent upon capturing their experiences, their emotions, thoughts, and behaviors in relationship to their lived experiences of incorporating transfer friendly instructional designs. The epistemological stance in constructivism exposes both the knower and the known in creating knowledge (Lee, 2012). Knowledge is acquired subjectively at the interaction between individual and subject. For this study, the use of semi-structured interviews questions was generated by the author to guide data collection. This was a subjective exercise in which the bias of the researcher was present. The subjectivity of the author was also present in the use of questioning, probing, and the subsequent analysis of data. The author acknowledges, and even embraces, how past experiences in research and implementing learning transfer strategies shaped his conclusions; there was no illusion of being unbiased in writing the results.

Axiology

How should researchers act in an ethical manner when conducting qualitative research through a constructivist lens? Lynham (2017) defined axiology as questions of how researchers ought to act in acquiring, accumulating, and applying knowledge. For this study, acquisition of knowledge using a constructivist lens demanded reverence and respect for participant's experiences. Participants recollection of what occurred were the data sources; in particular what they thought, felt, and experienced were all data sources pertinent to this study, which was used to co-construct conclusions and produce results. What is worthwhile to understand, from this

paradigm, are those experiences which shed light on the interaction between what happened and the perceptions of participants regarding learning transfer. All experiences may be equally valid and the researcher chose to honor and respect participant's firsthand account of their experiences as representative of the data.

Methodological Framework

Maxwell (2013) illustrated the key features of a methodological framework used in this study. In this design, interactivity between the aspects of research design (purposes, conceptual contexts, methods, validity, and research questions) guided this study (Bazeley, 2013). The research questions, at the center of the design and directly connected to each aspect of research, were the most influential aspect within the methodological framework. For example, the purpose of the study was to better understand the experiences of those in higher education who teach for transfer. The conceptual context of higher education affected the formation of research questions. For example, higher education characteristically offers professional development opportunities for faculty and instructors, and thus the research questions reflected the need to ask about these experiences specifically. The formation of research questions then changed the original purpose of study, resulting in the changing of the purpose from understanding experiences of those in higher education who teach for transfer toward understanding how their specific contexts affected their experiences.

The formation of the research questions then affected the methodological approach selected by the researcher. For instance, a qualitative approach was selected over a quantitative approach, because the former is better suited at answering the research questions. Steps to ensure the validity of the study were affected by the selection of a qualitative design. Lincoln and Guba (1985) coined the phrase "trustworthiness criteria" to judge the goodness of qualitative inquiry

and specific attention was paid to the transferability, credibility, confirmability, and dependability of the study.

Participants

College and university instructors were the sources of data for the study. Careful attention was paid to participant eligibility, recruitment, and selection. The contact and sampling strategies used in this study are discussed below. Approval by the Institutional Review Board (IRB) at Colorado State University to conduct the study was obtained by the researcher before participants were contacted.

Participant Eligibility

The participant eligibility was specifically delineated by the researcher before participants were recruited for study. Participants were eligible to participate in the study if they met specific criteria, namely:

1. Taught a course within one year previous to study in a university or college setting
2. Instructor of record for credit-based course.
3. Deliberately and intentionally teach for transfer in one more course(s)
4. Have formal, nonformal, or informal experiences learning how to teach for transfer
5. Can recall experience(s) learning how to teach for transfer including:
    a. Catalyst and circumstances behind learning to teach for transfer
    b. Contexts and experience of learning to teach for transfer
    c. If experiences affected decision to teach for transfer and the reasons why

University and college settings represent most experiences in higher education. Selecting participants using delineation of credit-based course and instructor of record helped the researcher ensure an appropriate sample by eliminating teaching environments which are not

formalized in higher education as well as excluding para instructors such as teaching assistants. Selecting participants who taught within one year of study helped ensure perceptions and experiences of participants were current. Participants were also selected if they could recall experiences learning how to teach for transfer and were delineated on the basis of learning experiences of formal, non-formal, and/or informal, which are common grouping of experiences.

An important aspect of this study was to ensure participants understood the purpose of the study and to determine if they were eligible to participate. Initial contact with participants, over email, explicitly operationalized the concept of teaching for transfer so that participants could determine if they met the criteria for study. Part of this operationalization was to ensure both researcher and participants understood the concept of teaching for transfer, even if the participant did not utilize or know the term "teaching for transfer" explicitly. For example, the term "learning transfer" which occurs when learners retain and apply what they learned in one situation to another, was explained in initial contact. This was important because previous research has indicated learning transfer is not a well-known concept in higher education (Cox, 1997; Fink, 2012; Halpern & Hakel, 2003; Scharff et al., 2017). Subsequently, the term "teaching for transfer" was explained as "an intentional orientation which uses a breadth of instructional techniques to help students retain and utilize their learning; it is a multi-dimensional approach with the goal of getting students to retain and apply what they learned from the course." Participants were asked to decide if they met the eligibility for the study.

Recruitment Strategy and Selection

Purposeful sampling and snowball sampling were used to recruit participants for this study. At the start of the study, a purposeful sample was used to intentionally choose individuals to answer the research questions and also to select participants homogeneous on relevant

characteristics delineated in the participant eligibility section (Gliner et al., 2017; Smith et al., 2009). For this study, the homogenous qualifier was instructors in higher education who self-identify as those who "teach for transfer" in the courses they instruct. A snowball sample, a subset of purposeful sampling, was used to gather additional participants for study. The researcher used snowball sampling at the end of each interview to ask whether the participant could recommend other individuals for study.

Purposeful Sampling

Purposeful sampling was used to target instructors in higher education who teach for transfer and who could discuss the connection between their exposure, experiences, and decision to teach for transfer. Following IRB approval for the study, the researcher corresponded with his professional contacts in adult education. The researcher's professional contacts were in training and development, HRD, and adult education where learning transfer is a more practiced concept. Five participants, suggested by the researcher's professional contacts as persons of interest, were contacted by the researcher via email and agreed to participate. The criteria were listed in the email sent to participants to ensure participants met eligibility requirements. A copy of that email is in Appendix A. In the initial contact, participants were notified of the purpose of the research. The aims of the study were explained to participants, including the types of questions they were going to be asked, how long their participation would last, and how the researcher maintained their privacy. For example, participants were notified they would be asked about their exposure to how to teach for transfer, what their experiences were, and how it did (or did not) affect their decision to teach for transfer.

Participants were reminded participation was entirely voluntary and they could choose to terminate participation at any time without penalty. Participants were able to self-identify if they

met the criteria for study. If the contact indicated they met the criteria for study, they were sent the consent to participate in research study form (Appendix B).

Participants were also asked to provide potential times to participate in the semi-structured interviews over Microsoft Teams. Microsoft Teams is a technology familiar to many educators in higher education and is used to communicate both audibly and visually (Microsoft Teams, 2020). The use of Microsoft Teams to conduct semi-structured interviews was selected because it can accurately record participant's video and audio responses for later transcription and analysis. Microsoft Teams recordings were then stored under password by the researcher and destroyed after transcription.

Snowball Sample

A snowball sample was used to recruit participants. A snowball sample is a purposeful sampling technique in which once an initial participant who meets the criteria for inclusion is selected they in turn suggest other participants for study (Creswell & Guetterman, 2019; Terrell, 2016). A snowball sample is particularly useful for accessing participants who can best answer the research question when the population of participants is small. Previous research has indicated a dearth of instructors in higher education who teach for transfer (Scharff et al., 2017). Furthermore, the snowball sampling technique helps the researcher identify potential participants who otherwise would not have been discovered (Terrell, 2016).

At the conclusion of each interview, participants were asked to suggest others who might be a good candidate for study (snowball sampling). Six people of interest, recruited via snowball sampling, agreed to an interview.

The total number of participants appropriate for this study was determined by the use of the constant comparison method and data saturation. Constant comparison methodology was

used to get a sense of the data as a whole by transcribing, coding, and analyzing data before new data was obtained. New data from semi-structured interviews was compared to existing data. Data was ceased when the researcher determined addition of new participants would not reasonably contribute to existing codes and categories. This helped the researcher reach data saturation: a criterion for discontinuing data collection and/or analysis when no additional data is expected from further data collection (Saunders et al., 2017). For example, the researcher determined data saturation was reached when coding the final participant did not contribute to or refine existing categories previously created by the constant comparison methodology.

In total, sixty-two potential participants were contacted regarding the study. Of those sixty-two, eleven agreed to participate in this study. One participant was disqualified after data collection began due to not having taught a credit-based course within one year of study. Thus, ten participants were interviewed for this study.

Data Collection

Semi-structured interviews were the only means of data collection for this study. The interview protocol contained questions about participant's demographic information as well open ended semi-structured interview questions about their experiences. The semi-structured interview allowed the researcher to tactically adjustments, follow up, and probe to further develop data. For example, when a participant mentioned she stumbled on literature regarding learning transfer, the researcher asked her to elaborate behind her specific contexts and circumstances before moving on to another topic. Semi-structured interviews followed the same format: Opening, introductions/purpose of research, grand tour questions, interview questions with prompts, and closing. Interviews on average lasted 71 minutes with a range from 51 to 97 minutes.

Opening

At the start of the interview, the researcher greeted the participant, thanked them for their time, and introduced himself and the purpose of the research. The researcher notified participants by receiving and reading the consent to participate form and agreeing to share their experiences, they were consenting to participant in research. Participants were reminded they were free to cease participation in the study for any reason without penalty. The researcher further explained the purpose of the interview and the formatting of the questions. The purpose of a semi-structured interview was explained to the participant; notably the researcher would ask about specific topics or aspects regarding their exposure, experiences, and how those affected their decision to teach for transfer. Follow up questions were asked to understand and clarify participant's responses. A definition of learning transfer and transfer friendly instruction was read to the participant at the start of the interview to ensure that participants understood the topic and could talk about their experiences and how those experiences affected their decision to teach for transfer.

Demographics

Demographic information was obtained at the start of the interview before interview questions. Bazeley (2013) recommended researchers determine what demographic and contextual information could be relevant and to design a means of obtaining it. Demographic information was obtained, including academic discipline, workload allocation (balance between research, teaching, and service responsibilities), and years teaching in higher education. This allowed the researcher to gather data which helped describe the characteristics of the group (Terrell, 2016).

Interview Questions

After the opening was concluded, the researcher consulted the questions list which guided the interview. Sample questions included: How did you first come to learn about how to teach for transfer and did your education help you to learn how to teach for transfer? The questions list was developed to help answer the research questions. The questions were open ended, to allow the participant to provide relevant data to answer the research questions. Probing was used in the study to further explore the data from the participant. Probing is useful in qualitative research because it allows the researcher to follow up on responses from the participant. Probing allows the researcher to understand responses which are potentially unanticipated by the researcher; probing allows for continued inquiry which may result in rich and explanatory responses (Mack et al., 2005). Probing was additionally beneficial because it encouraged participants to elaborate on their responses.

The use of constant comparative methodology helped the researcher explore new concepts as they emerged from participants. Interview questions were continuously developed and updated throughout the study to explore emerging concepts from the data which allowed the researcher to identify other concepts to be explored or questions to be asked when interviewing other participants (Terrell, 2016). The genesis of the interview protocol resulted in changes to the original set of questions. For example, when it became apparent participants experienced barriers when teaching for transfer, notably students' resistance to receiving transfer friendly instruction, the research asked later participants, "how do students regard your method to teach for transfer?" The original interview protocol can be found in Appendix C while the most updated protocol can be found in Appendix D.

Closing

When data collection was completed, the interviewer thanked the participant for their

time and participation in the study. At the end of the interview, interviewees were asked to suggest other participants who might be able to meet the participant criteria for study as part of the researcher's snowball sampling strategy. Those who teach for transfer may know of others who teach for transfer from having similar experiences via professional conferences, academic collaboration, and professional development.

Member Checking

The researcher briefly explained the remaining steps in the study, specifically the participant's role in member checking the accuracy of the transcript and inferences drawn by the researcher. A summary of the major points was sent to all participants via email for their review. The participants were instructed to review the summary and offer any corrections. The researcher also asked participants if interpretations made by the researcher were valid. Furthermore, participants were retroactively asked about emergent concepts. For example, the researcher contacted a participant via email and asked them about their recognition of the term "teaching for transfer." Of 10 participants, seven responded to the member check. Of those seven, four had no corrections or adjustments. Sample responses included "this summary looks good to me" and "the summary is an accurate representation of our conversation." Three participants had additional corrections or comments. For example, one participant stated, "here are some things that came to my mind after our conversation" and proceeded to add additional barriers which affected her ability to teach for transfer. Another participant corrected the researchers mistake of labelling an instructional orientation as "mind mapping" when it was supposed to be "concept mapping."

Data Analysis

Qualitative inquiry was used to explore participants' exposure to and experiences with

transfer friendly instruction and if (and how) those experiences affected their decision to teach for transfer. The researcher used the constant comparison method to analyze the data in an effort to gain a broader, global understanding of the data. After transcription of each semi-structured interview, the researcher began the data analysis process by transcribing and coding data to guide the subsequent collection of data.

Inductive Content Analysis

An inductive content analysis was used to examine the data and is also known as conventional content analysis (Hsieh & Shannon, 2005) or inductive analysis (Percy et al., 2015). An inductive content analysis was an appropriate choice because this study was exploratory in nature; there were no previous studies dealing with the phenomenon. This approach lends itself well to an exploratory perspective in which the research questions are not well understood in previous research (Elo & Kyngas, 2007).

According to Cole (1988) content analysis is a technique of analyzing verbal or written communication to make verifiable inferences from the data with the purpose of providing information, insights, and a representation of facts. A key aspect of content analysis is the act of classifying or coding text into smaller categories (Burnard, 1996). Hsieh and Shannon (2005) noted a strength of inductive content analysis is acquiring information directly from study participants without using or imposing on data with preconceived categories or theoretical perspectives. For example, previous research has not indicated how exposure or experiences of instructors in higher education may affect their decision to teach for transfer. Thus, an inductive approach to analysis was used to answer the research questions.

Inductive content analysis is grounded in the data and categorizations are developed from the data as opposed to prior studies, and categories are freely and openly created in this stage

(Kondracki & Wellman, 2002). An inductive content analysis moves from the specific to the general, so that specific instances of participant data are recorded and then used to form a larger whole or overarching statement (Chinn & Kramer, 1999).

The goal of the inductive content analysis was to examine participant data to develop patterns, consistencies, and themes in conclusion and meaning making without preconceptions. Inductive content analysis involves the process of creating open codes, categories, and abstraction (Elo & Kyngas, 2007).

Thematic Analysis

A thematic analysis was used in addition to an inductive content analysis. While an inductive context analysis is descriptive and notes the frequency and occurrence of data, thematic analysis involved working out the relationships between code, categories, and the significance of themes (Gibson & Brown, 2009). This step required the cyclical amalgamation of data, initial coding, focused coding, the comparison of codes across participants to develop themes, and the comparison of developed themes.

Data Transcription

Interview data was transcribed by the researcher and was transcribed exactly as it was recorded in the interview. Other data in the interview besides written text was captured through the use of bracketing. For example, laughter by the participant was transcribed as "[laughing]." A key was created at the beginning of each transcript delineating the meaning behind transcript bracketing. Immediately after each interview was completed, the researcher recorded impressions and thoughts regarding the interview.

Memoing

Memos were jotted down during data transcription. According to Creswell and

Gutterman (2019) transmitting ideas during data transcription in the form of memos is an important first step in data analysis. These formed initial memos. After the data was transcribed, the researcher listened to the original data and read the transcription to ensure accuracy. Then the researcher first read each participant's transcript without conducting analysis but to gain a better understanding of the data as a whole. Reading the entirety of each data source without making notation provides the researcher with familiarity regarding the scope and content of the data. After the first reading, the transcripts were read again actively. This time, the researcher recorded thoughts, summarized responses, and reflected on the meaning and intention of data. These formed analytic memos. The memos were embedded in the transcript as they became apparent. A summative memo was written, summarizing the data, and recording overall impressions. Writing memos allowed the researcher to capture ideas quickly while they came up in the moment and is critical to fostering the creation of codes (Bazeley, 2013).

Open Coding

Coding provides a system method of sorting, identifying, condensing, and managing data (Bazeley, 2013). Codes were developed from memos conducted in earlier stages of the research by directly annotating the transcript data from the text. These preliminary codes were used as a basis for coding of subsequent transcripts. New codes were added when the researcher encountered data that did not fit into an existing code. In forming open codes analytical choices, such as interpretation, were used to group data together. Day (1993) pointed out the researcher must use interpretation to group together participant data rather than simply grouping by identical elements.

Development of codes were stored in a codebook. A codebook is useful for holding codes and categories. The codebook was used to synthesis codes, to see them in one place for easier

sorting and comparing (Bazeley, 2013). NVivo (version 1.6) was used to store codes.

Focused Coding

After open coding was completed, the researcher began focused coding. Bazeley (2013) referred to focused coding as the second stage of the coding process and the aim is to see deeper connections and further interpretations of the data. In this stage codes are sorted into categories based on how different codes are related (Hsieh & Shannon, 2005). Data reduction was used to consolidate, organize, and refine open codes into categories. Focused coding resulted in the creation of categories, patterns, and relationships which emerged from the data and were analyzed. It is important to note at the categorization of data at this stage, the researcher looked for both similarities and differences in each grouping to refine what could be meaningfully stated about each grouping. For example, the researcher grouped together all data points, represented by categories, related to problems that arose when teaching for transfer. The grouping of these categories then coalesced into a singular theme of barriers to teaching for transfer.

Table 1

Sample of Interview Transcript, Code, and Focused Code

Transcript	Code	Focused Code
So, oftentimes, bad feedback comes during the semester when they're doing the work, which isn't great because you might get terrible teaching evaluations.	Student pushback Teaching evaluations Timing	Resistance to teaching for transfer

Sub Themes and Main Themes

Focused coding was used to detect relationships among the codes, which developed into themes and subthemes. Day (1993) described the grouping of sub-themes as organizing data

pertaining to a particular group in an effort to help describe the larger, main themes. Subthemes were compared and contrasted to create main themes. Once main themes were developed, it was then compared back to the data. The researcher conducted additional interviews to explore the validity of codes. This cyclical process affected how conclusions were drawn about the data.

Data Saturation

Data collection ceases to continue when categories are saturated, an appropriate amount of regularities occur in the data, and coding is complete (Miles & Huberman, 1994). For this study, the researcher continuously reviewed and analyzed interview data to determine when data saturation was reached. According to Ranney et al., (2015) it is easier to know when data is saturated when data is collected and analyzed at the same time. Collected data was coded before the next data sample was obtained. Saturated data is clearer to the researcher and easier to group the data in an effort to generate simplified results (Ranney et al.). Data saturation was reached after 10 transcripts were recorded and coded. Data saturation became apparent when the researcher had a reasonable expectation of no new expected codes or information from continuing data collection in terms of properties and dimensions which might further explain or refine a theme.

Trustworthiness Criteria

Steps in the design, implementation, and analysis of qualitative data were taken to ensure the trustworthiness of the results. Lincoln and Guba (1985) coined the phrase “trustworthiness criteria” to judge the goodness of qualitative inquiry. The trustworthiness criteria consisted of several aspects of inquiry, including transferability, credibility, dependability, and confirmability (Lincoln & Guba).

Transferability

Lincoln and Guba (1985) described transferability as the degree to which the results of a specific study could be related to other cases to which the findings may be applicable. Bazeley (2013) indicated transferability was to ensure what aspects of the study could be transferred to cases outside of the purview of the research and to describe the contextual conditions in which data was gathered. To build the transferability in this study, the researcher captured relevant data factors. For example, participants' workload allocation and rank (assistant, associate, or professor) and subject area were described. Transferability was also strengthened by explicitly conveying how data was analyzed. The researcher explained earlier in this chapter the data analysis technique utilized, how data would be shared, and the specific steps the researcher took throughout the data analysis process.

Credibility

Lincoln and Guba (1985) defined aspects of credibility as how well the researcher represents the participant's views (or data) and relates that to the conclusions or representations drawn between the two. Lincoln and Guba linked credibility to internal validity in quantitative research, which is the degree or strength shown between two variables. The credibility of a study can be bolstered through appropriate data analysis techniques which link data to answering the research questions (Graneheim & Lundman, 2004). Credibility was bolstered through member checking. Schwandt (2015) defined member checking as soliciting participants feedback on the researcher's findings. A basic qualitative design requires larger samples than other qualitative methods because its focus is on breadth as opposed to depth. Larger samples are more representative of the population under study and require more participants than phenomenology and case study designs (Percy et al., 2015). Thus, 10 participants were reasonable to reach data saturation.

Confirmability

Lincoln and Guba (1985) described confirmability as a measure to how well the data and interpretations were linked together in discernable ways. Confirmability ensures the conclusions drawn by the researcher are due to the relationships between data and analysis opposed to being conjured arbitrarily from the researcher's own bias. Confirmability was bolstered through the use of an audit trail, journaling, and using a codebook.

Throughout the study, the researcher took methodical steps to ensure confirmability of results by clearly chaining together raw data, analytic memos, open codes, and focused codes to main themes. The audit trail was used to clearly show the steps and progression of data from early stages to the later stages of meaning making.

The researcher used a journal to record personal thoughts, interpretations, and reflections. Summaries were added for all participants immediately after each interview. Other entries were also added throughout the data collection and analysis phase. For example, the researcher reflected on his role in data collection, specifically on finding a good balance between reiterating participants responses in real time without inducing coercion in their responses.

A codebook was used to aid in coding consistency by creating a space for all the codes to be stored, condensed, and linked to larger concepts. According to Bazeley (2013) a codebook can be used to assist the singular coder in the consistent application of codes.

Dependability

Synonymous with reliability, dependability is defined as how well the research was logical, traceable, and documented in order that the findings may be replicated (Schwandt, 2015). Careful attention was paid to the alignment of the study's purpose, research questions, and research methods, and description of participants. Before collecting data, previous research

was consulted to understand which factors could potentially affect the incorporation transfer friendly instruction to courses. Previous research played a role in informing the researcher how exposure and experiences may affect instructional behavior, which in turn affected the contents of the interview protocol.

Furthermore, transforming raw data to conclusion drawing was based on the sequential and cyclical methods of data analysis which followed from transcription, memoing, open coding, data reduction, focused coding, creating subthemes, and finally main themes.

Data was transcribed and analyzed immediately after collection and before the next participant. Review of the data from semi-structured interviews began with transcribing the recorded data and then listening to the recorded data again while also reading the transcription to ensure accuracy.

Ethical Considerations

According to Mack et al., (2005) "the history and development of international research ethics guidance is strongly reflective of abuses and mistakes made in the course of …research" (p. 8). As such, this study was designed to ensure ethical standards and behaviors were followed, as the well-being and safety of research participants is paramount (Mack et al.). The Belmont report (1979) suggested three guidelines for conductive ethical qualitative research:

1. Respect for persons
2. Beneficence and justice
3. Respect for communities.

The researcher followed each of these thorough the course of the study. For example, participants were informed their data would remain anonymous to ensure participants felt safe discussing their experiences teaching for transfer, a niche orientation and practice in higher

education. Indeed, participants did indicate conflict and strife with members of their department; anonymity helped protect them from potential fallout. Discussion of uncomfortable situations could be harmful for participants, thus the researcher reminded participants before the semi-structured interviews began they may withdraw from the study at any time for any reason without penalty.

Ethics Certification

The researcher has been certified to conduct qualitative research via the Collaborative Institutional Training Initiative (CITI) program.

Chapter Summary

This chapter described the purpose of the research and corresponding research approach. The study understood data through the lens of constructivism. The researcher's perspective and bias in conducting research was discussed. Participant's experiences were considered single cases, and cases were compared and contrasted to better answer the research question. Sampling procedures and selection were discussed, as well as details into the data collection, coding, and analysis. The chapter concluded by discussing how the trustworthiness of data was protected.

CHAPTER FOUR: RESULTS

The purpose of this chapter is to present the findings from the ten interviews conducted to answer the research questions. The research questions were:

1. How did instructors first come to know about the concept of learning transfer?
2. What experiences did instructors in higher education have in learning about learning transfer? How did they regard this instruction?
3. Did the experiences of instructors affect their decision to incorporate transfer friendly instruction to the courses they teach?
    a. If so, why and how?
    b. If not, what encouraged them to implement transfer friendly instruction?

This chapter includes a description of participants who self-identified as those who teach for transfer in higher education. Demographic information of participants is presented, and the main themes of learning transfer experiences as students, role modeling as a TA, formalized content experiences, improving teaching for transfer, barriers teaching for transfer, and unfamiliarity with learning transfer terminology are discussed.

Participants

Sixty-two potential participants were contacted regarding the study. Of those 62, 11 agreed to participate in this study. One participant was disqualified after data collection began due to not having taught a credit-based course within one year of study. Thus, ten participants were interviewed for this study. Information such as their professional title, academic rank, and academic discipline were collected (See Table 2). Six self-identified as women and four as men. Nine self-identified as white and one self-identified as white as well as Latinx. All participants taught at colleges or universities in the United States. Other demographic information was

obtained, including subject area, workload allocation (balance between research, teaching, and service responsibilities), and years teaching in higher education. All participants had exposure and experiences with learning transfer and were able to discuss how those aspects affected their instructional behavior to teach for transfer.

Leslie

Leslie is an associate professor at large public, land grant university in the southern United States. She has been instructing in higher education for over 15 years. Her workload is mainly devoted to teaching and research in Education. She indicated she has been in education for a "really, really" long time and teaches for transfer so students will have learning which is both lasting and impactful as opposed to students simply checking boxes.

Derek

Derek is an assistant professor in computer science at a large public university in the Midwest. As a newer professor, he has only been teaching in higher education for 4 years. Most of his workload is allocated by research although teaching comprises 40 percent of his work. He decided to teach for transfer in an effort to help his students adapt to a changing world, particularly in a technology related field.

Lance

Lance is an associate professor at a small midwestern public university in the field of education. He has been an instructor in higher education for 14 years. Most of his workload allocation is dedicated to teaching and service. He is the senior most member of his department and influenced new hires who also valued transfer friendly instruction. He teaches for transfer "to make people's lives better, to enrich their lives personally or professionally. That's what transfer is all about."

Dave

Dave is a professor at a large public university in the southern United States. Most of his workload is allocated to teaching. He has been teaching in higher education for 28 years. He had an epiphany regarding his instructional behavior and realized teaching should be emphasizing the transfer of learning as opposed to merely "checking off the boxes and receiving a grade" to obtain a "higher order perspective of why they're doing things."

Kimberly

Kimberly is an associate professor in veterinary medicine at a large, public, land grand institution in the mountain west. She teaches in a professional program and has been teaching in higher education for 18 years. Half of her workload is allocated to teaching and the other half ot research and service. Kimberly teaches transfer because it is more focused and applicable to real world scenarios and problem solving. This orientation results in learners becoming better practitioners.

Erin

Erin is a professor of chemistry at a large public land grant university in the mountain west. She has been teaching in higher education for 33 years. Most of her workload is allocated to teaching and service. Erin influenced the instructional behavior of her department through the hiring process and coaching new instructors. She began teaching for transfer after realizing students aren't asked to apply or do anything with their learning. Teaching for transfer, in her view, compels actionable outputs of students learning.

Jules

Jules is an associate professor in biology at a large public land grant university in the mountain west. She has been teaching in higher education for 19 years. Her workload is

weighted toward teaching. She teaches for transfer because she wants her students to "think like a scientist" and apply what her students have learned confidently to real world scenarios.

Heather

Heather is an assistant professor in biology at a medium public university in the mountain west. She has been teaching in higher education for 9 years. Most of her workload is allocated to teaching. She is passionate about teaching for transfer and insisted it is the instructor's responsibility to foster transfer for her students by covering biology concepts and how to apply them to the big picture.

Jim

Jim is an associate professor in the biology department at a large, public, mid-western university. He has been teaching in higher education for 16 years. His workload allocation is split 40/40 teaching to research, and 20 percent is dedicated to service. He is intentional with his instructional behavior and expectation of learning transfer by his students. He equated teaching for transfer with students applying lecture material to solving case studies.

Jane

Jane is an associate professor of medicine at a large, public university in the western University. She has been teaching in higher education for 16 years. Her workload allocation is mostly allocated to teaching with some to service in a professional program. Jane emphasized the need for students to transfer their learning form course to course within the professional program. This is done in an effort to "serve the public and bring all of their accumulated knowledge with them."

All participants, who self-identified as those who teach for transfer in higher education, were passionate regarding their instructional behavior and took pride in their instruction. The

researcher was inspired to learn about their experiences regarding learning transfer and how that affected their decision to teach for transfer. Considering teaching for transfer is not often utilized in higher education in addition to the researcher's own support of this orientation, it was illuminating and fortuitous for these participants to share their stories.

Table 2

Participant Demographics

Name (Pseudonym)	Workload Allocation (T/R/S)	Rank	Subject Area	Highest Degree Earned	Years Instructing
Leslie	50/40/10	Associate	Education	Doctorate	15
Derek	40/50/10	Assistant	Computer Science	Doctorate	4
Lance	60/15/25	Associate	Education	Doctorate	14
Dave	60/30/10	Professor	Education	Doctorate	28
Kimberly	50/20/30	Associate	Medicine	DVM	18
Erin	70/0/30	Professor	Chemistry	Doctorate	33
Jules	65/25/10	Associate	Biology	Doctorate	19
Heather	60/30/10	Assistant	Biology	Doctorate	9
Jim	40/40/20	Associate	Biology	Doctorate	16
Jane	50/0/25	Associate	Medicine	DVM	16

Themes

Six main themes resulted from analysis of the data. The themes were developed through open coding, focused coding, and categorizing, which led to the creation of subthemes and main themes:

1. Learning transfer experiences as a student (subthemes role modeling as a student & lack of learning transfer experiences as a student)
2. Role modeling as a TA
3. Formalized content experiences (subtheme ineffective formalized content experiences)
4. Improving teaching for transfer (subtheme non-formal experiences & informal experiences)
5. Barriers to teaching for transfer (subthemes student expectation, departmental culture, & a focus on transference)
6. Unfamiliarity with learning transfer terminology

Learning Transfer Experiences as Students

Of all ten participants, eight indicated their experiences as students affected their decision to incorporate transfer friendly instruction to the course(s) they teach. Of these nine, four participants pointed to their desire to role model former instructors as the reason they teach using transfer friendly instruction. Four participants indicated their experiences of not receiving transfer friendly instruction as students influenced their instructional behavior to teach of transfer later on as instructors in higher education.

Role Modeling as a Student

Role models are often seen by their aspirants as inspirational and motivational in regard to performing tasks, especially when those tasks are novel (Morgenroth, 2015). Teaching for transfer is considered a novel instructional approach in higher education (Halpern & Hakel, 2005; Scharff et al., 2017). The participants under study (those who self-identified as those who teach for transfer) were influenced via their prior experiences as students in higher education.

Participants in this theme indicated they received transfer friendly instruction in a variety

of subject matters. Importantly, participants in this theme indicated it was the way they received instruction which affected their current instructional behavior. Notably, the transfer friendly instruction participants received as students affect their conceptualization of quality teaching, which later affected their instructional behavior as future instructors in higher education.

Of the ten participants, five participants indicated they experienced transfer friendly instruction as a student from their instructor. When asked about her experience with transfer friendly instruction, Kimberly spoke about her experience:

> Well, I think it started in my undergraduate degree. I would take classes where the class was really about concepts and how things work. We would learn how to use this programming language in these various ways and then you would go a couple days before the exam. You would get 2 pages of code with no explanation and you would have to use that code to try to figure out what each of these little subroutines would do. So, you would have to use what you understood about coding and apply them. And I just was fascinated by that process.

Another professor, Jules, had similar things to say about being exposed to transfer friendly instruction as a student:

> In my [other] undergrad experiences, it was all lecture. I just sat and listened to lectures, constantly took notes. But, in my other class, she had so many activities I had never seen that before in a science class, so many in class things that we were doing. A lot of them actually in the beginning they were more like demonstrations, learning demonstrations. There were several different kinds, and she would be up on the board and she would have all these little pieces and she would demonstrate how transcription and translation of a gene works and she would just use these pieces of paper with letters and models that she had made and she would have students come up and work with those pieces. We'd be talking through how the process works and I'd be like, 'oh, I've never seen that in a science class ever.' I knew I wanted to be a college teacher and so I was watching her, I was observing her.

As a student, Jules was very familiar with lecturing by instructors in higher education, which was considered typical instruction in higher education. Her experiences with transfer friendly instruction were perceived as unusual by Jules in comparison. The novelty of this instruction to participants made this first exposure memorable and inspired her to teach for transfer later in her career.

Lack of Learning Transfer Experiences as a Student

While some participants indicated they role modeled their former instructors as students, others indicated they teach for transfer in response to a lack of transfer friendly instruction they experienced. The lack of transfer friendly experiences resulted in participants self-directing their learning in an effort to address deficiencies in their prior experiences as students. Four participants incorporated transfer friendly instruction in an effort to be a better teacher for their students in relation to their own formal experiences as students. Unlike the previous theme, in which participants were impacted by transfer friendly instruction, these participants were inspired through a realization of what students needed from them in contrast to their experiences as students. According to Dave:

> Teaching for transfer came from a desire to want better for my students. I think any good teacher is trying to think what their students need. And I always used to think about when I was a student because I was an instructional design student and I was teaching instructional design students. So, I had a connection, a cognitive connection, and a sort of personal connection, because I was in their shoes. When I was an instructional design student, I made all A's, but I didn't know anything about instructional design. And I thought, 'oh man, that's bad.' That might have been sort of a genesis of my thinking about, you know, real world type situations.

Leslie echoed this sentiment:

> So, it was me as a new professor, just kind of in overdrive, trying to figure out how I was going to get my job done and I came across this language [on learning transfer] that was super useful, which is also why I teach this way. It helped me think about how to be more strategic about how to build my classes and move students forward. Because I realized, when I went through my doctoral program, nobody taught me how to do anything they just said, 'Here you go, go do this thing.'

In contrast to the experiences in the previous section, participants indicated they did not receive transfer friendly experiences as students. As opposed to being inspired by their experiences, these instructors were motivated by the absence of transfer friendly instruction. Subsequently, they self-directed their learning to address deficiencies in how they were taught via non-formal and informal experiences.

Role Modeling as a TA

While many participants indicated the experiences as students in higher education affected their decision to transfer friendly instruction to the courses they teach, others indicated their experiences as teaching assistants (TAs) influenced them. A TA is often defined as graduate position in which an individual assists with the operation of teaching a college or university course they did not design and thus are apprentices in college teaching (Hicks et al., 2022). Of the ten participants, two indicated they were first exposed to learning transfer as a TA. Erin had this to say about her first exposure as a TA:

> I TA'ed for him for multiple years. This is in the 80s so you didn't see really unusual teaching. His exams were really for transfer, which you rarely saw. I mean, most of my exams were very, 'I've told you this, tell me it back, and his questions were all like you 'gotta think about what I've told you and how it how you're going to fit it into something here.'

Jim described his experience as a TA in a biology course:

> Looking back, she was totally tuned into this [teaching for transfer]. She had great rapport with students. She was investing in trying to understand them and doing similar things and trying to connect the material in relevant ways to what those students' interests were either personally or professionally. And so, I feel like I just copycat it to some degree. I kind of took the things that resonated with me as being strength of those teaching styles and adapted them in my own teaching.

Similar to students receiving transfer friendly instruction, TA's were inspired to role model their mentors, which later affected their instructional behavior. These participants remember experiences positively and were inspired by their experiences.

Formalized Content Experiences

Although some participants indicated they were first exposed to learning transfer via transfer friendly instruction in formal environments, some participants also received explicit, content instruction in formal environments as college students. Voss et al., (2011) refer to these explicit experiences as content knowledge, which contains basic concepts of the subject being

taught. Content instruction, in regard to learning transfer, is operationalized as intent to instruct students on learning transfer and how to foster learning transfer friendly instruction. In these instances, participants received formalized instruction regarding learning transfer and how to facilitate it. Content instruction distinguishes itself from pedagogical instruction because it is explicitly the subject matter under study in a learning environment Voss et al., (2011). Of ten participants, four indicated they had experienced formalized content instruction regarding learning transfer. Six indicated they did not receive content instruction regarding how to teach for transfer.

Dave indicated he was first exposed to the concept on learning transfer explicitly in a formal environment as a graduate student:

> In my program you have sort of the structure that everyone talks about: Gagne's Nine Events of Instruction. That's a very big concept in instructional design and the 9th event of instruction is to enhance retention and transfer, so it's overtly stated in sort of the primary structure that instructional designers use. So, in every class I had, we talked about it and came up with ideas.

Of four participants who had explicit, formalized experiences, three of these participants indicated their formalized learning experience was in a graduate program in education or a related field. Formal learning experiences are defined as structured learning that takes place 'off the job' and outside of the working environment, typically in classroom-based formal educational setting (Marsick & Watkins, 2001). For example, Lance mentioned: "My degree is in adult and higher education, which is exactly what those programs teach, is how to transfer these skills, how to learn these skills and transfer these skills."

Ineffective Formalized Content Experiences

Three participants indicated their formal experience in learning about transfer friendly instruction did not affect their decision to incorporate it in the courses they teach. Explicit formalized education, in which learning transfer and how to facilitate its usage, did not influence

participant decision to teach for transfer. Dave stated:

> Transfer is overtly stated in sort of the primary structure that my graduate program used. So, in every class I had, we talked about it and came up with ideas to facilitate it. We considered it, and thought about it. In our program, 'enhance retention and transfer,' would be providing a job aid or mnemonic devices to help them remember content. Once I became a professor it was, I think, much more of a gradual realization over time that I probably should be doing that [teaching for transfer]. A more structured building it in from day one. I probably should have been more instructional design focused when I first started teaching in Higher Ed, but I really wasn't. And I knew all about transfer and I just never thought about it a lot of times and it took a while to get to that point.

Leslie, a professor with a similar background in education, echoed this sentiment: "I graduated with a doctorate in Education and I never received any formal education on how to facilitate transfer. So, this is kind of scary that I didn't encounter this idea until later."

Improving Teaching for Transfer

While pedagogical experiences (or lack thereof) affected participants' decision to teach for transfer, many credited both their nonformal and informal experiences as boosting their effectiveness in teaching for transfer. Self-directed learners learn independently by self-diagnosing their current comprehension and actively pursuing new information or experiences to fill knowledge gaps (Frank & Scharff, 2013). Nine participants indicated their non-formal and informal experiences positively affected their ability to teach for transfer. This pursuit of knowledge took the form of both nonformal and informal experiences for participants. Examples of non-formal experiences included seminars, workshops, and non-credit courses, while examples of informal experiences are utilizing a search engine, blogs, and perusing academic journals.

Non-formal Experiences

Closely related to formal learning, non-formal learning distinguished itself by presenting learners with alternative sources for learning and commonly include examples such as university and national conferences, seminars, campus workshops, and clinics (Nelson et al., 2005).

Continuously improving how to teach for transfer was a consistent theme among participants. Four participants indicated they had non-formal learning experiences with learning transfer. Erin mentioned the breadth of non-formal educational opportunities she pursued to bolster her understanding of learning transfer and described how working as a learning assistant for an instructor affected her desire to seek out non-formal opportunities later on in her career:

> I actually was an undergraduate learning assistant for three years in college for a guy who's just an amazing teacher. And so, I got to see different ways of doing things by working with him. And when I got to Graduate School I kind of knew that I was interested in pursuing a career or I would teach. And so, that got me involved in all kinds of teaching things on campus.

Kimberly discussed pursuing non-formal opportunities after making the decision to teach for transfer: "I did take a course; I took a series of courses here at the University through the adult education group. I took a series of seminars there on adult education. But this was after I had already been interested in teaching for transfer."

Importantly, nonformal experiences, while positive experiences, supported instructors after they had already utilized transfer friendly instruction in their courses. These experiences contrast with the first two themes, because they were not impactful on their instructional behavior.

Informal Experiences

Informal experiences are defined as non-structured learning outcomes which can occur both intentionally and unintentionally (Hutchins et al., 2010). Informal learning distinguishes itself from other forms of learning in that participants are often the catalyst behind their experiences and under their own self direction. Of the participants sampled, nine participants indicated they engaged in informal experiences to learn about learning transfer.

In response to their desire to improve their teaching, participants took it upon themselves to learn how to best teach for transfer informally. According to Derek:

> What got me interested in transfer was when I taught adjunct at a community college in an introduction to computer programming class and at the time, I realized like anything in technology is very hard to teach because you teach something and then things change in six months and you have to relearn new things essentially. No one was supervising the course, it was very hands off. So I went to educational blogs, and I used Google to search how to do that.

Leslie echoed the role informal learning played in developing knowledge and practice regarding learning transfer from peer reviewed, academic journal articles:

> I mean first of all, it's just an ongoing process, right? So, I still research and read obsessively, trying to figure out from all these different angles. But I want to understand the mechanisms behind [learning transfer] better. My latest vent is reading as much of the neuro cognitive science as I can to kind of understand what it is about that embodied context that is so important to learning from a scientific point of view. Because I think from just kind of an applied point of view it makes sense to me like I know when you know when people are immersed or embedded, or at least can create a similar context that they can act on and figure out how to apply new strategies or manipulate ideas and do these different things.

Networking and Collaboration. Of the nine participants who indicated they had informal experiences regarding teaching for transfer, four participants indicated informal experiences took the form of networking and collaboration with like-minded individuals who were interested in developing their competency at teaching for transfer. Jake was blunt when describing how his informal experience affected his practice of teaching for transfer: “I had no concept of that [learning transfer] without quite frankly, mentoring and hand holding and advising and whatnot. I would say it's almost entirely due to mentoring by way of networking.” Jules described the impact mentorship had on her orientation to teach for transfer:

> After I got my grad degree and was ready to enter teaching and everything, I worked with a mentor of mine and she and I have been working together ever since and she's really been my mentor over time, and some of those demonstrations that she did, we together converted them into more hands on as we both learned more about student learning and their experience. It’s been an awesome partnership. I'm just so grateful that she and I have been able to work together like we have over the years. We meet once a week and we have a standing meeting every week and sometimes it was two hours long.

Barriers to Teaching for Transfer

Through the inductive open coding process by the researcher, additional themes emerged

from the data which were not initially linked to the interview protocol: barriers to teaching for transfer and the unfamiliarity with learning transfer terminology. Barriers are defined as obstructions which hinder or otherwise negatively affect an instructor's ability to teach for transfer. There were three subthemes, student's expectations, departmental culture, and a focus on transference, which contributed to the main theme of barriers to teach for transfer. The analysis indicated professors in higher education perceive barriers to their instructional behavior which affect their capacity to teach for transfer.

Student Expectations

Seven participants pointed to student's expectations as a barrier to teaching for transfer. Teaching for transfer is an unusual approach to instruction in higher education (Fink, 2012). Most instructors are prone to deliver instructional content via lecture in which students are passive receptacles to knowledge acquisition in which Tate (2004) coined the term "sit and get." In contrast, teaching for transfer emphasizes student involvement and deviates drastically from the typical approach often seen in higher education. When students encounter an instructor who teaches for transfer, they are often met with resistance from students. When asked why she believed students are resistant to an orientation to teach for transfer, Kimberly stated:

> I think they've been very successful in their undergraduate careers of just simply regurgitating information and knowledge. And they will say 'I read all of my notes and I still didn't do well on your test, so it must be you teaching me the information.' So, the attitude is that we are filling these receptacles and then they should be able to do really well. And so, they don't like it when I asked them to do the hard work of taking knowledge and putting it somewhere.

The participant is indicating student resistance comes from a culture clash between what students perceive instruction ought to be, with its embedded assumptions regarding the nature of knowledge, and an orientation to teach for transfer, which requires students to take on a different role than what they're used to. Leslie stated:

> There's a lot of trepidation students have because of what we're used to from our regular schooling system. I think learning transfer and that sort of integrated, working the content into a real context isn't something they're not very used to because we've decontextualized content from the actual context that we're supposed to be applying it in. And so, it's hard to convince students focusing on the process will get you the outcome, when we tend to be so focused on the end product or the right answer instead of looking at, 'Am I improving how I'm doing?' So that's a totally different mindset that you have to kind of get people into.

Gratitude. Although teaching for transfer can be met with resistance from students, participants indicated initial resistance gives way to gratitude by the end of the semester. Three participants indicated students, initially apprehensive and resistant to the orientation of teaching for transfer eventually preferred the instructional orientation to teach for transfer in comparison to other, more typical instructional orientations. Jim stated, "I mean, I also get comments from students that are like, 'man, this was really challenging, but like thank you. In retrospect, I feel like I actually learned something.'"

Jane shared a similar experience:

> I have lower than average evaluation scores from my first-year students. Early in their training, I think you see some resistance by some students and I tend to think those are the ones that were trained in a very large institution with a science background, so they really didn't apply a lot of what they were learning. But, as they get more experienced in their curriculum and as they mature and are around more of their colleagues, more of them find this rewarding and important.

Course Evaluations. Course evaluations are a common method to measure the effectiveness of instructors in higher education (Goos & Salomons, 2017). Often, a significant portion of course evaluations are determined by how students rate the course at the end of the semester. Course evaluations were cited by participants as a barrier which affected professors in higher education. Six participants indicated they received negative feedback on their course evaluations due to the use of transfer friendly instructional techniques. Participants indicated using transfer friendly instruction in the courses they teach could negatively be received by students, and thus students would leave instructors with poor course evaluations. Kimberly

shared how negative course evaluations by students are how her teaching is evaluated:

> Student ratings are how your teaching is evaluated, and if the students aren't liking it, then your ratings are poor. And then the implication is that you're a poor teacher. So, they're misconstruing popularity with effective teaching, so that can be a barrier to teaching something that you feel is going to be a better experience, it's gonna lead to retention is going to develop them as students, as reasoners, and critical thinkers.

Dave echoed that sentiment:

> Students are more likely to complain about getting transfer. Let's be honest about it. Anything like that, that's more challenging or requires outside the box thinking, is a barrier to teaching for transfer, because you're sticking your neck out and opening yourself up to problems and complaints.

While student evaluations remain the most prominent metric for evaluating teaching, previous research has indicated student evaluations do not indicate teaching effectiveness (Boring et al., 2016).

Departmental Culture

An academic department is best understood as an organizational culture made up of behaviors, policies, practices, and beliefs (Lee, 2007). All 10 participants indicated they possessed the autonomy to teach for transfer in the courses they instruct. However, participants discussed how their departmental cultures clashed with their orientation to teach for transfer. As presented in the previous section, the jarring and apprehensive perception by students in regard to transfer friendly instruction can in part by traced to how others in the program are teaching their course(s). This is problematic because more accepted forms of teaching contrast with the instructors in higher education who teach for transfer. Three participants believed their colleagues do not teach for transfer in their department which affected the way their instruction was regarded by students. According to Kimberly, speaking about the prevalence of transfer friendly instruction when asked if her colleagues use transfer friendly instruction:

No. I think they think it is because they lecture and give information, but I don't think they are very good at teaching for application. They try to, but their sessions are all lectures. There's not a

lot of application in the classroom, there's just not a lot of application. They're just lecturing, essentially.

Workload Allocation. The influence of departmental culture as a barrier to teaching for transfer may be exacerbated by the workload allocation of instructors. Workload allocation is divided between teaching, research, and service responsibilities. Three participants indicated evaluations regarding teaching performance, including teaching for transfer, are especially overlooked if the appointment type is weighted toward research: Heather stated: "If you're a researcher, you just show up to teach and teach whatever way you want, and that's OK. You know, no one is going to care about teaching."

Kimberly, whose appointment type is weighted toward teaching, shared a conversation with a colleague she had whose appointment type was weighted toward research:

> I said in a meeting, 'you know, we need to get more credit for teaching.' And this guy stood up and said, 'I don't know why you need that because it takes me an hour to brush up my PowerPoint presentations from last year and deliver them in an hour.' I was flabbergasted. Essentially, for every hour of teaching, if it's the same lectures before we will give you 2 hours of credit to prepare that. Whereas teaching is time you delivered in one hour and you clearly didn't have to spend a whole lot of time doing that because teaching, after all, is just delivering information right? I'm sorry this is like one of my biggest pet peeves. I get really angry about this.

The contrast between instructional orientations and philosophies between those whose workload is research heavy versus those who are teaching heavy affects the culture of the department, which then affects performance metrics, credit, and job performance of those who teach for transfer.

Departmental Culture Boon to Teaching for Transfer. Although many participants defined aspects of their departmental culture which created a barrier to teaching for transfer, four participants indicated there were small pockets of sub-cultures within their department. These sub-cultures consisted of members which supported each other as they taught for transfer. This is in contrast to the barriers discussed in the previous section. Jules described the operations of this

subculture in her department:

> We have a group in our department called the 'Teachers Lounge' and we meet once a month, so everyone in the department's invited but usually mostly the teaching kind of faculty show up and we do talk more formally, sometimes about these ideas [about transfer], in that in that meeting.

Lance shared a similar sentiment, who stated:

> There are three faculty members and we all pretty much have the same philosophy regarding teaching in that yes it should foster transfer. We raised money for a retreat to review and revise the program and talk about how to make it better.

These aspects of the culture (discussing how to foster transfer friendly instruction, and supporting the goal of the department to foster transfer) stand in contrast with the earlier section on how some aspects of departmental culture creates a barrier to teaching for transfer. The willingness and involvement of other members creates a sub-culture within a department in support of teaching for transfer.

A Focus on Transference

Despite the barriers faced by participants, they were ultimately undeterred from teaching for transfer in their course. All participants indicated they taught for transfer because they wanted better learning outcomes for their students operationalized as having learning transfer beyond the course. Participants indicated they teach for transfer in an effort for learning content to make an impact outside of the classroom. When asked why she teaches for transfer, Erica stated:

> When you don't ask students to apply concepts, they don't apply it to a new situation. Then learning becomes about trivia, and I'm not here to teach trivia. I always tell my students 'I don't care if you memorize every word I've ever said if you can't apply it to a new situation.'

Jules shared:

> [Teaching for transfer] means providing experiences for my students to work with the material to use it in a different way than just listening or reading, so that they can start to think like a scientist and apply what they're learning to new situations.

Despite the barriers faced by participants from both students and departments which

discourages teaching for transfer in higher education, instructors indicated teaching for transfer was still a worthwhile instructional orientation because it connected to them wanting better for their students.

Unfamiliar with Learning Transfer Terminology

When contacted via the recruitment strategy of the researcher, many participants reflected on their prior history of utilizing instructional orientations which support the aims of teaching for transfer, which was defined for the participants as **"**an intentional orientation which uses a breadth of instructional techniques to help students retain and utilize their learning; it is a multi-dimensional approach with the goal of getting students to retain and apply what they learned from the course." Although participants self-identified themselves as someone who "deliberately and intentionally teach for transfer in one or more course(s)" seven participants stated they had not heard the term "transfer friendly instruction" or "teaching for transfer" before first contact by the researcher. A copy of this email can be found in Appendix A.

Subsequently, participants indicated they utilized a search engine to find a definition of learning transfer to supplement the one provided by the researcher. When they did so, it confirmed for them they did indeed teach for transfer and were qualified to participate in research. Heather discussed her reaction when she was first contacted by the researcher:

> Can I be totally honest? Even though I do it based on the definition, I had never heard of this term before. I am so embarrassed to admit that, but when you said a teach for transfer, I was like 'what is that? I don't even know if I do it.' And then when I looked up the definition I'm like 'Oh yeah, I do that.'

Some participants who were not familiar with the term "teach for transfer," discussed transfer in the classroom by linking it to other educational outcomes they strive to achieve. The participant then conceptualized these instructional efforts as equivalent to teaching for transfer. Of the seven who had initially not heard the term teaching for transfer, five participants

specifically mentioned how instruction to foster critical thinking outcomes for students was an important aspect of teaching for transfer. For example, Dave stated:

> I always came at it from a problem solving, critical thinking mindset which I think there's probably a lot of overlap between that: teaching people to solve problems and think for themselves and develop hypotheses and plans. All of that is really teaching for transfer without really knowing it. I think that's what I was doing.

Leslie shared a similar explanation to Dave in how she linked transfer to critical thinking and described its practice in broader terms:

> This [teaching for transfer] isn't a specific applied skill like 'how do I run a specific statistical analysis?' But the idea was that I wasn't just conveying content, but that it was building. I was scaffolding skills and behaviors and other things throughout. And that's what I started thinking about, 'how do I build toward a kind of critical thinking, for example, that I want somebody to develop.'

Leslie specifically mentions her perception of teaching for transfer is not an exact, applied skill by rather a broad application in the classroom.

Additional Findings

Additional findings emerged from the data. Although not significant enough to form themes, they are nonetheless noteworthy findings.

Professional Programs

Professional programs, such as pharmacy or veterinary schools respectively, are different than most programs in higher education because the emphasis is placed on applied learning outcomes outside of the classroom. Although still under the umbrella of higher education, professional programs emphasize skill or job performance compared to other programs. Participants in these programs indicated there is a natural vector for application of classroom learning compared to other programs in higher education. Dave discussed how teaching for transfer operationalizes in a professional program:

> I actually worked at a professional school, a pharmacy school, and they are better at thinking about transfer and doing things that will transfer. Like a lot of pharmacy schools,

> I think it's sort of in their DNA to think about what a pharmacist actually does. You know their job that they're training people for is much more well defined than many traditional graduate programs.

Professional programs seem to foster transfer as a natural output. Another participant in a professional program, Jane, shared this sentiment, while also indicating some instructors facilitated transfer better than others:

> In a professional training program, that was what was expected of us as students [transferring learning]. But certainly, I think there are faculty who are much better at connecting the clinical patient in front of them to the basic science type things that that students need to be able to fall back on and think through.

Participation as a Learning Experience

An interesting aside is participants indicated the experience of participating in this research project was itself a learning experience which may affect behaviors in regard to learning transfer. Jules, after discussing teaching for transfer and its relationship to performance stated:

> We don't use the word teaching for transfer, but that is definitely something I could add to the list because I like that idea. This is helping me because I have some say in what we ask people so I can add this to our list of forms of evidence [of good teaching]. I think it's good when you can put language on something, right? It makes people more aware of 'I'm doing that, I just didn't know that I had to talk about it.'

Summary of Findings

The purpose of this study was to better understand what experiences instructors in higher education have regarding learning transfer and how those experiences affected their instructional behavior to teach for transfer. Ten instructors in higher education self-identified themselves as those who teach for transfer and shared experiences pertaining to their first exposure to transfer as well as their experiences which affected their instructional behavior. Six themes were developed from analysis of the data.

Students who were exposed to pedagogical instruction, in the form of transfer friendly instruction, sought to role model these instructors later on in their careers. Their instructional

orientation was affected by their previous experience as students. Conversely, some participants were driven by their need to be better instructors compared to what they experienced as former students.

Some participants as former TAs, role modeled the instructors they served under. The instructional behavior of these participants, as mentees to instructors who taught for transfer, were influenced by these experiences.

Interestingly, participants who had formalized, content experiences regarding transfer, where the learning material was specifically about learning transfer and how to foster it, did not cite these experiences as reasons for teaching for transfer. This suggests these experiences did not affect the instructional behavior of graduate students earning a terminal degree in education or a related field.

Participants stated both non-formal and informal experiences were sought to improve teaching for transfer. These experiences were positively viewed by participants and were described as useful for helping instructors in higher education teach for transfer. Four participants indicated non-formal experiences, in the form of university and national conferences, seminars, campus workshops, and clinics. Informal experiences were much more common. Nine participants cited informal experiences regarding teaching for transfer, and included using search engines, collaborating and networking with colleagues, and searching educational blogs and academic journal articles for information.

Seven participants perceived barriers to teaching for transfer. Barriers were operationalized by the subthemes of student expectations, course evaluations, and departmental culture. Participants indicated some students disliked or resisted the orientation to teach for transfer based upon their own ideas of what teaching ought to operationalize. However, three

participants indicated students' initial resistance gave away to appreciate for teaching for transfer by the end of the course. Student evaluations of instructors who used transfer friendly instruction in the course they taught faced barriers. Departmental culture was also perceived to be a barrier for instructors in higher education who teach for transfer. These included teaching for transfer not being an emphasized as performance criteria for quality teaching, and workload allocation of department members affected orientation to teaching for transfer. However, some members mentioned their departmental cultural positively affected teaching for transfer.

Finally, seven participants indicated that they were unfamiliar with the term "transfer friendly instruction" or "teaching for transfer" before first contact by the researcher. Furthermore, five of these participants equated teaching for transfer as fostering critical thinking in students.

CHAPTER FIVE: DISCUSSION

Chapter Overview

This chapter focuses on a discussion of the findings presented in chapter four. Discussions are delineated by the six themes and subthemes developed through data analysis. Discussion of the themes includes a recap of theme, relation to the literature, why the finding was impactful, and perspective of the researcher. The chapter concludes with suggestions for future research.

Discussion of Findings

Six themes derived from the data in an effort to answer the research questions: learning transfer experiences as students, role modeling as a TA, formalized content experiences, improving teaching for transfer, barriers to teaching for transfer, and unfamiliar with the terminology. Themes and data from the additional findings section are discussed.

Learning Transfer Experiences as a Student

The theme of learning transfer experiences as students is centered on the reasons behind why instructors in higher education teach for transfer. This theme is delineated by two subthemes: role modeling and lack of learning transfer experiences as a student. This focuses on the experiences instructors who teach for transfer in higher education as students and how the presence of a role model affected their instructional behavior.

Role Modeling as a Student

The findings showed these participants were exposed to transfer friendly instruction via their time as students and wished to emulate the instructional behavior of their former teachers. Importantly, the pedagogical method participants received from instructors inspired participants in this study to teach for transfer. Pedagogical instruction is knowledge of how to teach, is not

subject specific, and includes a variety of orientations, methods of instruction, and assumptions regarding teaching and learning (Voss et al., 2011). Students were privy to this pedagogical instruction in their formalized environments: an orientation to teach for transfer in a subject matter unrelated to learning transfer itself.

Participants exposure to transfer friendly instruction affected their instructional behaviors. For these participants, their instructional behaviors were altered due to positive exposure points in their formalized environments, which were then supplemented and developed by that instructor seeking out additional non-formal and informal opportunities.

Many participants used language describing their experiences in a very positive light (e.g., wonderful), and from this positive perception came a shift in their educational philosophies. This finding was surprising, suggesting the method or way students were taught was more impactful than the content of the instruction. From this shift, participants then shifted their behaviors and engaged with experiences outside of the formalized environment through non-formal and informal learning experiences. These took the form of explicit experiences in which learning transfer was the content under study as opposed to the pedagogical, transfer friendly instruction they previously role modeled.

Participants who had this experience spoke about how unique this instruction at the time compared to their other experiences, and supports the notion by (Cox, 1997; Fink, 2012; Halpern & Hakel, 2003; Scharff et al., 2017) that teaching for transfer is perceived to be infrequently utilized as an instructional orientation in higher education.

Lack of Role Modeling as a Student

Those who did not have a role model to emulate had a different path to teaching for transfer and were motivated to address a perceived deficiency in their previous formal

experiences as students. Because these participants did not have the formal exposure point as students who received transfer friendly instruction, they were left to self-direct their learning which made it difficult to discover the concept of teaching for transfer. Without an explicit (content) or non-explicit (pedagogical) exposure point, informal exposure to learning transfer was comparatively less direct and required more effort to be accessed.

Furthermore, the effectiveness of teaching for transfer may be affected by learning through informal means. Participants who had role models with pedagogical experience could role model their former instructors and adapt instruction perceived to be effective. Those who relied on self-direction did not have a starting point and may be less likely to know what learning transfer is and how to accomplish it. In addition, the number of participants who had positive experiences as a student or TA, and thus adapted instructional behaviors, was more prevalent than the number who relied on self-direction. The presence of a subject matter expert (an instructor for students or mentor for TAs) may be more impactful than informal experiences in which experiences are non-structured and unfacilitated.

Role Modeling as a TA

Some participants served as TAs and were influenced by their experiences which later affected their instructional behavior to teach for transfer. These experiences are different from students who were role modeling their former instructors because of the mentor/mentee relationship shared by instructors and TAs. The two participants who indicated they were role modeling their instructors as former TAs indicated these were highly influential experiences. According to Finch and Fernandez (2014), mentorship is one of the most effective ways to develop graduate students into academics. This contrasts heavily with the other experiences participants mentioned which affected their instructional behavior, in which participants were

learners in a learning setting. Unique to this relationship compared to other experiences is personal and reciprocal exchange over a 16-week, semester long period, which often results in improved teacher preparation (Hadjioannou et al., 2007). Indeed, Hicks et al., (2022) conceptualized TA's experiences as professional development experiences. Other research has indicated TA's future instructional behavior is impacted by changing attitudes, beliefs, and perceptions regarding instruction (DeChenne et al., 2015).

The context of this relationship may particularly be effective at influencing instructional behavior of future instructors in higher education. Pairing developing TAs with instructors who teach for transfer could address the lack of instructors who know about learning transfer and its lack of pervasiveness in higher education. Further research is needed to understand if TAs are simply adapting teaching philosophies and orientations when it comes to teaching for transfer, or if mentors are actively imparting the importance of transfer friendly instruction for their TAs. If the latter is true, simply pairing TAs with those who teach for transfer may not be impactful enough to affect TAs instructional behavior.

Formalized Content Instruction

Some participants had formalized learning experiences in which learning transfer was a part of the learning content under study. Yet, of the three participants in this study with terminal degrees in Education or a related field, in which learning transfer is a prominent concept, two mentioned their experiences as students did not influence their instructional behavior in regard to teaching for transfer. These participants, asked to reflect on their experiences, noted the unusual circumstance of receiving formalized education regarding learning transfer without such instruction affecting their instructional behavior. Participants who receive terminal degrees in formal environments are expected to know their subject matter well, especially compared to

other learning forms such as non-formal and informal learning experiences (Cameron & Harrison, 2012).

This tacitly suggests these participants believe formalized experiences (of the three experience types of formal, non-formal, and informal) ought to have been the most influential regarding their instructional behavior. When they realized this was not the case, one participant described it as "scary" and the other mentioned he "knew all about transfer" as a student and "probably should have been doing that [teaching for transfer] since day one." This brings serious questions to the effectiveness and impact of explicit, formalized experiences regarding learning transfer as the content understudy. This supports a study conducted by Cameron and Harrison (2012) in which both informal and nonformal learning were shown to be more effective in producing skills than formal learning.

Furthermore, the comparison between the two forms of formalized experiences (pedagogical versus content) suggests the former is more impactful than the latter influencing instructional behavior of participants who teach for transfer, meaning how instruction was delivered (a pedagogical experience) was more influential than the actual content of instruction (a content experience).

Interestingly, no participants indicated they received both content and pedagogical experiences regarding transfer, in which learning transfer is the instructional content under study and the instructor simultaneously utilized transfer friendly instruction. This is an interesting finding, as instructors in formal environments who are teaching the concept of learning transfer are also not doing so in transfer friendly way.

Improving Teaching for Transfer

Some participants indicated they had both nonformal and informal experiences which

were not cited as reasons they teach for transfer, but opportunities to develop and continue to develop their ability to do so.

Informal Experiences

Informal experiences were cited as the most common form regarding learning transfer. Informal experiences are non-structured events which can occur both intentionally or unintentionally (Hutchins et al., 2010). Most of the participants sampled indicated their informal learning was an aspect of self-direction as a function of intentionality, in which individuals take the initiative to diagnose learning needs, set goals for meeting those needs, figure out resources and strategies to make learning happen, and evaluate the process (Knowles, 1990). Participants sought out information through a desire to make their instruction more transfer friendly, and commonly conducted literature searches to access scholarly and journal articles, educational blogs, and other publication on how to foster learning transfer. The accessibility of high-quality research publications may have been related to participants' experiences as researchers, scholars, and practitioners within higher education. Informal experiences may have been more frequent occurrences for participants because of the ease of accessibility compared to formal and non-formal experiences which often require registration.

Non-formal Experiences

Participants also indicated they had non-formal experiences in learning how to teach for transfer. Non-formal experiences are defined as "any organized, systematic, educational activity carried on outside the framework of the formal system to provide select types of learning to particular subgroups in the population" (Nelson et al., 2006, p. 252). The definition provided by Nelson applied to the participants as subgroups of instructors in higher education who sought out experiences offered by universities (professional development opportunities in the form of

workshops) and national, academic conferences. Interestingly, of the three participants whose terminal degree was in education or a related field, none indicated they had nonformal educational experiences to teach for transfer. This is a somewhat surprising finding, given non-formal opportunities surrounding learning transfer would be more prevalent and accessible to places like national conferences pertaining to their terminal degree in higher education. There could be many explanations for this. One could be participants in this subgroup did not feel the need to engage with additional non-formal experiences given their formal, graduate terminal degrees in education or related fields.

Non-formal experiences are distinct from formal experiences because they are not required or mandated experiences like formal experiences often are, which means participants have more autonomy in deciding if these offerings, which are optional, will be beneficial experiences. For example, academic conferences offer many different sessions, workshops, and seminars which participants are free to peruse and attend on the basis of their prerogative. This is important to note because participants selected to attend these experiences at their discretion.

The research questions sought to understand how participants regarded their experiences with learning transfer to determine, in part, how the perceptions of those experiences affected their motivation to include it in their orientation or instruction. Participants indicated their formal experiences affected their motivation to teach through transfer, either by role modeling a previous instructor or addressing a lack of transfer. Interestingly, participants who indicated they had non-formal experiences in learning how to teach for transfer did not credit their non-formal experiences as the affecting their decision to teach for transfer, but rather as supplemental experiences to bolster and develop their instruction. Nonformal experiences were not mentioned as being a significant exposure point for participants, suggesting a few things. First, exposure

points seem to be highly influential for participants. These exposure points are often credited as the switch or change from one form of instructional behavior to another suggesting when participants are exposed or made privy to teaching for transfer, they adopt it. Secondly, nonformal experiences are less influential than formal and informal. It seems a change in instructional behavior via exposure points is required to get learners to select these opportunities when offered.

Participants generally approved of their experiences regarding how to teach for transfer. Only one participant mentioned specifically she disregarded one of her non-formal experiences because she believed it would not be successful given the aims of the course and her students. All other experiences were positively regarded by participants. Participants used positive terminology, such as "wonderful" "great" and "inspiring" and "fun." More positive feelings toward an experience are operationalized as interest in the subject, are likely to facilitate transfer (Macaulay & Cree, 1999).

Barriers to Teaching for Transfer

One of the themes from the data was the barriers instructors in higher education face when teaching for transfer. This theme was characterized by student expectations, course evaluations, and departmental culture.

Student Expectations

According to Corbo et al., (2016) "culture is a constantly evolving system of shared beliefs, values, customs, rituals, practices, and artifacts" (p. 1). Within cultures are deep rooted cultural norms that complicate cultural transformation (Corbo et al.). Student cultural norms are based around their experiences in higher education, which many instructional techniques at odds with transfer being predominant (Davis & Arend, 2013).

One of the ways to understand student culture is the perception of the experience through the eyes of instructors, with many instructors indicating students did not like when instructors used transfer friendly instruction in their courses. This is supported by a study conducted by Lightner et al., (2008) which found students regard transfer as less important than faculty. Therefore, it is not surprising students did not see the value of transfer friendly instruction in some cases, as found in this study. This negative perception of the orientations and practices can lead to poor learning outcomes for students, who are likely to take issue with this instruction. Teaching for transfer is not prevalent in higher education, which results in the concept being outside the zeitgeist of typical instructional methods. This gap between what students expect from instruction and what they experience could help explain why students are resistant to transfer friendly instruction as it requires students to adopt a differing set of assumptions and epistemic expectations.

Although adopting an orientation to teach for transfer does not on its own guarantee that the instruction was of quality or will be an effective teaching orientation, the data gathered from the participants indicated instructors perceived resistance was due to how unusual the orientation was rather than a measure of its quality, suggesting students did not object to the quality of the instruction, but rather the instructional orientation behind it. However, participants did not specifically mention whether students understood their instructional methodology was supporting learning transfer. Students may have regarded participants instruction differently if they understood the reason for doing so.

Course Evaluations

Related to student's culture, poor course evaluations seemed to emanate from transfer friendly instruction. Student evaluations were overwhelmingly mentioned by participants as the

most prominent metric to measure their teaching effectiveness. Boring et al., (2015) pointed out student's course evaluations were unlikely to reflect quality teaching. One of the issues with relying on student evaluations as a metric is those evaluations may reflect student's attitudes toward the instruction, but not how well that instruction is supporting their learning outcomes. Many instructors in higher education are not familiar with best practices to teach for transfer and students may know even less (Lightner et al. 2008). Furthermore, when student evaluations are the only metric used to evaluate teaching, students' perceptions may become synonymous with effective teaching. No metrics surrounding the incorporation of transfer friendly instruction or its perceived effectiveness were present for any of the participants sampled.

Positive student evaluations are important metrics for teachers to receive promotions following the traditional structure from assistant, to associate, to professor. Student evaluations are used by evaluators as criteria for annual performance evaluations as well as tenure. This creates a conflict of interest within these departments, as instructors are rewarded with promotions on the basis of student evaluations and yet, teaching for transfer poses serious risk to obtaining these promotions. These findings support the suggestion by Corbo et al., (2016): "the lack of robust measures of teaching effectiveness discourages faculty from investing time in their teaching" (p.1). Kezar (2013) recommended a shift in incentives and rewards to influence behavior and to remove the contradiction in higher education, which should certainly be extended to include teaching for transfer in higher education.

Departmental Culture

The origination of culture in an academic department emanates from its members (Corbo et al., 2016). The departmental culture of the participants sampled indicated the culture of the department, operationalized by the policies, practices, and attitudes of its members, were a

barrier to the incorporation of transfer. Although all participants indicated they were free to use transfer friendly instruction in the courses they teach, ulterior aspects of the department created barriers to its practice. Departmental culture affected the way in which quality teaching is measured, assessed, and judged. Student evaluations are often used in decision making processes such as promotion, hiring, and firing instructors by departments (Boring et al., 2016).

Some participants indicated professors' appointment type affected the way their teaching was evaluated by their peers. Those whose appointment type was weighted toward research took a differing view regarding transfer friendly instruction than those of a teaching weighted appointment. This disparity between the two types, those weighted toward research and those weighted toward teaching, affected the departmental culture, which then impacted how teaching for transfer was valued. Participants indicated colleagues with research heavy loads underestimated the work and effort required to teach for transfer.

Furthermore, participants indicated those colleagues whose appointment types were weighted toward research (as opposed to teaching) perceived their colleagues as utilizing lecture which was seen as an antithesis of transfer friendly instruction. This had the effect of making the practice of teaching for transfer more jarring for students, resulting in poorer evaluations from students in comparison to their peers. Participants expressed frustration at their colleagues who received positive feedback from students while also providing instruction at a lower perceived quality. This is important to study because understanding how departmental culture affects the diffusion of transfer friendly instruction is important to making it more prevalent in higher education. "Academic departments are the key unit of change in a university, because faculty are most likely to be impacted by the culture of their department and interactions with other faculty in their department" (Corbo et al., 2016, p. 2).

Though there were divisions in culture between research or teaching heavy appointment types, participants whose field of study was in Education or a related field indicated their colleagues taught for transfer regardless of appointment type. This suggests educational departments may have a natural orientation to teach for transfer or accept the practice in others. In these departments, there were no culture clashes between instructors, suggesting the subject matter of the department also played a role in how teaching for transfer impacted the culture of the department.

While participants indicated they face many barriers to teaching for transfer, they still opted to do so. When asked "why do you teach for transfer?" participants indicated they did so because they felt it was better for their students despite the barriers faced by instructors. Even though teaching for transfer provided a higher risk for negative student evaluations, which then affected instructors' ability to receive promotions and pay increases, participants indicated teaching for transfer made them a better teacher in their eyes, which was more important to them than the increased chances of poor student evaluations by eschewing this instructional orientation. Participants indicated they face extrinsic barriers to teaching for transfer, while simultaneously being intrinsically motivated.

Departmental culture has influence over instructional behavior in higher education. While departmental culture can be problematic and discourage teaching for transfer, culture can also positively affect the spread of transfer friendly instruction departmentally through networking and collaboration. One participant, an early adopter of transfer friendly instruction within a life sciences department, helped spread this idea to other members of the faculty. Diffusion of innovation theory is useful for understanding how innovation and change can develop and spread within an academic department. Diffusion of innovation explains the process that occurs when

people adopt a new idea, practice, and philosophy (Kaminski, 2011). This theory is useful for understanding how the adoption of transfer friendly instruction can spread informally throughout a cohort of instructors in higher education.

Unfamiliar with Learning Transfer Terminology

Interestingly, when contacted by the research to participate in the study, participants were unfamiliar with the terminology surrounding learning transfer. Many participants had never identified themselves as someone who "teaches for transfer" prior to being provided a definition by the researcher in the criteria to participate form. However, learning transfer, transfer friendly instruction, and teaching for transfer are all terms much better understood in learning contexts outside of higher education; it is not surprising for participants in higher education to be unclear regarding its meaning. This supports the contention that learning transfer is an idea which escapes attention in education, is not specifically discussed, and has lagged behind other fields (Cox, 1997; Fink, 2012; Halpern & Hakel, 2003; Salomon & Perkins, 1989; Scharff et al., 2017).

This is an interesting disconnect between utilizing transfer friendly instruction in the classroom and simultaneously being unfamiliar with the literature and terminology surrounding learning transfer. A reason for this discrepancy could be a misunderstanding behind teaching for transfer as a theoretical orientation or as a set of defined practices. According to Eraut (2006) teacher practice "is an explicit set or sequence of actions that can be replicated by any practitioner with the requisite competence" (p. 63). A theoretical orientation, on the other hand, are "concepts, frameworks, principles, and ideas which may be used to interpret, explain or judge intentions, actions and experiences in educational or education-related settings" (Eraut, 1994, p. 60).

The fact that so many participants felt they fit the participant criteria, operationalized as

"an intentional orientation which uses a breadth of instructional techniques to help students retain and utilize their learning; it is a multi-dimensional approach with the goal of getting students to retain and apply what they learned from the course," for study, yet were unfamiliar with terminology "teach for transfer" or had to search the term to understand its meaning, supports the notion there is an orientation or desire to see these outcomes in their students without a strong sense of how to accomplish it, or that they are unfamiliar with scientific, research backed methodology for making it a reality. This is particularly troubling given the literature on learning transfer is full of ideas on how to accomplish it in the classroom (Billings, 2007; Marini & Genereux, 1995, Sousa, 2017; Wiggins, 2012).

This seems to support the content of Lohse-Bossenz et al. (2015), that knowledge predicts instructional behavior and the form of knowledge has a large impact on the way is practiced in classrooms, with knowledge being categorized as either more theoretical or more practical. Participants who self-identified as those who "teach for transfer" seemed to lean more to the theoretical side of teaching for transfer because of the way they experienced transfer. This is reflected in the experiences of participants who emulated role models, as participants mentioned they adopted the "way" they were taught instead of specifically "what" or "how" they were taught. Role modeling fostered a pedagogical, instructional orientation for students turned instructors in higher education, but did not affect their specific practices.

An important piece to this puzzle surrounds participants informal efforts learn about learning transfer without being familiar with the academic vernacular needed to access such information. Experiences with learning transfer pedagogically, as opposed to content experiences, meant participants may not have been as familiar with the language germane to learning transfer. For example, participants indicated they had experiences where the

terminology “teaching for transfer” or “learning transfer” wasn’t used, but they were taught “how to help students apply what we've taught earlier.” Seemingly, efforts are being made by participants to help students retain and apply what they learn in higher education yet are not talking about learning transfer using language common to the field.

This sort of unclear use of terminology by participants may affect the way in which participants seek to further their ability to teach for transfer through access and recognition. The lack of recognition surrounding the vernacular “teaching for transfer” may affect accessibility by instructors in higher education who want to begin to teach for transfer or are seeking to develop their ability to do so. When participants are selecting from a menu of offered electives in formalized environments, or teaching development seminars, workshops, sessions on teaching for transfer in non-formalized environments, these environments may not be labelled accurately because of the lack of prominence of such terminology. This supports Wihak (2012) who argued non prominent terminology and conceptualization causes problems when searching academic databases for information. This could be problematic as there is an effort or desire to utilize transfer friend instruction without knowing explicitly, or instructionally, how to do so.

Lexicon, vernacular, and language are important ways in which ideas spread. This can be a serious barrier of access for individuals who know they want to help students retain and apply their information outside of the classroom; the unclear vernacular surrounding terms such as teaching for transfer and learning transfer may affect the diffusion of such ideas in higher education. Specifically, participants who conceptualized the need to bolster their instructional behavior by incorporating transfer friendly instruction may never be reached if the correct or accurate terminology continues to be obscure. Informal experiences, through the use of a search engine, did not point participants to specific transfer friendly practices, but rather to broader

terms such as “critical thinking.” Though the instructional concepts of transfer friendly instruction and critical thinking certainly overlap, participants missed an opportunity in their informal self-directed learning to find specific practices to support transfer outcomes in students, suggesting participants themselves misunderstand what transfer is and how to accomplish it, from a practical stance. This supports Schraff et al., (2017) findings that instructors in higher education either had “no idea” what transfer was or misidentified its definition.

Another reason for the lack of recognition of the term teaching for transfer could be its lack of attention in teacher education. Many foundational courses regarding education and psychology are often found at the beginning of teacher education programs and are often marginalized (Patrick et al., 2011). Those who were unfamiliar with the term teaching for transfer were also participants whose terminal degree was not in Education or a related field. Conversely, those whose terminal degrees where in fields related to education were more familiar with learning transfer and how to teach for transfer. Although previous research has suggested learning transfer is not a well-known concept in higher education, the researcher expected participants who already self-identify as teaching for transfer to be more familiar with the terminology than the typical instructor in higher education.

Learning Transfer in Higher Education

The previous sections covered a discussion of themes deriving from the results of this study. This section will look at the larger implications of the findings in a broader context and how researchers, scholars and stakeholders can better understand learning transfer in higher education.

Understanding Learning Transfer in Higher Education

Learning transfer is a much more well understood concept in areas such as Human

Resource Development (HRD) and training and development (Foley & Kaiser, 2013; Hutchins & Burke, 2005; Saks & Belcourt, 2006). In these environments, learning transfer is often operationalized via training in the form of skills transfer. However, learning in higher education often does not utilize behavior-based assessments of learning as frequently as HRD contexts, making the identification and evidence of transfer problematic. Davis and Arend (2013) delineated seven ways of learning (e.g. learning through inquiry, learning with mental models) which are much more frequently found in higher education compared to the aforementioned HRD areas. When learning occurs in higher education, and it is not behavioral based learning, then how can it be measured? Unfortunately, there is no clear answer to this question and much of the literature on learning transfer and its assessment is rife with assumptions the measurement of learning transfer occurs as a result of behavioral based learning. Baldwin and Ford's (1988) seminal model of learning transfer is characterized through retention and transference of learning. In other words, if learning is retained and if learning is applied, then learning transfer has occurred. In higher education, learning is most predominantly measured via performance on multiple choice examinations meant to measure knowledge (Postareff et al., 2012). This performance is used to measure and assess learning and subsequently formulates the parameters to determine if learning is retained and transferred. However, there is no standardized litmus to determine when learning has reached retention. Arend and Davis (2013) operationalized retention as occurring 24 hours after initially learning. Silverman (2012) used a year as the litmus for retention and mentioned learners have forgotten 90% of learning content after a year.

Further complicating matters, trainee characteristics affect learning transfer outcomes (Baldwin & Ford, 1988) and trainees are often less diverse than learners in a higher education course, suggesting transfer outcomes by the group in higher education will be more

heterogeneous. Trainees are often grouped by a specific knowledge or skill deficiency and instructors have a clear picture of how learning ought to transfer in contexts at work. It is often easier for trainers to plan authentic learning experiences for trainees when their future transfer contexts and environments are more clearly defined.

These authentic learning experiences are often conducive to positive transfer outcomes because authentic learning often matches their transfer environments (Carless, 2015). In these instances, learning is teacher centered and instructors will often control or take steps to ensure and monitor the transfer of learning. Authentic learning may be more difficult to achieve for students in higher education, making learning transfer outcomes correspondingly more difficult. However, students can work within the confines of the course objectives by creating authentic learning outcomes. In this way, students self-select their projects for the course which creates a more authentic learning experience and greatly enhances the outcome of learning transfer. This authentic learning results in greater transfer outcomes because it requires students to apply their learning to real-world tasks or settings (Sambell et al., 2013).

Conversely, professional programs in higher education (e.g. veterinary schools, pharmacy schools) may prove to be a caveat to this description of higher educational contexts, and share many of the same characteristics as HRD and training and development environments. Students often move in a cohort model, are more characteristically homogenous, are working toward the same goal (e.g. professional membership or accreditation) and the learning outcomes and subsequent summative evaluations are controlled by the instructor.

Supporting Learning Transfer in Higher Education

What can advocates do to foster learning transfer in higher education? First, factual declarative knowledge, necessary to support higher order learning, should be retained over time

through the use of brain friendly instructional techniques. This includes rote rehearsal exercises to support students early on academically as they apply content from introductory courses to higher level in their programs of study. Secondly, encourage students to create authentic learning experiences which focus on meaningful outcomes outside of the classroom. This can manifest via many different names in higher education (place-based learning, authentic learning, transformative learning to name a few) which all fall under the umbrella of learning transfer. Third, instructors should become more familiar with learning transfer terminology so that they may intentionally foster transfer outcomes in students and emphasize their instructional reasoning to draw attention to its importance. Though instructors may use transfer friendly instruction, the lack of awareness regarding why these instructional practices are effective may ultimately hinder transfer outcomes by students. Fourth, instructors should be more familiar with specific transfer friendly instructional practices which support learning outcomes for students. The literature is plentiful with ideas on how to foster learning transfer outcomes in students (Billings, 2007; Marini & Genereux, 1995, Sousa, 2017; Wiggins, 2012).

Measuring Learning Transfer in Higher Education

Learning transfer is the ultimate goal of teaching and learning and higher education is built upon the tacit assumption learning by students will transfer. Yet, assessments and grading do not take into consideration the presence or evidence of transfer and remains a largely ignored part of assessments in higher education (Sambell at al., 2013). This contradiction may be confusing for students. On one hand, they are asked to retain and transfer their learning in an effort to continue their learning. On the other hand, they are not incentivized to do the hard work, at least initially, of retaining and planning their transfer.

The researcher advocates for the use of two differing paradigms for the measurement

learning transfer. An accurate, robust understanding of learning, retention and transfer must include aspects of post-positivism and constructivism. The measurement of retention requires the objectivity to determine retention as a matter of falsifiability, characteristic of the post-positivist paradigm. The measurement of transference, however, should be a matter of individual experience. Characterized by constructivism, participants should reflect on, consider, and extrapolate how learning has affected and transferred to contexts beyond the classroom over time. The transmission of learning transfer from HRD and training development contexts to higher education requires a shift in the ways learning transfer is conceptualized and measured. More attention is required to understand learning transfer from the experiential, lived experiences of students.

Summary of Findings and Implications

If there is a lack of prominence of the teaching for transfer as an instructional orientation in higher education, and teaching for transfer is considered the ultimate goal of teaching and learning (Bransford & Schwartz, 1999; Kaiser et al., 2013; Lightner et al., 2008; Marini & Genereux, 1995), then what must be done to close this gap? Ideally, teaching for transfer would be a desired instructional orientation born from formal educational experiences via teacher preparation and education courses. Knowledge predicts instruction behavior (Lohse-Bossenz, 2015) and a rededication learning transfer and how to teach for it would likely reflect in instructional behavior. Curriculum designers should 1) include teaching for transfer as a foundational course in teaching and learning in formalized environments and 2) ensure formalized courses do not merely deliver content but also represent the pedagogical concepts and instructional orientations exalted by teaching for transfer. Of the ten participants, none indicated they receive both transfer friendly instruction pedagogically while also having learning transfer

as the concept under study. This illustrates that even the few instructors in higher education who self-identified as those who teach for transfer are not receiving transfer friendly pedagogical and content related experiences.

Unsurprisingly, all ten participants indicated a belief that teaching for transfer was linked to their self-conceptualization of being a better a teacher. Despite the paths participants take to incorporating learning transfer, all participants used similar language linking teaching for learning transfer as creating better learning outcomes for their students. However, what remains unclear is if the barriers participants discussed are stopping other instructors in higher education from teaching for transfer. It seems those who teach for transfer find it beneficial and worthwhile sometimes in contrast to the barriers these participants face, yet this may not be a pervasive experience. Removing the barriers related to teaching for transfer could help make this vital instructional orientation more prevalent in higher education.

Students may not fully understand effective teaching practices; academic departments should support instructors who teach for transfer by acknowledging the difficulty of adopting this orientation, and anticipate how students might negatively react to it, particularly compared to lecture. This may have the additional benefit of increasing the prevalence of those who teach for transfer in higher education as some professors may have determined the pushback from students was not worth the additional effort.

Nonformal learning was noted by participants as worthwhile experiences. Yet, no participants indicated their decision to teach for transfer was effected by these nonformal experiences. It seems participants who have these nonformal experiences are choosing to attend in an effort to improve their teaching. Where formal experiences have failed instructors in affecting instructional behavior toward transfer friendly instruction, nonformal experiences may

be able to address this deficiency.

Limitations

This study was limited by a number of factors. This study relied on participants to self-identify themselves as those who teach for transfer. Therefore, there was no litmus or otherwise confirming instrument to verify the sample under study taught for transfer. This could be potentially onerous as perceptions of one's own teaching may not provide enough evidence of its occurrence. Triangulation via observation of teaching could help to strengthen the identification of this niche population.

Also, the terminology of "teaching for transfer" was unfamiliar to participants reflecting confusion around its definition raising questions about whether the correct population was under study, even after participants indicated otherwise. There seemed to be those who perceived transfer as an orientation then cited broader, more global approaches to instruction versus those who perceive transfer as practices, and then specifically cite instructional practices to support their students. Indeed, those in this study who self-identified as those who teach for transfer referenced their desire to foster critical thinking in their students, which was not explicitly supported in the literature.

Although an effort was made by the researcher to study participants in disparate departments in higher education, there was not even representation and instructors in some departments were not studied.

Recommendations for Future Research

A better understanding of learning transfer in higher education is the first step in making it more prevalent and effective instructional orientation for students. There is an opportunity for researchers, instructors, practitioners, and scholars to continue to measure and understand the

reasons for and presence of transfer friendly instruction in higher education. The recommendations for continued research are based upon the findings from this study.

The findings of this study suggested most participants with terminal degrees related to education were not influenced by their instruction regarding learning transfer. This is a troubling finding as participants receiving these educational experiences are expected to be more familiar with educational practice, vernacular, and methods than instructors from different areas of expertise. More research is needed to investigate the presence of educational content relating to learning transfer in formalized environments within higher education and how impactful these formal experiences are.

While formalized, content-based learning experiences regarding learning transfer were surprisingly non-impactful on instructional behavior, the most effective method to spread the incorporation of transfer friendly instruction seemed to originate from a mentor or instructor in a formalized classroom environment through pedagogy. Further research is needed to understand the nuances behind mentor and mentee relationships and which aspects affect mentees instructional behavior later on in their careers. Furthermore, many participants indicated their experience as a TA influenced their eventual decision to teach for transfer, but understanding how TA/instructor relationship affects future instructional behavior regarding learning transfer remains unclear.

Though this research was a qualitative design, a quantitative design could be useful to better understand first exposure points, experiences, and those who teach for transfer respectively. A large-scale, quantitative design could help map out the presence of these experiences via their frequency, and help researchers correlate these activities to their behaviors to generalize their existence in higher education. This could be useful to help connect the form

and prevalence of specific experiences (exposure, formal, non-formal, informal) to practice or lack thereof.

An investigation into the frequency and effectiveness of specific transfer friendly instructional practices may be worthwhile. Learning transfer remains a poorly understood concept in higher education. Even less understood is which instructional practices are being used to foster learning transfer outcomes in students. Additionally, studies have failed to show how transfer friendly instruction affects students' outcomes despite the implication all transfer friendly instruction is desirable and effective at helping students to transfer their learning. Additional research is needed to better understand what practices instructors in higher education are utilizing in classrooms and how this instruction affects students learning outcomes when transferring their learning. An examination into these practices could help researchers understand which transfer friendly practices are utilized and whether they are effective at helping students to retain and transfer their learning.

Concluding Statement

This study recruited participants in higher education who self-identified as those who teach for transfer to better understand their first exposure to the concept of learning transfer, their experiences in learning about transfer, and how their exposure and experiences affected their instructional behavior. This research was conceptualized in response to the lack of prevalence of transfer friendly instruction in higher education. To better understand the lack of prevalence, this researcher sought individuals who do use transfer friendly instruction to understand the connection between their exposure, experiences, and eventual decision to teach for transfer.

Learning transfer is considered the ultimate goal of teaching and learning (Bransford & Schwartz, 1999; Kaiser et al., 2013; Lightner et al., 2008; Marini & Genereux, 1995) yet

instructors are not doing enough to facilitate transfer for their students (Alexander & Murphy, 1999; Halpern & Hakel, 2003; Scharff et al, 2017). students fail to transfer their learning at an acceptable rate. By studying the few in higher education who teach for transfer, it is a critical first step in better understanding how they adopted this niche instructional orientation and the reasons why. By studying those who teach for transfer, researchers can better understand the connection between their experiences and their subsequent instructional behavior in an effort to improve the prevalence and effectiveness of teaching for transfer in higher education. This study has contributed to the current understanding of how exposure and experiences affect a decision to incorporate transfer friendly instruction to the courses they teach and the reason why. This information will be crucial for advocates of learning transfer who seek to make transfer friendly instruction prevalent in higher education.

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Appendix A

Dear participant:

My name is Thomas Rausch and I am a researcher from Colorado State University in the School of Education. I am currently recruiting participants to take part in a study to understand the learning experiences of instructors in higher education who teach for transfer. The title of this project is *Teaching for transfer: How the experiences of instructors in higher education affect their instructional behavior.*

The principle investigator is Leann Kaiser, Ph.D. and the co-principle investigator is Thomas Rausch, School of Education.

You have received this email because you have been identified as a person of interest who may meet the requirement(s) for participation:

1. Taught a course within one year previous to study in a university or college setting
2. Instructor of record for credit based course
3. Deliberately and intentionally teach for transfer in one more course(s)
4. Have formal, nonformal, or informal experiences learning how to teach for transfer
5. Can recall experience(s) learning how to teach for transfer including:
    a. Catalyst and circumstances behind learning to teach for transfer
    b. Contexts and experience of learning to teach for transfer
    c. If experiences affected decision to teach for transfer and the reasons why

You have been invited to participate in this study because you may utilize an educational philosophy known as “teaching for transfer.” Teaching for transfer is an intentional orientation which uses a breadth of instructional techniques to help students retain and utilize their learning; it is a multi-dimensional approach with the goal of getting students to retain and apply what they

learned from the course.

We are writing to ask you to take part in an informal interview with the co-principle investigator. Interviews will last between 60-90 minutes. The interview will be recorded over Microsoft Teams, a video conferencing software. The interview will be recorded and transcribed. Soon after the interview you will be contacted to review the transcript and analysis for accuracy and clarity.

If you choose to participate, all responses are completely confidential. The study has been reviewed by the Institutional Review Board and approved.

If you are willing to participate, please reply to this email. You will be contacted by Thomas Rausch at tarausch85@gmail.com; 224-795-1914 to schedule a time to complete this study.

If you have any questions, please contact me at tarausch85@gmail.com

Sincerely,

Thomas Rausch

Appendix B

CONSENT TO PARTICIPATE IN RESEARCH

Teaching for transfer: How the experiences of professors in higher education affect their instructional behavior

- **INTRODUCTION**

You are invited to participate in a research study conducted by Thomas Rausch and Dr. Leann Kaiser, from the School of Education at Colorado State University. Your participation in this study is entirely voluntary. Please ask questions about anything you do not understand, before deciding whether or not to participate. By agreeing to participate in the semi-structured interviews, you are consenting to participate in this research study.

You have been asked to participate in this study because you may utilize an educational philosophy known as "teaching for transfer." Teaching for transfer is an orientation which uses a breadth of instructional techniques to help students retain and utilize their learning; it is an intentional, multi-dimensional approach with the goal of getting students to retain and apply what they learned from the course.

For the purpose of this study, "teaching for transfer" is defined as intentional and reflective strategies by the instructor to help students retain and apply learning to a future situation.

Participants are eligible to participate in the study if they met specific criteria, namely:

1. Taught a course within one year previous to study in a university or college setting
2. Instructor of record for credit based course
3. Deliberately and intentionally teach for transfer in one more course(s)
4. Have formal, nonformal, or informal experiences learning how to teach for transfer
5. Can recall experience(s) learning how to teach for transfer including:
    a. Catalyst and circumstances behind learning to teach for transfer
    b. Contexts and experience of learning to teach for transfer
    c. If experiences affected decision to teach for transfer and the reasons why

- **PURPOSE OF THE STUDY**

The purpose of this study is to understand the learning experiences of instructors in higher education who teach for transfer. More specifically, the purpose is to understand the how those who teach for transfer first learned about the concept, what learning experiences they had, and how those experiences may or may not have affected their decision to teach for transfer.

- **PROCEDURES**

If you volunteer to participate in this study, you will be asked to participate in a semi-structured interview over Microsoft Teams. You consent to participate in participating in this interview. Microsoft Teams web conferencing will record both video and audio responses. If you are uncomfortable or do not wish to continue, you may stop participation at any time. The interview will be recorded and transcribed. Participation will take approximately 60-90 minutes. You may be contacted by interviewer post interview to clarify your responses and to ensure accuracy. Participation in this study may allow researchers to better understand instructor's experiences and perceptions. Participation in this study is voluntary.

- **BENEFITS**

There is no direct benefit to you from taking part in this study. The researchers hope to better understand instructor's learning experiences and connection to their instructional choice.

- **RISKS/DISCOMFORTS**

The study will ask about your exposure to transfer friendly instruction, your learning experiences, and how those experiences affected your decision to teach for transfer. Your decision to participate in this study will have no impact on you in any fashion, nor will your responses in the study (should you choose to participate) affect you. You are free to decline answering any questions you do not wish to or stop the interview at any time.

- **CONFIDENTIALITY**

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law. Confidentiality will be maintained by matching participants responses using coding. Video and audio recordings of participants will be kept until transcripts can be made, at which point the recordings will be destroyed. Transcripts may be used to present data or be used in future studies.

Results of this study will be published and presented to researchers and practitioners. The results will be reported anonymously.

- **PARTICIPATION AND WITHDRAWAL**

Participation in this research study is voluntary and not a requirement or a condition for being the recipient of benefits or services from Colorado State University or any other organization sponsoring the research project. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind or loss of benefits or services to which you are otherwise entitled. There is no penalty if you withdraw from the study and you will not lose any benefits to which you are otherwise entitled.

- **RIGHTS OF RESEARCH SUBJECTS**

If you have any questions or concerns about the treatment of human participants in this study, you may call or write the research team at 224-795-1914 or tarausch85@gmail.com

If you have any questions about your rights or treatment as a research participant in this study, please contact the Colorado State University Institutional Review Board (IRB) at: 970-491-1553, or e-mail RICRO_IRB@mail.colostate.edu.

You will be given the opportunity to discuss any questions about your rights as a research subject with a member of the IRB. The IRB is an independent committee composed of members of the University community, as well as lay members of the community not connected with CSU. The IRB has reviewed and approved this study.

Sincerely,

Leann Kaiser, Ph.D.	Thomas Rausch
Associate Professor	Doctoral Student

Appendix C

INTERVIEW PROTOCOL PARTICIPANT SHEET

Study: How the learning paths of instructors in higher education affect instructional choice in teaching for transfer

Data and time of interview:

Location of interview:

Interviewer:

Participant:

Identified gender:

Identified race:

Highest degree completed:

Age:

Employer:

Professional title:

Appointment type: (Balance between teaching, research, and service):

Years instructing in higher education:

Years in current position:

Academic Discipline of interviewee:

Type of Institution (4-year public university, community college, etc):

Brief description of study: Learning transfer occurs when learners retain and apply what they

learned in one situation and apply it to another. Teaching for transfer is defined as the intentional and reflective strategies by the instructor to help students retain and apply learning from one situation to another. The purpose of this study is to understand how the learning experiences of professors in higher education and how those experiences affects their decision to teach for transfer.

Interview Protocol

1. What does teaching for transfer mean to you? What sort of outcomes do you hope to achieve by teaching for transfer?
2. How did you first come to learn about how to teach for transfer? (RQ1)
    a. Can you remember when and where you first became familiar with learning transfer?
    b. What circumstances influenced your exposure to teach for transfer?
    c. Who or what specifically influenced your exposure to teach for transfer?
3. Did you receive formal education to learn how to teach for transfer? (RQ2)
    a. Did your college education (bachelor's/masters/doctoral) help you learn how to teach for transfer?
    b. If so, tell me about those experiences
4. Did you receive nonformal education to learn how to teach for transfer? (RQ2)
    a. Did you receive professional development opportunities from your institution on how to teach for transfer?
    b. Did you have any learning experiences at academic or practitioner conferences on how to teach for transfer?
    c. If so, tell me about those experiences.

5. Have you had any informal educational experiences to learn how to teach for transfer? (RQ2)
    a. If so, tell me about those experiences.
6. Did your experience in learning to teach for transfer affect your decision to use it in the courses you teach? (RQ3)
    a. If so, how?
    b. If not, what affected your decision?
7. Do you have any final comments or information regarding what affected your exposure to teach for transfer?
8. Do you have any final comments or information regarding what experiences you had with learning to teach with transfer?
9. Do you have any final comments or information regarding how your experiences in learning to teach for transfer affected your decision to use it in the courses you teach?

This concludes the study. Thank you for your participation. I will contact you in the coming weeks with a copy of the transcript so may verify its accuracy.

Appendix D

INTERVIEW PROTOCOL PARTICIPANT SHEET

Study: Teaching for transfer: How the experiences of professors in higher education affect their instructional behavior

Data and time of interview:

Location of interview:

Interviewer:

Participant:

Identified gender:

Identified race:

Highest degree completed:

Age:

Employer:

Professional title:

Appointment type: (Balance between teaching, research, and service):

Years instructing in higher education:

Years in current position:

Academic Discipline of interviewee:

Type of Institution (4-year public university, community college, etc):

Brief description of study: Learning transfer occurs when learners retain and apply what they learned in one situation and apply it to another. Teaching for transfer is defined as the intentional and reflective strategies by the instructor to help students retain and apply learning from one situation to another. The purpose of this study is to understand how the learning experiences of professors in higher education and how those experiences affects their decision to teach for transfer.

Interview Protocol

1. What does teaching for transfer mean to you? What sort of outcomes do you hope to achieve by teaching for transfer?
2. Why would you say is the reason you teach for transfer?
3. How did you first come to learn about how to teach for transfer? (RQ1)
    a. Can you remember when and where you first became familiar with learning transfer?
    b. What circumstances influenced your exposure to teach for transfer?
    c. Who or what specifically influenced your exposure to teach for transfer?
4. Did you receive formal education to learn how to teach for transfer? (RQ2)
    a. Did your college education (bachelor's/masters/doctoral) help you learn how to teach for transfer?
    b. If so, tell me about those experiences
5. Did you receive nonformal education to learn how to teach for transfer? (RQ2)
    a. Did you receive professional development opportunities from your institution on how to teach for transfer?
    b. Did you have any learning experiences at academic or practitioner conferences on

how to teach for transfer?

c. If so, tell me about those experiences.

6. Have you had any informal educational experiences to learn how to teach for transfer? (RQ2)
    a. If so, tell me about those experiences.
7. Did your experience(s) in learning to teach for transfer affect your decision to use it in the courses you teach? (RQ3)
    a. If so, how?
    b. If not, what affected your decision?
8. Would you say that teaching for transfer is considered normal practice by your colleagues in your department? (RQ3)?
9. Were there or are there currently any barriers that affect your ability to teach for transfer?
10. Do you feel you have the freedom and autonomy to teach for transfer in the courses you instruct?
11. Do you have any final comments or information regarding what affected your exposure to teach for transfer?
12. Do you have any final comments or information regarding what experiences you had with learning to teach with transfer?
13. Do you have any final comments or information regarding how your experiences in learning to teach for transfer affected your decision to use it in the courses you teach?

This concludes the study. Thank you for your participation. I will contact you in the coming weeks with a copy of the transcript so may verify its accuracy.