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Transformative Experiential Impacts on Students: An Intervention

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TRANSFORMATIVE EXPERIENTIAL IMPACTS ON STUDENTS: AN INTERVENTION

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ABSTRACT

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Students' successes in first-year writing courses at the university level are critical to academic success and degree completion. Fostering students' engagement in first-year writing courses has proved challenging for institutions of higher education (IHE). Utility value interventions (UV) employing social psychological intervention (SPI) methods have been implemented successfully to aid students in understanding the value of course content and improve achievement. Utility value is the perceived usefulness of a task or content. Similarly, transformative experience (TE) interventions have been implemented with success. Transformative experience is a learning outcome achieved when students re-conceptualize their out-of-school experiences as a result of their experiences in school. However, these interventions have not been implemented in the domain of writing, including in the context of first-year writing courses. Using a quasi-experimental field-based intervention, this study tested the effectiveness of four interventions: utility value (UV) only, teaching for transformative experience (TTE) only, UV + TTE, and control condition. The conditions were created by varying writing and discussion-based prompts. In the context of first-year writing courses at a four-year university, I examined how these interventions work and for whom they are most effective using measures of utility value for writing, transformative experience with writing, and performance on a writing

task. Measures of expectation for success, initial interest, and prior academic performance were used as controls when comparing conditions.

Controlling for initial utility value and expectations for success, I did not find significant main effects of the interventions on the measure of utility value given at the end of the semester. However, I found that the combined condition interacted with the measure of initial utility value suggesting that the effectiveness of this intervention was dependent on students' prior utility value. Controlling for initial interest and expectations for success, I did not find significant main effects of the interventions on the transformative experience measures given at the end of the semester. However, I found that the combined condition interacted with the prior interest measure suggesting that the effectiveness of this intervention was dependent on students' prior interest. In addition, controlling for initial expectations for success and prior achievement, I found mixed evidence that performance on the writing task was significantly lower for students in the combined (UV+TE) condition compared to students in the UV only condition.
These results suggest that, although UV and TE interventions have been effective in other domains, the effectiveness of these intervention may not transfer easily to the domain of writing. Further research is needed to understand why transfer to the domain of writing is difficult and what modifications are needed to foster effectively UV and TE within the domain of writing.

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To Courtney Luce: My best friend and confidant, the yin to my yang. The one who knows when I just need someone to feel my thirstedness and when I need someone to boss me. I owe you an Elvis record.

DEDICATION

I am dedicating this dissertation to my mentor and friend, Jeri Kraver.

She has changed my life and inspired me to reach for more than I ever thought possible.

I would not have achieved this goal if it were not for

her undying dedication to my success and my happiness.

Jeri, I owe you everything.

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CHAPTER I

INTRODUCTION

Problem Statement

In order to study corporations' perspectives on workforce readiness, four organizations conducted a study of over 400 employers (Conference Board, 2006). This study was aimed at identifying the requisite skills needed by new entrants for workplace success. Of the four skills identified as "most important," second on the list was "Oral and Written Communication" (Conference Board, 2006, p. 9). Of the nine total skills identified as "Basic Knowledge" in this study, at the top of the list were speaking, reading, and writing in English. Yet, all three of these basic skills were found to be deficient not only in applicants with high school diplomas but also in applicants with degrees from two- and four-year colleges or universities. Of new entrants to the workforce with only a high school diploma, 81% were identified as deficient in written communication as indicated by a "lack of basic writing skills, including grammar and spelling" (Conference Board, 2006, p. 36). Of the graduates from two-year colleges, 48% were deemed deficient in basic writing skills. Describing the written communication results for graduates of four-year programs, the report concluded, "Writing skills continue to be deficient even at the four-year college level," with one-third of graduates deficient in skills rated as "very important" by a majority of the employer respondents (Conference Board, 2006, p. 43). Similar results were reported by The National Assessment of

Education Progress (NAEP; National Center for Education Statistics [NCES], 2012) report, also called *The Nation's Report Card* (NRC). The NAEP is the largest continuing assessment of what America's students know and can do in various subject areas, including reading and writing. Because NAEP assessments are administered uniformly and nationally, the results provide a common metric for all states. In addition, the assessment stays essentially the same from year to year; therefore, the results provide an important picture of student academic progress over time. The most recent NAEP assessment for 12th graders was administered in 2011 to 28,100 students. While the NAEP was re-administered more recently, in 2015, the results were limited to fourth and eighth graders only. The tasks assessed in 2011 included both academic and workplace writing situations, and students were asked to write for several purposes and audiences. According to the NAEP results, 52% of 12th graders performed at the "basic" level in writing, with basic denoting only partial mastery of the knowledge and skills that are essential for proficient work at each grade. Only 24% of 12th graders scored "proficient" or above on the writing portion of the exam (NCES, 2012). Although the NRC warns that the public should not interpret assessment results as a "complete representation" of writing performance, even read generously, these results indicate that high school graduates entering two- and four-year institutions bring limited writing skills with them. In combination, the Conference Board (2006) report and the NAEP/NRC indicate that students at all levels of schooling struggle with the skills associated with writing competence, the same skills that employers suggest are required if the United States is to compete in the global economy.

Writing skills are important for more than workforce readiness. Research has indicated that the success in first-year composition (FYC) courses at the university or community college level is a primary predictor of degree completion (Moore & Shulock, 2009). One large university in Colorado found that the first-year writing sequence courses were the number one and number two predictor courses for student retention (Bentz, 2014). As college completion rates have declined, student retention is of concern to post-secondary institutions across the United States. A 2014 study by the National Student Clearinghouse Research Center (Shapiro, Dundar, Yuan, Harrell, & Wakhungu, 2014) recorded a completion rate as low as 55%. Given the association between success in FYC courses and retention, improving the writing abilities of students has the potential to impact this outcome.

Rationale for the Current Study

The importance of writing skills both for academic and workforce success has been well established. Multiple remedies for improving these skills—from curricular changes to new pedagogies—have been proposed and tested. The majority of existing intervention programs addressing the relationship between writing skills and academic success take place outside the classroom. The U.S. Department of Education (2012) provides reports by a variety of institutions of higher education (IHEs) describing approaches for improving performance in predictor courses. Nearly all of the more than 50 interventions listed under the site's "Innovation Exchange" look to improve student advising or provide support services, such as expanded tutoring or implementing learning communities. Some IHEs look to incorporate supplemental instruction or to connect students to advisors or student support staff. What nearly all the programs on the site

shared was a level of intervention that occurred outside the classrooms of the courses that serve as the most reliable predictors for student success and retention.

Implementing interventions *into* classroom instruction might seem a self-evident solution to these challenges. For example, explaining explicitly to students the importance of writing skills seemingly should induce them to work harder. However, research indicates that even something as simple as telling students the importance of these skills can backfire, causing them to reduce rather than re-double their efforts (Hulleman, Godes, Hendricks, & Harackiewicz, 2010; Yeager & Walton, 2011). In order to address challenges inside the classroom, educational researchers have been studying the effects of various motivational factors, such as self-efficacy, interest development, transformative experience, and utility value, as well as the ability of those factors to influence both students' achievement-related choices and teachers' pedagogical approaches. In a more writing-focused approach, meta-analytical studies have been designed and conducted (Graham & Perin, 2007; Hillocks, 1986) to identify some of the most effective in-classroom instructional strategies for composition courses. Among those strategies are teaching students the writing process of planning, drafting, and revising (effect size 0.82), teaching students reading skills to assist their summary writing skills (effect size 0.82), and designing and implementing peer review sessions (effect size 0.75; Graham & Perin, 2007).

In addition to these instructional strategies focused on the writing process, strategies targeting motivation have also proven effective. However, these interventions have been implemented only in courses in mathematics, science, and psychology (Hulleman et al., 2010) or in first-year experience (FYE) courses (Heddy, Sinatra, Seli,

Taasoobshirazi, & Mukhopadhyay , 2016). Utility value interventions and Teaching for Transformative Experience interventions designed to guide students in their academic choices have proved successful in these courses. To date no similar interventions have been implemented in FYC courses. Accordingly, the purpose of the current study was to investigate the effectiveness of utility value (UV) and teaching for transformative experience (TTE) interventions in a FYC course. Specifically, this study investigated potential differences in engagement and learning between four conditions: (a) a UV intervention, (b) a TTE intervention (c) a UV + TTE intervention, and (d) a control condition.

Research Questions

Q1 Are there differences between conditions on measures of engagement?

- Q1a Are there differences on a measure of utility value for writing?
- Q1b Are there differences on a measure of transformative experience in relation to writing?

Q2 Are there differences between conditions on measures of learning (scores on writing assignments)?

Q3 Are there aptitude by treatment effects?

- Q3a Are there interactions between prior factors (expectations for success, prior utility value) and the interventions on the utility value outcome?
- Q3b Are there interactions between prior factors (expectations for success, prior interest) and the intervention on the transformative experience outcome?
- Q3c Are there interactions between prior factors (expectations for success, prior achievement) and the interventions in the learning outcome?

CHAPTER II

LITERATURE REVIEW

It has been well-established not only that writing skills are paramount to students' success in college and beyond, but that those skills are woefully deficient among high school graduates (Conference Board, 2006). These deficiencies follow students into the post-secondary classroom, especially to first-year composition (also known as first-year writing and referred to as FYC, "writing course" or "writing classes" in this research). To date, there have been no successful interventions designed to address these deficiencies in FYC and guide students to make academic choices that lead to higher achievement. There have been numerous studies of writing interventions that can be applied to FYC courses; however, research on interventions targeting motivation are more limited. The goal of the current study was to test two motivation interventions: first, utility value (UV) interventions designed to increase students' perceived utility value for the course content and, as a result, their efforts towards achieving success, and second, teaching for transformative experience (TTE) interventions designed to increase students' engagement with course content and, as a result, improve their achievement-related choices in the particular context of FYC. These interventions were chosen because they have proven effective in mathematics (Hulleman et al., 2010), psychology (Johnson & Sinatra, 2013), and science courses (Hulleman & Harackiewicz, 2009). However, to the researcher's best knowledge, to date no similar interventions have been implemented in FYC courses.

This literature review examines the theories and practices that inform the current study, including the distinction between motivational and cognitive factors, expectancy value models and the utility constructs that emerge from it, and research on social psychological interventions designed to affect motivational constructs. The review concludes with a review of transformative experience theory (TE) and the interventions developed based on TE.

Motivation Constructs

An essential element in academic achievement is student motivation. At its most rudimentary, motivation means "to be moved to do something" (Deci & Ryan, 1985, p. 54). Since the publication of Atkinson's (cited in Spence, 1983) seminal work, *Motivational Determinants of Risk Taking Behavior*, there have been multiple extensive studies on this connection, each positing a conceptualization of motivation and its constructs, and each offering a particular perspective. Included among the multiple theories of motivation are self-determination theory (Deci & Ryan, 1985), achievement goal theory (Brophy, 2005; Harackiewicz, Barron, Pintrich, Elliott, & Thrash, 2002; Pintrich, 2000), expectancy value theory (Wigfield & Eccles, 2000), self-efficacy theory (Bandura, 1986, 2006), and attribution theory (Weiner, 1985). Clearly, as a broad theory, motivation addresses a host of psychological situations in a variety of contexts.

Given the focus of the current study on the specific environment of academics and the necessity of cognitive functions within that environment, it will be important to differentiate motivational aspects from cognitive aspects (Eccles, 1983; Spence, 1983). Cognitive aspects include domain specific knowledge, background knowledge, learning strategies, and self-regulatory strategies; motivational aspects include causal attributions,

subjective expectancies, self-concepts of ability, perceptions of task difficulty, and subjective task values (Wigfield & Eccles, 2000). In the research that addresses writing, much of the focus is on self-efficacy, particularly in terms of personal agency as a factor in an individual's behavior. Therefore, in the following section, I review the literature related to self-efficacy and motivation in order to distinguish between these two related constructs. In the subsequent sections, I address the motivational frameworks central to the interventions used in this study, including expectancy value (EV) theory and transformative experience (TE) theory.

Motivational Constructs and Writing Research

From among the multiple theories and conceptualizations of motivation, much of the current research in motivation and writing is focused on what Pintrich and DeGroot (1990) described as "three distinct motivational factors: self-efficacy, intrinsic value, and text anxiety" (p. 35). For Pintrich and Degroot, self-efficacy or "students' beliefs about their ability to perform a task" are part of an "expectancy component" (p. 33). To distinguish these factors, Pintrich, Smith, Garcia, and McKeachie (1993) developed a self-report tool for these factors, the motivated strategies for learning questionnaire (MSLQ). This measurement tool was used to address general motivational constructs: expectancy, value, and affect. Furthermore, it established subscales for differentiating between the expectancy components of self-efficacy and belief of learning (Pintrich et al., 1993). However, the use of the term self-efficacy in regards to the MSLQ is an incorrect use because the measure in not very task specific. According to Bandura (1997), self-efficacy refers to a person’s belief regarding ability to manage a task. Of the subscales used to measure beliefs, and of particular importance to the current study, the MSLQ is

used to measure utility value (defined as: task value beliefs which include usefulness for a task). Of various components addressing motivation, self-efficacy has been established as an important predictor of writing quality (Shell, Murphy, & Bruning, 1989). Graham and Perin's (2007) work is typical. Their definition of self-efficacy as one's belief about the ability to perform a specific task or skill, aligns with Bandura's (1986). Based on a meta-analysis of evidenced-based instructional strategies used in writing courses, Graham, Harris, and Chambers (2016) asserted "the importance of establishing a supportive and motivating environment" (p. 222). As a result of his research, Graham et al. (2016) established a clear connection between self-efficacy and motivation, defining "motivational disposition" as referring to "increasing self-efficacy through self-evaluation" (p. 221).[1]

Other researchers (Bruning, Dempsey, Kauffman, McKim, & Zumbrunn, 2013; Pajares, 1996; Pajares, Johnson, & Usher. 2007) have explored the link between motivation research and writing self-efficacy. For example, Pajares and Johnson (1994) found that writing self-efficacy positively predicted students' skills in composing essays. A more recent study found that writing self-efficacy was an even stronger predictor of writing skills than previous writing performance scores (Pajares, 2003). Research also indicates that self-efficacy fosters writing skill development by reducing anxiety and increasing effort. Pajares et al. (cited in Daly & Miller, 1975) found that the construct of apprehension for writing was nullified when researchers controlled for self-efficacy

[1] Here, I intentionally quote Graham because he uses the term "self-efficacy" with no further definition or source cite for it. Although, Murphy and Alexander (2000) acknowledge the distinction that Graham makes here as consistent with Pajares' (1996) and Pintrich and Schunk's (1995) distinction between the terms self-efficacy and self-concept.

beliefs. Hull and Rose (1989) found that self-efficacy beliefs were a mediating factor between students' skills and their effort--that is, students with higher self-efficacy beliefs exerted more effort, and such effort predicted increases in writing skill.

Here it is important to acknowledge that challenges posed by what Brophy (2005) has described as the "proliferation of terms" related to achievement motivation. He has expressed concerns with the fluid definitions, especially the fact that many of the terms in this field "mean essentially the same thing" (p. 73). The evolution of terms can be traced through theories of self-efficacy as defined by three important voices in the field. In the 1980s, Bandura (1986) defined self-efficacy as "people's judgements of their capabilities to organize and execute courses of action required to attain designated types of performances" (p. 391). Schunk (1991) later defined academic self-efficacy as students' beliefs concerning their capacity to perform given academic tasks at designated levels. In contrast to Schunk's use of self-efficacy, Updegraff and Eccles (1996) use the terms "expectation for success" and "efficacy beliefs" interchangeably, as evidenced in this assertion: "This evidence is particularly strong for the link between expectations for success, (or efficacy beliefs)…" (p. 239). Again, as Updergraff and Eccles explain, a component of expectation for success comes from ones' confidence in their abilities and that the confidence is a product of experience and previous performance in the domain of question. Hulleman et al. (2010) also define expectation for success as "individuals' beliefs about how well they will perform on an upcoming task" (p. 880). It is of note here that both terms are being used in reference to task specific beliefs. However, Hulleman et al. use the term in relation to course-general measure. Other researchers have concurred with Brophy, citing the problems of the changing vernacular used when researching

motivation and achievement motivation (Murphy & Alexander, 2000; Pintrich et al., 1993). The proliferation of terms, often without clear distinctions, presents challenges for researchers who must remain vigilant in making clear how these different lexica are being used in the context research on motivation. Given the various researchers use of the terms expectation for success and self-efficacy, and the overlapping definitions of the terms, I believe that these terms can be used interchangeably.

Despite the challenges of terminology, the results by multiple researchers studying motivation have established the importance of self-efficacy to the development of writing skills. However, self-efficacy is but one motivation construct, and it is likely that other constructs are also important. The current study seeks to build on the existing literature that emerged from these earlier studies by investigating the potential role of two other motivation constructs that have been identified as playing an important role in learning domains other than writing (e.g., science and math) to the writing classroom: utility value (UV; Hulleman et al., (2010) and transformative experience (TE; Heddy & Sinatra, 2013; Pugh, 2002).

Utility Value and Writing

Achievement-related behaviors in students have long been a focus of educational psychology research. One of the prevailing models used to explore academic engagement and to explain students' academic choices and efforts has been the expectancy-value model (Wigfield & Eccles, 2000) from which emerges the utility value construct. Expectancy value theory (Atkinson, cited in Spence, 1983) attempts to explain an individual's persistence levels and achievement-related choices and is characterized by a cluster of factors. For example, in terms of expectation for success on the task, relevant

factors include perceptions of task demands, short and long-term goals, and perceptions of one's abilities. The factor of task value perception is composed of incentives, utility value, and cost. Other factors related to expectancy value theory include tendency to approach success, tendency to avoid failure, motive to approach success, expectancy (probability) that an achievement-oriented act will result in success, expectancy (probability) that an achievement-oriented act will result in failure, incentive value of success, incentive value of failure. Collectively, this cluster of factors address academic engagement. Atkinson (1957) turned this cluster of factors into a formula, and he theorized that, using this formula, an individual's strength of achievement motive could be determined on particular tasks.

Because expectancy value theory functions to relate performance and choice on domain-specific tasks, it is important to differentiate between motivational constructs and cognitive constructs. Building on Atkinson's (cited in Spence, 1983) earlier work on expectancy-value theory, Eccles (1983) tested a model of achievement behavior that differentiated between motivational and cognitive factors by identifying both psychological and developmental constructs within the cognitive factor that collectively influence achievement behaviors. Eccles tested a general model of achievement behavior with students in fifth through 12th grades and sought to predict how achievement behaviors influenced students' choices of more or less difficult future mathematics courses.

The *expectancy* component of the expectancy-value model addresses motivational constructs such as students' expectation for success on a particular task or in a particular domain. It encompasses such constructs as expectation based on prior achievement, self-

schemata, and goals (Wigfield & Eccles, 2000). The variable of expectancy has been related to general achievement performance in many expectancy value studies (Durik, Vida, & Eccles, 2006; Eccles, 1983; Wigfield et. al, 1997). However, the expectancy variable is mediated by multiple factors, including perceived task difficulty and self-concept of ability, that is "the assessment of one's own competency to perform specific tasks or to carry out role-appropriate behaviors" (Eccles, 1983, p. 82), as well as perception of other's expectations, locus of control, and causal attributions, or an individuals' attribution of failure to internal or stable factors versus external or unstable factors. In further explorations of the relationship between these variables, Eccles (1983) concluded that initially (i.e., in lower grade levels of elementary school) causal attributions mediate expectancies whereas self-concepts merely influence expectancies. Over time, however, causal attributions lead to the development of a self-concept of ability (Weiner, Kukla, Reed, Rest, & Rosenbaum, 1971). Once a self-concept of ability is formed, attributions actually become a byproduct of expectancies.

The *value* component of the expectancy-value model addresses students' value for engaging in the task at hand. It is from the value component of the expectancy value model that the utility value (UV) construct emerges. Utility value refers to how useful the task is in relation to the individual's other goals. The other three components are attainment value, which refers to the task's relationship to the individual's self-worth and identity; intrinsic value, which refers to how much the individual enjoys the task; and cost, which refers to the negative aspects of the task, for example, time and effort. These types of values have been distinguished in confirmatory factor analysis (Wigfield & Eccles, 2000).

Overall, the expectancy value model predicts that motivation is a product of both expectancies and values (i.e., M = ExV). Based on this formulation, motivation increases as expectancies and value goes up; however, if one of these elements is missing, motivation is predicted to be zero. For example, if a student expects to succeed on a task for which he has no value, the student's motivation is predicted to be minimal. Likewise, if a student finds value or usefulness in a task but has no expectation of success, here, too, motivation is predicted to be minimal. The expectancy-value model of achievement motivation has been successful in explaining academic behaviors such as persistence and task choices (Eccles & Wigfield, 2002). While the additive effect of these components has been shown to predict academic performance, when expectancy and values are distinguished using confirmatory factor analysis (CFA), it is indicated that choice, persistence, and effort are better predicted from value beliefs than from expectancy (e.g., Eccles, Adler, & Meece, 1984; Marsh, Trautwein, Ludtke, Köller, & Baumert, 2005; Meece, Wigfield, & Eccles, 1990; Nagengast et al., 2011; Trautwein & Ludtke, 2007; Wigfield et al., 1997). Further research (Fan, 2011) has indicated correlation between individuals' expectations and values and their academic engagement. Utility value has been investigated independently from the other task values and found to be both an important predictor of positive outcomes, a basis for effective interventions, and a significant predictor of academic engagement (Fan, 2011). Therefore, this research focused on UV.

Previous research identified a correlation between academic performance and perceived UV (Bong, 2001; Cole, Bergin, & Whitaker, 2008; Durik et al., 2006; Hulleman, Durik, Schweigert, & Harackiewicz, 2008; Mac Iver, Stipek, & Daniels,

1991). Cole et al. (2008) found that UV was a predictor for the achievement-related choice of effort when working with undergraduates on low-stakes tests. In their study, Durik et al. (2006) found that UV predicted course selection. Looking specifically at an undergraduate psychology course, Hulleman et al. (2008) found that UV predicted course grades. Bong (2001) concluded that perceived UV for a task was a strong predictor of learning outcomes (e.g., as midterm grades), when researching Korean undergraduates studying to be teachers. In each of these studies, researchers discovered that perceived UV played a role in performance-related outcomes. Given these results and the significance of UV in relation to learning and achievement-related outcomes, subsequent research has explored the efficacy of using social-psychological interventions to develop utility value.

Social Psychological Interventions

Social-psychological interventions (SPIs) are defined as "brief exercises that do not teach academic content but instead target students' thoughts, feelings, and beliefs in and about school" (Yeager & Walton, 2011, p. 268). In other words, they are instruction-based or activity-based in-class exercises designed to alter the motivational constructs that impact students' academic choices. Social-psychological interventions have been implemented with positive results by researchers in courses that address mathematics, science, and psychology (Yeager & Walton, 2011). Here, I begin with an overview of SPI research and then focus specifically on SPIs used to develop utility value.

Researchers have concluded that successful SPIs are based on research designs that do not deliver course information in a traditional format. Successful SPIs have indicated the benefits of guiding students to understand the role of social-psychological

factors, including thoughts, feelings, and beliefs, rather than instructing them directly about the role and value of these factors (Yeager & Dweck, 2012). Such SPIs manipulate the psychological barriers to good academic choices (Yeager & Walton, 2011). The most significant effects on the UV construct were the result of SPIs that directed students to generate their own justification for the value of a course rather than having an instructor tell the students about the value (Yeager & Walton, 2011, p. 284). In combination, these studies indicate that when students are allowed to discover on their own the social psychological factors that influence their learning, they are more likely to alter their behaviors or beliefs than when they are simply handed information.

Incorporating a writing task as part of an SPI can add value to the intervention. The persuasive nature of the SPI exposes students to the existence of social psychological factors that affect their learning, while the writing task helps them internalize and apply these social psychological factors. For example, Yeager and Walton (2011) begin their SPI by giving students information about social psychological concepts. Next, the students are asked to compose persuasive texts about these concepts. This activity affords students the opportunity to address the second step of the persuasive approach: the application of the social psychological information to themselves. Yeager and Walton suggest teachers refrain from explaining to students that, at the same time that they are reading and writing about social psychological concepts they also are internalizing these same persuasive messages. It is an approach he describes as “stealthy,” and he contends that such stealth “may increase [an intervention’s] effectiveness” because it “[does] not feel controlling” and, as a result, “minimizes resistance… to the message” (Yeager & Walton, 2011, p. 284).

For the current study, the work of Hulleman and colleagues (2008, 2010; Hulleman & Harackiewicz, 2009) on the effectiveness of SPIs is particularly relevant. Their research has explored the use of SPIs to develop perceived UV for course-related tasks. The intervention designed for these studies consisted of an initial measure of interest in mathematics followed by a 10-minute task that directed participants through a mathematical method. Participants were then allowed to practice the method before reporting on their performance expectations. Following this survey measure, participants were asked to complete a brief writing task. The intervention condition responded to a persuasive prompt about the usefulness of the method, and the control condition responded to a descriptive prompt unrelated to the mathematical method, in this case, about pictures on the wall. Outcome data demonstrated a significant impact in multiple constructs of UV (Hulleman et al., 2008), intrinsic value (Hulleman et al., 2008), and expectation for success[2] (Hulleman et al., 2010). The studies by Hulleman et al. offered significant contributions to the field of academic motivation. Although the findings from these SPIs are often moderated by a student's prior achievement, they have proven effective for students with lower prior expectations for success.

The success of utility value SPIs in mathematics, science, and psychology courses does not guarantee that utility value SPIs will be successful at fostering motivation outcomes and improved learning outcomes in writing courses. However, Yeager and Walton's (2011) successful integration of a writing component suggests that UV

[2] Hulleman et al. (2010) cite Updegraff and Eccles (1996) who use the term expectation for success interchangeably with efficacy beliefs writing, "This evidence is particularly strong for the link between expectations for success, (or efficacy beliefs)…" (p. 239).

interventions could be effective in such courses. The purpose of this study was to investigate the application of a utility value SPI to writing courses.

Transformative Experience Theory

This section of the literature review focuses on transformative experience (TE) theory, an emerging perspective in motivation theory. Transformative experience theory was selected for the current study because interventions based on teaching for transformative experience (TTE) have been particularly effective (Lazowski & Hulleman, 2016). While TTE interventions have been applied in science courses, there are reasons to believe that the same techniques could be valuable in writing courses.

Transformative experience is a learning outcome achieved when students re-conceptualize their out-of-school experiences as a result of their experiences in school (Pugh, 2011). The goal of TE is to assist students in seeing their everyday world from a new perspective *because* of their school-based learning. In the sciences, the discipline where TTE interventions have been implemented, this re-seeing can take many forms. For example, as a result of TTE interventions in science classrooms, students re-see a car accident or the trajectory of a baseball through the lens of Newton's laws and not merely as random or inexplicable events or acts (Pugh, 2002). Through TTE interventions, students' relationships with the world and the value that they attribute to their learning are altered.

There are three primary characteristics of a TE: motivated use, expansion of perception, and experiential value (Pugh, 2011). Motivated use is observed when, as in the example above, a student applies ideas and content from an in-school experience (in this case physics) to an out-of-school context *without* being prompted to do so by some

external impetus. Another example of motivated use (Pugh, 2002) would be when a youngster sliding across a floor in his socks *thinks* about his movement in terms of inertia. In contrast, merely completing a homework assignment based on a reading about inertia would not be motivated use. The difference between the two examples lies in the boy's *choice* to transfer the academic information to an everyday experience (Pugh & Bergin, 2005). The development of a student's prolonged interest in a school-related subject extending beyond the school-based requirements is another example of motivated. This behavior constitutes motivated use because it is the student's *choice* to continue his or her interest in the subject. Such prolonged interest correlates to the constructs of continuing motivation (Maehr, 1976) and school-prompted interest (Bergin, 1992), both of which emphasize the exercise of agency in continuing to learn about school topics.

The second characteristic of TE is the expansion of perception. Expansion of perception is observed when a student re-sees everyday actions, objects, or experiences more deeply as a result of content instruction (Girod, Rau, & Schepige, 2003). Such re-seeing often takes place as students engage in motivated use. Girod et al. (2003) describe a student who was able to re-see rocks as stories after a TE unit in geology. As another example, a high school student explained to researchers how he saw animals differently after learning about adaptation and natural selection in his biology class: "I now don't just look at [an] animal and say, 'That's cute.' I stop and think a little harder. … [The concept of adaptation] made me look past the animal and made me try to understand more about it" (Pugh, 2002, p. 1128). Learning about adaptation transformed this

student's perception of objects in the world outside the classroom. As a result of re-seeing, these students' experiences with school-based learning have been transformed.

The third characteristic of TE is experiential value. Experiential value refers to the development of value for what the student has re-seen through the lens of content. The student recognizes that course content can enrich experiences and, as a result, assigns a greater value to that content. Experiential value is observed when a student recognizes a deeper value for the ideas learned in an in-school environment and for the aspects of the world illuminated by these ideas. For example, Heddy and Sinatra (2013) recorded the thoughts of a biology student who had been taught the subject of evolution: "It [learning about evolution] was an excellent reminder to stop and reflect on what is going on around me. It makes my life more meaningful and answers questions about existence while creating new ones" (p. 735). As Pugh (2011) concluded, experiential value developed as students came to recognize and appreciate how content "expanded perception of and enriched everyday experiences" (pp. 3-4). The construct of experiential value was foundational to developing the TE theory because it is the praxis of the theory--that is, the outcome of in-school learning manifest in the everyday world.

Transformative experience recapitulates many of the ideas addressed by educator and philosopher John Dewey (1938) in *Experience and Education*. Dewey argued that students learn most effectively when new ideas and information are connected to prior knowledge and experiences or acquired through new experiences. The importance of positive educational experiences is such that a "negative experience can result in arresting or distorting the growth of further experience" (Dewey, 1938, p. 5). Transformative experience is derived from Dewey's theory of experiential learning and his belief in the

motivational effects of aesthetic experiences. In fact, Pugh and Girod (2007) have noted that the transformative experience has also been called the transformative aesthetic experience. Dewey's (1934) theories of the aesthetic experience were articulated in *Art as Experience*, where he distinguished between *an* experience and experience more generally. This distinction is essential to TE. As defined by Dewey, experience generally is the continuous interaction of the individual and the environment. Although typically conscious in intent, Dewey noted that often experience is “inchoate," by which he means "things are experienced but not in such a way that they are composed into *an* experience. There is distraction and dispersion, and as a result, what we observe and what we think and what we desire and what we get are at odds with each other” (p. 35). In such situations, Dewey explained, “we stop, not because the experience has reached the end for the sake of which it was initiated but because of extraneous interruptions or of inner lethargy” (p. 35). Distinguished from this general experience, *an* experience is one that is characterized by a beginning, a middle, and a *fulfilling* end. According to Dewey, if experiences are to be “integrated within and demarcated in the general stream of experience from other experiences,” they must run their course “to fulfillment” (p. 35). He added that, whatever the events--“eating a meal, playing a game of chess, carrying on a conversation, writing a book, or taking part in a political campaign”--*an* experience is “so rounded out that its close is a consummation and not a cessation. Such an experience is a whole and carries with it its own individualizing quality and self-sufficiency. It is *an* experience and the effects of that experience that are more than momentary” (p. 35). *An* experience affects and can change one's perception of the world and suggest the value of experience. These notions are the foundation of transformative experience.

In Dewey's (1934) work, *an* experience is discussed primarily in relation to the arts. However, Pugh (2011) proposed that school learning experiences can resemble *an* experience when students engage with content as *ideas* instead of concepts. Pugh's distinction again looks to Dewey who explained that whereas concepts are well-established and static, ideas present as possibilities. Therefore, concepts, as static, do not encourage or inspire students' anticipation and discovery. Concepts diminish creativity. On the other hand, because ideas are about possibility, they engender anticipation, and that anticipation inspires learning and action. Wong, Pugh, and The Deweyan Ideas Group at Michigan State University (2001) summarized, "Anticipation distinguishes *an* experience from mere experience by bringing both coherence and energy" (emphasis added, p. 322). Dewey and Boydston (2008) distinguished further between ideas without worth and ideas that have value: "Ideas are worthless except as they pass into actions which rearrange and reconstruct in some way, be it little or large, the world in which we live" (p. 111). The goal of teaching for transformative experience (TTE) is to create within students *an* experience whereby they act on the possibilities engendered in ideas and, by that action, transform their perception of the world they inhabit. The fulfilling end of TE is the transfer of in-school knowledge to students' lives outside school in a way that alters their perception of the world. A number of concepts are derived from TE and the notion of ideas as initiating *an* experience. Among these concepts are motivated use, expansion of perception, and experiential value (Pugh, 2011).

Interventions Based on Transformative Experience

Studies on teaching for transformative experience (TTE) have been associated with positive motivation and learning outcomes, including interest, positive emotions,

understanding, conceptual change, enduring learning, and transfer (e.g., Girod, Twyman, & Wojcikiewicz, 2010; Heddy & Sinatra, 2013; Heddy et al., 2016; Pugh, 2002; Pugh, Linnenbrink-Garcia, Koskey, Stewart, & Manzey, 2010a, 2010b). Individual interest has been distinguished from positive feelings by Linnenbrink-Garcia and Patall (2015) as a component of interest along with perceived values for the domain. In their study of a science classroom, Girod et al. (2010) compared the understanding of course concepts in two groups of students. The first group experienced a TTE intervention, and the second group did not. The researchers found a prolonged conceptual understanding of content in the group that experienced the TTE intervention. One participant from the TTE group stated, "Knowing how the molecules move faster and faster as they get more energy makes it easier to see why hot water can burn you" (Girod et al., 2010, p. 817). Multiple studies confirmed these findings. In their study, Heddy and Sinatra (2013) found that a lab-based intervention using a pool of educational psychology undergraduates who had been introduced to TTE interventions demonstrated a larger change in conceptual knowledge than the control group, which had no introduction to TTE. The members of the treatment group also reported an increased level of enjoyment in the course. In a separate study, Heddy et al. (2016) found learning outcomes based on achievement and content knowledge assessments as well as interest-related outcomes to be more significant in a group introduced to TTE compared against the control group. Similarly, Pugh et al. (2010a, 2010b) found that participants who engaged in higher levels of TE also reported greater conceptual understanding of some course content when compared against participants who did not engage in TE. In each of these studies, the effects of TE were apparent.

As noted above, interventions for implementing TTE frameworks into classrooms have been developed. These frameworks are identified in this review as Teaching for Transformative Experience (TTE). The current study was designed based on an intervention developed for Teaching for Transformative Experiences in Science (TTES; (Pugh, 2002). The design both for TTES and the present research emerged from three principles: “framing the content as ideas, scaffolding re-seeing, and modeling transformative experiences” (Pugh, Bergstrom, Krob, & Heddy, 2017).

The instructional technique of framing, one of the three principles of TTE, helps students contextualize their learning. When an instructor is teaching for transformative experience, framing takes the form of contextualizing the content being learned as meaningful for the student in situations or contexts beyond the classroom. Through framing, the content becomes something more than knowledge learned merely for in-school purposes (e.g., to pass a test or to be able to enroll in the next course). Framing content encourages students to look for manifestations of classroom learning in other, especially out-of-school, contexts of their lives. Framing also encourages students to view ideas as possibilities that hold potential, thus building the anticipation phase of *an* experience as described by Dewey (1934). By generating anticipation and possibilities, framing connects specifically to the motivated use construct of TE, which occurs when students apply ideas and content from an in-school experience to an out-of-school context without being prompted to do so by a teacher or some other external factor.

The second principle of TTE is scaffolding re-seeing. In scaffolding re-seeing, the instructor demonstrates for students the particular skills associated with looking at one's learning in new or different ways. In other words, the instructor effectively itemizes for

students the skills necessary in order to re-see their learning. Based on Vygotsky's (1978) theory of the zone of proximal development, scaffolding provides a bridge between what students are capable of doing on their own and what they are capable of doing with support. This instructional strategy exemplifies an apprentice-type model of learning in which the teacher supports students' progress towards a particular learning goal. Specifically, scaffolding the skill of re-seeing occurs when instructors model or demonstrate the act of re-seeing and then guide students to find something in their own learning or experience to re-see in other contexts. These re-seeing experiences become the focus of discussion among students and their peers and/or with others inside and outside of the classroom. The modeling of re-seeing skills prepares students to apply them as a way to see the content of their learning in new ways—that is, to re-see. In TTE, scaffolding the skill of re-seeing is essential, for students may not have developed the cognitive skills needed to identify opportunities for re-seeing their classroom learning in other contexts (Pugh et al., 2017). Because re-seeing requires students develop a new perception of their learning, scaffolding is an element of the expansion of perception observed when a student re-sees everyday actions, objects, or experience more deeply and/or through the lens of classroom content.

When scaffolding is combined with the third principle of TTE, modeling, students are more likely to uptake new skills. In TTE, modeling entails demonstrating how a TE changes the way one recognizes and understands the potential application of school-based skills. Modeling differs from scaffolding. Whereas scaffolding supports students as they learn the skills associated with re-seeing, during modeling an instructor demonstrates the application of those skills in an authentic transformative experience.

Modeling provides students with a sense of confidence and control over the new skill (Brown, Collins, & Duguid, 1989). In TTE, modeling occurs when the instructor demonstrates his or her own application of the skills of re-seeing ordinary objects or events through the new lens. Sharing these experiences provides not only an example of a TE for students, but it also provides the instructor with an opportunity to express a "passion for the content." (Pugh et al., 2017). The expression of such passion connects directly to the construct of experiential value, which pertains to the development of students' value for what has been re-seen and how the act of re-seeing enriches their experiences. The result is a greater value placed on course content by students.

Researchers have conducted interventions based on TTE in a variety of disciplines and settings, including both high school and elementary school classrooms (Alongi, Heddy, & Sinatra, 2016; Cavanaugh, 2014; Girod et al., 2003, 2010; Pugh, 2002; Pugh & Girod, 2007). Alongi and colleagues (2016) studied participants in a high school history classroom and found that the intervention condition based on TTE produced a significant result on a measure of TE when compared against the control condition. The learning outcome, measured using a conceptual change survey, also showed significant results for the TTE intervention group compared against the control group. Cavanaugh (2014), using TTE in a seventh grade science classroom, reported both an increase in students' excitement and interest in the content and a significant increase on the learning outcome measure for course content. Girod and colleagues (2010), using a quasi-experimental design to study TE and learning in a fifth grade science class, found a significant increase in the learning outcome measures for students who were treated with TTE as compared against the students in a traditional classroom. The results on the learning outcome

measure were even more pronounced one month after the end of the experiment and demonstrated the long-term effects of TTE. Girod et al. (2010), in their study of fifth graders, also reported significant results in change of perception, which is a construct of TE, in the TTE group as compared against the control group.

Similar results were observed in a high school science classroom. Pugh and colleagues (2010a) studied a high school biology teacher who implemented TTE in his instruction. The three conditions in the study were control, cognitive conflict for conceptual change, and cognitive conflict for conceptual change + TTE. The TE measure was used as a posttest. The researchers also recorded observations of "student events" (defined as moments when students shared with others their out-of-school experiences with course content). The observation data revealed that students in the TTE condition of the study shared more experiences and expressed more interest than students in the two non-TTE conditions. These observational results contrasted with the results from the TE measure, which indicated no statistically significant difference in TE between the intervention conditions and the control condition. The researchers used two separate measures for learning outcomes: a measure of basic knowledge and a measure of knowledge transfer. On the basic knowledge measure, students in the cognitive conflict for conceptual change and the cognitive conflict for conceptual change + TTE groups exhibited a higher level of basic knowledge when compared against the students in the control condition. On the transfer measure, results suggested that students who demonstrated a higher level of TE also demonstrated a deeper level of conceptual change and transfer of knowledge.

At the post-secondary level, Heddy and Sinatra (2013) applied TTE in an undergraduate science course. The researchers used a Transformative Experience Survey (Koskey, Stewart, Sondergeld, & Pugh, 2016; Pugh et al., 2010a, 2010b) as a posttest to measure student engagement. The TTE teaching method developed for this study included a conversation-based pedagogy where the instructor led the students in small-group conversations discussing their own motivated use, expansion of perception, and experiential value of the course content. Students were encouraged to seek objects and events related to the course concepts and then share them with the class. The Transformative Experience Survey then measured TE through the three dimensions of motivated use, expansion of perception, and experiential value. The results confirmed that the students in the treatment group who were exposed to TTE demonstrated a statistically significant difference from the control group in the active use dimension, the expansion of perception dimension, and the experiential value dimension. The learning outcomes, measured through a conceptual change tool, revealed that participants in the treatment group had a significantly greater change in their conceptual understanding of course content as compared against the control group.

A second study at the post-secondary level applied TTE in a college success course (Heddy et al., 2016). This particular intervention implemented “use, change, value” (UCV) conversations, a specific strategy based on the larger TTE model. The UCV conversations entail **U**sing the content in everyday experience (U), **C**hanging students' perception of aspects of the world related to course concepts (C), and developing **V**alue for these aspects of the world (V). The UCV conversations were designed to scaffold students into having their own conversations about their encounters

with course concepts outside the classroom. The UCV conversations were modeled by the instructor and then continued by the students in small groups. The researchers used the Transformative Experience Survey to measure student engagement using the three dimensions of motivated use, expansion of perception, and experiential value. Students in the intervention group who engaged in the UCV conversations reported a moderately higher level of TE than students in the control group, whose discussion addressed a case analysis.

The success of the TTE model in courses in a particular content area and with a particular level of students does not guarantee its success at fostering motivation outcomes and improved learning outcomes in other learning situations. The purpose of this study was to investigate if the application of TTE in writing courses can produce an effect. In particular, given the discursive nature of the writing classroom, the UCV conversations had the potential to impact students' value and usefulness for writing course content. The TTE model for this study was designed to have instructors assist students in re-seeing their lives outside of the classroom through the lens of the content (Pugh et al., 2010b). The UCV conversations happened when students, encouraged by their instructor, brought examples of their re-seeing into the classroom. Based on the results of previous TTE research, it was hypothesized that the act of encouraging students to find and share moments of re-seeing through the implementation of UCV conversations would increase achievement and result in higher learning outcomes (Pugh, 2002, 2011; Pugh et al., 2010a, 2017).

In sum, the purpose of this dissertation study was to take the well-established research on interventions supporting academic engagement, transformative experiences,

and learning outcomes in various fields and apply it to the particular context of the writing classroom. The research applied focused on two areas: expectancy-value theory, with a specific focus on the utility value construct, and transformative experience theory. This dissertation addressed what the current research has not yet attended to, namely, the application of these theories and interventions to writing courses. Writing courses present content and a classroom setting vastly different from the sciences and social sciences. This dissertation was designed to address this gap in previous research. This research contributes to the field of educational psychology in two meaningful ways. First, it contributes to the theoretical application of interest research and motivational research by applying those constructs in a new discipline, here, the field of writing. Second, as a result of its focus on writing classrooms, this research contributes in a practical way to the study of methods for improving the writing skills of students enrolled in first-year writing courses.

Current Study

The current study had three goals: to impact participants' utility value (UV) for writing; to impact participants' transformative experience (TE) regarding writing skills, and to impact students' writing skills themselves. I conducted a quasi-experimental study using participants in first-year writing courses taught by graduate teaching assistants (TAs) at a large public Western university. Teaching assistants were treated as nested factors within instructional intervention conditions. The four intervention groups consisted of a utility value utility value group (UV), a teaching for transformative experience group (TTE), a utility value plus teaching for transformative experience (UV+TTE) group, and a control (C) group. Enrollment in courses determined which

participants were in each intervention group. Only teaching assistants in the TTE and the UV+TTE intervention groups were trained to conduct the UCV conversations. All four intervention groups had writing prompts that were to be completed twice during the semester (see Appendix A). Prompts for the control groups differed from those assigned to the intervention groups. Prompts for the intervention groups were designed to increase the UV for the course content. Participants were also asked to complete pre- and post-surveys to gather data on control variables as well as UV and TE.

The study tested the difference between the four conditions on measures of engagement[3] and learning. At its inception, this research posed the following questions.

Research Questions

Q1 Are there differences between conditions on measures of engagement?

- Q1a Are there differences on a measure of utility value for writing?
- Q1b Are there differences on a measure of transformative experience in relation to writing?

Q2 Are there differences between conditions on measures of learning (scores on writing assignments)?

Q3 Are there aptitude by treatment effects?

- Q3a Are there interactions between prior factors (expectations for success, prior utility value) and the interventions on the utility value outcome?
- Q3b Are there interactions between prior factors (expectations for success, prior interest) and the intervention on the transformative experience outcome?

[3] I am using this term as a general umbrella for UV and TE. There are specific research conceptions of engagement to which I am not referring (Fredricks, Blumenfeld, & Paris, 2004).

Q3c Are there interactions between prior factors (expectations for success, prior achievement) and the interventions in the learning outcome?

Prior to implementing the interventions, it was hypothesized the UV and UV + TTE conditions would be more effective at fostering engagement in students as evidenced by an increase in utility value and an increase in transformative experience. It was also predicted that the interventions would be more effective for participants who had a lower initial interest for writing, utility value for writing, and expectation for success in writing than for participants who had a higher initial interest, utility value, and expectation for success. This latter hypothesis was based on research using UV interventions conducted in mathematics courses that indicated a higher effect for students who indicated a lower initial expectation for success (Hulleman et al., 2010). It was hypothesized that there would be difference between conditions on measures of learning and that the intervention conditions would results in higher learning outcomes than the control. This hypothesis was based on research using UV interventions in mathematics (Hulleman et al., 2010) and TTE in sciences (Heddy et al., 2016; Heddy & Sinatra, 2013; Pugh et al., 2010a, 2010b). The prediction was there would be a significant interaction effect between prior factors and outcomes as evidenced by significant interactions between the UV outcome and expectation for success, the TE outcome and prior interest and expectation for success and the learning outcome and prior indicators of success and expectations for success.

CHAPTER III

METHODS

Participants

Three hundred and thirty-three (110 male, 223 female) adult students (over 18 years of age) enrolled in 16 different sections of the second semester of a two semester first-year composition sequence during spring 2017 were included in this research (see Institutional Research Board approval in Appendix B.) This sequence is required for all students attending the university regardless of major. Students may be exempt from taking the course at the university only if they took an equivalent course at a community college or received college credit through programs like Advanced Placement. Ten teaching assistants (TAs) in the English department who taught 16 sections during the spring 2017 semester participated in the study. Of these 10 TAs, five were chosen for their experience in teaching the course and five were chosen for their lack of experience in teaching the course. Four sections were assigned to each of the four intervention conditions: UV only, TTE only, UV + TTE, and control. Within each condition, I assigned one experienced and one inexperienced TA. The balanced design of instructors was used to control for the confound of instructor experience.

Intervention Conditions

Course sections were randomly assigned to one of four conditions: UV only, TTE only, UV + TTE, and control. Participants in all four conditions participated in class

discussions and completed two brief writing tasks. The tasks were different for each condition. Appendix C provides an outline of activities by condition.

Utility Value Only Condition

Students in the UV condition received two modified writing prompts. Patterned after the SPI used by Hulleman et al. (2010), these prompts were brief relevance writing assignments designed to encourage students to think about the relevance of the course content to their lives. These assignments were given as homework and graded as part of the required course work. The first relevance assignment prompted students to write a letter to a significant person in their lives (e.g., friend, relative, partner, etc.) describing the relevance of their topic to this person. The second relevance assignment prompted students to find a media report (e.g., magazine, newspaper, Internet, etc.) that pertained to their topic and to write an essay that discussed the relevance of the media report to information they were learning in class (see Appendix A for the writing prompts). The class discussions focused on objective, fact-based, and skill-based questions about the readings. These differed from the TTE and UV + TTE intervention conversations in that no there were no conversations that extend beyond the readings assigned for class.

Teaching for Transformative Experience Only Condition

Participants in the TTE only condition received alternative writing prompts to those used in the UV conditions. These assignments were the same as those used in the control condition (see below). In addition, during weeks 3, 5, 7, 9, 11, and 13, participants engaged in six in-class UCV conversations (Heddy & Sinatra, 2013) about the application of the course content to their lives. During these conversations, the instructor presented his or her own motivated use, expansion of perception, and

experiential value experiences regarding the course content in order to scaffold the students' conversations. Teaching assistants assigned to this condition were trained in the following manner: As a group, the TAs met with the primary researchers for a one-time, face-to face training. They were provided with a brief explanation and description of what a UCV conversation entails via lecture and Power Point presentation. The TAs were then prompted with a series of questions that asked them to think about their own experiences with the content (i.e., When you were reading or working on a writing assignment, did you notice (think about) any of the ideas you've been teaching in class? When you look at writing, do you notice things you didn't notice before?). After sharing some ideas from their own personal experiences, the TAs were shown a list of the primary topics that they would be teaching in their classes. As a group, the TAs and I generated ideas for potential UCV conversations that could be had in class. At the close of the training, TA were invited to continue thinking and continue visiting with the primary researchers as new ideas came to them throughout the semester. One example of a UCV conversation from a teaching assistant was the result of her listening to a podcast about an athlete who defied the peer pressure to play his sport in a particular way. When the teaching assistant attempted to share this information with her roommates, she did so by interrupting a conversation and merely blurting out the information that she wanted to share. Her audience was confused and uninterested in her topic. She shared with her class how this experience taught her about the value of a well-done introduction. The audience who is coaxed into thinking about a topic is much more likely to stay engaged in the topic than an audience who is simply dropped into a topic about which they were not previously thinking. Students were directed to search actively for examples from their

own experiences where their in-school learning and out-of-school experiences have intersected. Then, working in small groups of three to four, they were directed to discuss their everyday encounters with course content by sharing examples of **U**sing the content in everyday experience (U), **C**hanging their perception of aspects of the world related to writing (C), and developing **V**alue for these aspects of the world (V).

Utility Value Plus Teaching for Transformative Experience Condition

Participants in the UV + TTE condition completed the same writing prompts as those in the UV only condition. In addition, participants had the six in-class UCV conversations about the application of the course content to their lives (during weeks 3, 5, 7, 9, 11, and 13). These were the same conversations detailed in the TTE only condition discussed above.

Control Condition

Students in the control condition received alternative writing prompts to those used in the UV and UV + TTE conditions. These assignments focused on summarizing course content as opposed to writing about its relevance. The first control assignment prompted students to write an outlined summary of the topic they selected. The second control assignment prompted student to search the PsycINFO database for two abstracts relating to the topic they selected and discuss how the abstracts relate to the material they were learning in class (see Appendix A). The class discussions focused on objective, fact-based, and skill-based questions on the readings. Questions were limited to summarization of topics from course content and application of that content to the writing

skills. These differed from the UCV conversations in that no conversations that extend beyond the readings assigned for class took place.

Intervention Fidelity Check

Utility Value Writing Prompts

The two UV-based writing interventions administered in the UV only and the UV + TTE conditions were coded for level of engagement with the UV intervention prompts and given a score of 0–3. A score of 0 indicated that the respondent did not answer the prompt, and these participants were dropped from the analysis of condition differences. A score from 1–3 was considered a valid response, and these participants were retained. A score of 1 indicated that the respondent answered the prompt in a very outlined and non-detailed fashion. A score of 2 indicated that the respondent answered the prompt and addressed the utility value of writing inside the classroom. A score of 3 indicated that the respondent answered the prompt and addressed the utility value of writing beyond the classroom environment. The score was an average of two independent coders. An Intraclass Correlation/ICC(3), i.e., two-way mixed was used in SPSS. The ICC(3) was used because there were consistent raters for all rates, and researchers were working with the whole population rather than a sample (Landers, 2015; articulated utility value one $\alpha = .90$; Articulated utility value two $\alpha = .90$)

Teaching for Transformative Experience Conversations

As an intervention fidelity check, courses in which the UV + TTE intervention was implemented and courses in which the TTE only intervention was implemented were observed during the scheduled discussion-based interventions (weeks 3, 5, 7, 9, 11, and 13). Observations consisted of field notes relating to the fidelity of implementation of the

intervention (i.e., teaching assistants scaffolding discussion with their own examples of motivated use, expansion of perception, and experiential value and then directing students to look for these uses in their own life). Observations were conducted by the primary researcher. Notes were reviewed by researchers to ensure proper implementation based on the training received. Proper implementation criteria included use of course content or concepts, application to a real-world event, and the instruction to the participants to search for other real-world events related to the same concept. All observations conducted met the criteria for proper implementation.

Data Collection Procedures

During the second week of courses, a research invitation to students to participate in the study was conducted (see invitation script in Appendix D). Participants were asked to sign consent forms and to complete the initial survey containing measures of transformative experience, utility value of writing,[4] interest for writing, and expectation for success in relation to writing.

As an assessment of learning, assignments that were responses to common writing prompts were collected during weeks three and fourteen. A post-survey was administered during week thirteen comprised of measures of transformative experience in relation to writing, utility value of writing, and interest for writing, and expectation for success. After the completion of the course, information was obtained from the Registrar regarding semester-end GPAs (see Appendix C).

[4] I am including UV on the pretest in order to have the option of doing repeated measures. However, the primary analysis plan was to use interest, expectations for success, and prior achievement as covariates in a MANCOVA design (see Analysis below).

Measures

There were two engagement outcomes (UV for writing and TE). For these outcomes, students responded on 4-point Likert scale ranging from strongly disagree to strongly agree. There was one learning outcome (achievement on writing assignments). For this outcome, students wrote to prompts. There were three moderator variables (expectations for success, prior academic performance, and interest). For these variables, students responded on 4-point Likert scale ranging from strongly disagree to strongly agree. For all measures, see Appendix E.

Utility Value for Writing

Five-items, modified for writing concepts and writing courses (e.g., *What I will be learning in this course is relevant to my academic career*), from the previously validated Motivated Strategies for Learning Questionnaire (MSLQ) were used (Pintrich et al., 1993). These items were used to determine the perceived usefulness of the course content to the participants. The utility value measure was administered as a pre- and post-assessment (pre $\alpha = .88$; post $\alpha = .93$).

Transformative Experience

A 29-item, previously validated measure of transformative experience was used (Koskey et al., 2016). Items were used to asses a range of engagement with motivated use (e.g., *I **use** the stuff I've learned about writing concepts even when I don't have to.*), expansion of perception (e.g., *If I see a really interesting text [either in real life, in a magazine, or on TV], then I **think** about writing concepts*), and experiential value (e.g., *Knowledge of writing concepts makes advertisements, newspapers, advertisements, and other texts much more interesting*.). This survey measure was designed to detect a

continuum of experiences with the course content, ranging from engagement in the classroom to deep-level engagement out of the classroom. I conducted a Rasch analysis (Green, 2013) to get a composite score in line with prior use of the instrument (e.g., Pugh et al., 2017). Rasch statistics run in WINSTEPS were used to evaluate the reliability and validity of the measure. I evaluated the fit for individual items using a cutoff score of MNSQ > 1.4 (Wright & Linacre, 1994). This score indicates that the items were not predictable in the measurement (Green, 2013). Based on this accepted practice, items 1 (MNSQ = 1.64) and 19 (MSDQ = 1.53) were removed from the analysis. I also followed the standard practice of evaluating the person separation (4.00) and reliability (.95) and the item separation (11.24) and reliability (.99), and I found all four scores to be in the acceptable range (Wright & Linacre, 1994).

Interest for Writing

Six items, modified for writing concepts and writing courses (e.g., *I like learning new writing techniques.*), from the previously validated MSLQ were used (Pintrich et al., 1993). These items were selected to represent students' existing interest in the domain of writing including writing concepts, topics, and tasks. This measure was administered as a pretest ($\alpha = .89$). The data were collected to serve as a control when comparing conditions and as a potential moderator of intervention effects.

Learning

Learning was assessed through scores on two separate common writing assignments that were standardized across sections and scored using a standardized rubric. The first was a pre-assessment of writing ability. The second was a post assessment of learning outcome. Scores were based on a 1 to 4 scale graded using the

short-constructed response rubric used by the Colorado Department of Education (n.d.). A score of one indicated that, "the response tends to be unfocused and disorganized; there may be severe problems with fluency and/or consistency." A score of two indicated that, "the response does not maintain focus or organization throughout." A score of three indicated that, "the response is clear and focused." A score of four indicated that, "The response is clear, focused, and developed for the purpose specified in the prompt" (Colorado Department of Education, n.d.). The score was based on two independent coders who were blind to the condition. An Intraclass Correlation/ ICC(3) (i.e., two-way mixed) was used in SPSS (Learning outcome one $\alpha = .90$; Learning outcome two $\alpha = .90$).

Expectation for Success

Seven-items, modified for writing concepts and writing courses (e.g., *I believe I will receive an excellent grade in this course*), from the previously validated MSLQ were used (Pintrich et al., 1993). This variable was investigated as a control and potential moderator as in Hulleman et al. (2010). This measure was administered as a pretest ($\alpha = .90$)[5].

Prior Academic Performance

From the Registrar, I obtained each participant's high school GPA and ACT English scores to use as additional controls and potential moderator variables. Data were matched by respondent and then stripped of identifying information.

[5] This scale is labeled as self-efficacy scale but it is not task specific and hence more consistent with the term expectation for success. Therefore, I use the term expectation for success to be consistent with Hulleman.

Factor Analysis

Exploratory factor analysis (EFA) was conducted on the survey measures for utility value, interest in writing (labeled as intrinsic value in Table 1), and expectation for success. Because utility value, intrinsic value, and expectation for success are conceptually related, EFA was conducted to confirm that participants in the current sample were distinguishing between these concepts. A Varimax rotation was used. A three-factor solution accounted for 69% of the variance in both the pre-measure and the post-measure. All items loaded at a .68 or higher loading on the rotated solution. Table 1 provides the factor loadings.

Table 1

Eigen Values Based on Exploratory Factor Analysis Varimax Rotation Solution for Pre/Post Loadings

Items	Factor loadings Pre			Factor loadings Post		
	Expectation for success	Intrinsic value	Utility value	Expectation for success	Intrinsic value	Utility value
1. I find writing concepts enjoyable.	.082	**.808**	.140	.182	**.778**	.112
2. Writing concepts just don't appeal to me.*	.143	**.810**	.142	.110	**.771**	.179
3. I enjoy working on writing tasks.	.191	**.719**	.131	.184	**.724**	.069
4. I like learning new writing techniques.	.194	**.690**	.211	.186	**.689**	.263
5. I am not interested in writing concepts.*	.130	**.810**	.167	.170	**.758**	.259
6. I think writing concepts are interesting.	.157	**.834**	.203	.129	**.832**	.175
7. The information from this course could be useful in my academic career.	.089	.138	**.822**	.160	.152	**.829**
8. I don't think the information from this course would be useful to me in the future.*	.089	.242	**.778**	.044	.142	**.760**
9. What I will be learning in this course is relevant to my academic career.	.056	.173	**.843**	.156	.214	**.775**
10. To be honest, I don't think that the information from this course is useful.*	.229	.263	**.713**	.131	.200	**.764**
11. I think what we are studying in this course is useful for me to know for my academic career.	.084	.107	**.842**	.126	.174	**.845**
12. I believe I will receive an excellent grade in this course.	**.796**	.132	.108	**.818**	.106	.167
13. I'm certain I can understand the most difficult material presented in this course.	**.683**	.205	.067	**.721**	.284	-.002
14. I'm confident I can understand the basic concepts taught in this course.	**.674**	.103	.216	**.798**	.146	.116
15. I'm confident I can do an excellent job on the assignment and papers in this course.	**.849**	.143	.013	**.864**	.192	.177
16. I expect to do well in this class.	**.840**	.082	.023	**.880**	.094	.131
17. I'm certain I can master the skills being taught in this class.	**.772**	.164	.162	**.821**	.227	.050
18. Considering the difficulty of this course, the teacher, and my skills, 19. I think I will do well in this class.	**.815**	.126	.064	**.885**	.098	.181

* Items were reverse coded. Items 1-6 measure intrinsic value. Items 7-11 measure utility value. Items 12-19 measure expectation for success

Statistical Analysis

All data were analyzed using SPSS, WinSteps, or R. Data were entered into Excel and data entry was verified using an "IF/THEN" command. Data were matched by respondent and then stripped of identifying information. An ANCOVA was used the analyze the UV outcome with UV intervention (present, absent) and TTE intervention (present, absent) as the independent variables, UV post as the dependent variable, and UV pre and expectation for success as the covariates. After a Rasch analysis was conducted on the TE post measure, ANCOVA was used to analyze the TE outcome with UV intervention (present, absent) and TTE intervention (present, absent) as the independent variables, TE as the dependent variable, and initial interest and expectation for success as the covariates. An ANCOVA was used to analyze the learning outcome with UV intervention (present, absent) and TTE intervention (present, absent) as the independent variables, learning as the dependent variable, and expectation for success and prior academic performance as the covariates. Following the research of Hulleman (2010), when aptitude-treatment effects were found, I wanted to know if participants who had high levels of the covariates or low levels of the covariates were more or less impacted by the interventions. Therefore, I created dichotomous high-low (top and bottom third) variables from the continuous covariate variables. These variables were graphed by condition to help interpret the aptitude-treatment effect. Further analysis on the nested instructor effect in all models was conducted in R because the instructor effect was confounded with the interventions.

CHAPTER IV

RESULTS

Descriptive Statistics

The descriptive statistics for participant percentage within conditions are provided in Table 2 to demonstrate the compliance and completion rates of participants overall as well as a break-down of compliance rates between novice and experienced instructors. This table reveals that the percentage rate for compliance and therefore data collection was relatively stable between novice and experienced instructors for the UV outcome and the TE outcome with the exception of the combined condition in the UV outcome. The compliance rate for the learning outcome, however, reveals that novice instructors in the control condition were not included in the data collection at all. Additionally, in the learning outcome, experienced instructors were not included in the data collection in the combined condition. Lastly, some sections were dropped due to problems with the common writing.

Table 2

Compliance Rates and Sample Size per Condition and Instructor Experience

Condition	UV Outcome		TE Outcome		Learning Outcome	
	n	% Compliance	*n*	% Compliance	*n*	% Compliance
Control	59	60	75	77	10	10
Novice	27	46	37	49	0	0
Experienced	32	54	38	51	10	100
TTE Only	58	66	71	81	62	70
Novice	29	50	39	55	33	53
Experienced	29	50	32	45	29	47
UV Only	44	44	59	59	40	40
Novice	20	45	26	44	10	25
Experienced	24	55	33	56	30	75
Combined	69	66	79	76	36	35
Novice	27	39	35	44	36	100
Experienced	42	61	44	56	0	0

The descriptive statistics (reported in Tables 3 and 4) reveal that the reported level of UV was relatively moderate for students in all four conditions at both the pretest and the posttest levels. The UV pretest and the UV posttest were highly correlated ($r(229)=.535$, $n=231$, $p=.000$). The reported level of TE, based on the Rasch model, was relatively high. In Figure 1, the # and "." (left side) represent participants in relation to the items. On the right side are the survey responses. The overall mean is indicated by the M at 1. Therefore, the overall mean is about 1 (see Table 3 for more precise means). According to the Rasch model, a person is predicted to agree to the items below, disagree with the items above, and be as likely as not to agree with the items directly to the right. Thus, in the current sample, we can infer that participants were likely to agree to most items as the majority appear below the mean of 1, including items indicating engagement with content in their lives outside of school. Participants were only likely to disagree with

items indicating the highest level of active/intentional out-of-school engagement. The level of performance based on the learning outcome was relatively moderate (2.81 on a scale of 1.0 - 4.0).

Table 3

Means, Standard Deviations, and Correlations, for Controls, Predictors, and Dependent Variables

				Correlation							
Variable	*N*	*M*	*SD*	1	2	3	4	5	6	7	8
Controls											
HSGPA	285	3.31	0.47	-							
ACT	268	21.55	4.32	.372	-						
Prior interest	279	3.23[a]	0.74	.039	.059	-					
Expect for success	279	4.01[a]	0.52	.044	.098	.370	-				
Utility value Pre	279	3.94 [a]	0.66	.053	-.01	.436*	.278	-			
Dependent Variables											
Transfrm. Exp Post	332	0.93[b]	0.50	.058	.041	.477*	.285	.341	-		
Utility value Post	332	3.95[a]	0.50	.074	.018	.301	.201	.535*	.065	-	
Learning Outcome	120	2.81 [c]	0.65	.287	.070	.104	.132	.176	.117	.000	-

Note. [a] Responses were coded on a scale from 1 (Strongly Disagree) to 5 (Strongly Agree).
[b] Responses were analyzed using Rasch scores.
[c] Responses were coded on a scale from 1 (underdeveloped) to 4 (clear/developed).
*Correlation is significant at the .05 level.

The covariate of high school GPA did not significantly correlate with the TE ($r(235)=.058$, $n=237$, $p=.373$),the UV post ($r(235)=.074$, $n=237$, $p=.258$), but did with the learning outcome measure ($r(118)=.287$, $n=120$, $p=.001$) outcome measures. The covariate of ACT score did not correlate significantly with the TE ($r(222)=.041$, $n=226$, $p=.535$), UV post ($r(224)=.018$, $n=226$, $p=.784$), or the learning outcome measure ($r(112)=.070$, $n=114$, $p=.462$). The covariate of prior interest did correlate significantly

with the TE (r(277)=.477, n=279, p=.000), and with the UV post (r(229)=.301, n=231, p=.000) but not with the learning (r(121)=.104, n=123, p=.254) outcome measures. The covariate of expectation for success did significantly correlate with the TE (r(229)=.285, n=231, p=.000), and the UV post (r(229)=.201, n=231, p=.002) measures, but not the learning (r(121)=.132, n=123, p=.146) outcome measures. The covariate of utility value pre did significantly correlate with the TE (r(229)=.341, n=231, p=.000) and the UV post (r(229)=.535, n=231, p=.000) outcome measures, but not the learning (r(121)=.176, n=123, p=.997) outcome measures.

Table 4

Means and Standard Deviations for Controls and Dependent Variables

	TE Intervention		
UV Intervention	Yes	No	Total
Yes	UV Pre M=3.97 *(.71)* n=64 UV Post M=3.98 *(.67)* n=64 TE M=.96 *(1.21)* n=64 LO M=2.52 *(.54)* n=25	UV Pre M=3.93 *(.65)* n=41 UV Post M=4.05 *(.65)* n=41 TE M=.81 *(1.57)* n=41 LO M=3.10 *(.56)* n=29	UV Pre M=3.95 *(.69)* n=105 UV Post M=4.01 *(.66)* n=105 TE M=.90 *(1.36)* n=105 LO M=2.82 *(.62)* n=54
No	UV Pre M=3.88 *(.68)* n=53 UV Post M=3.79 *(.72)* n=53 TE M=.78 *(1.76)* n=53 LO M=2.80 *(.70)* n=48	UV Pre M=3.79 *(.57)* n=53 UV Post M=3.88 *(.74)* n=53 TE M=1.03 *(1.24)* n=53 LO M=2.90 *(.34)* n=10	UV Pre M=3.84 *(.73)* n=106 UV Post M=4.01 *(.66)* n=106 TE M=.91 *(1.52)* n=106 LO M=2.81 *(.65)* n=58
Total	UV Pre M=3.92 *(.69)* n=117 UV Post M=3.90 *(.70)* n=117 TE M=.88 *(1.48)* n=117 LO M=2.70 *(.66)* n=73	UV Pre M=3.85 *(.61)* n=94 UV Post M=3.96 *(.70)* n=94 TE M=.93 *(1.39)* n=94 LO M=3.05 *(.52)* n=39	

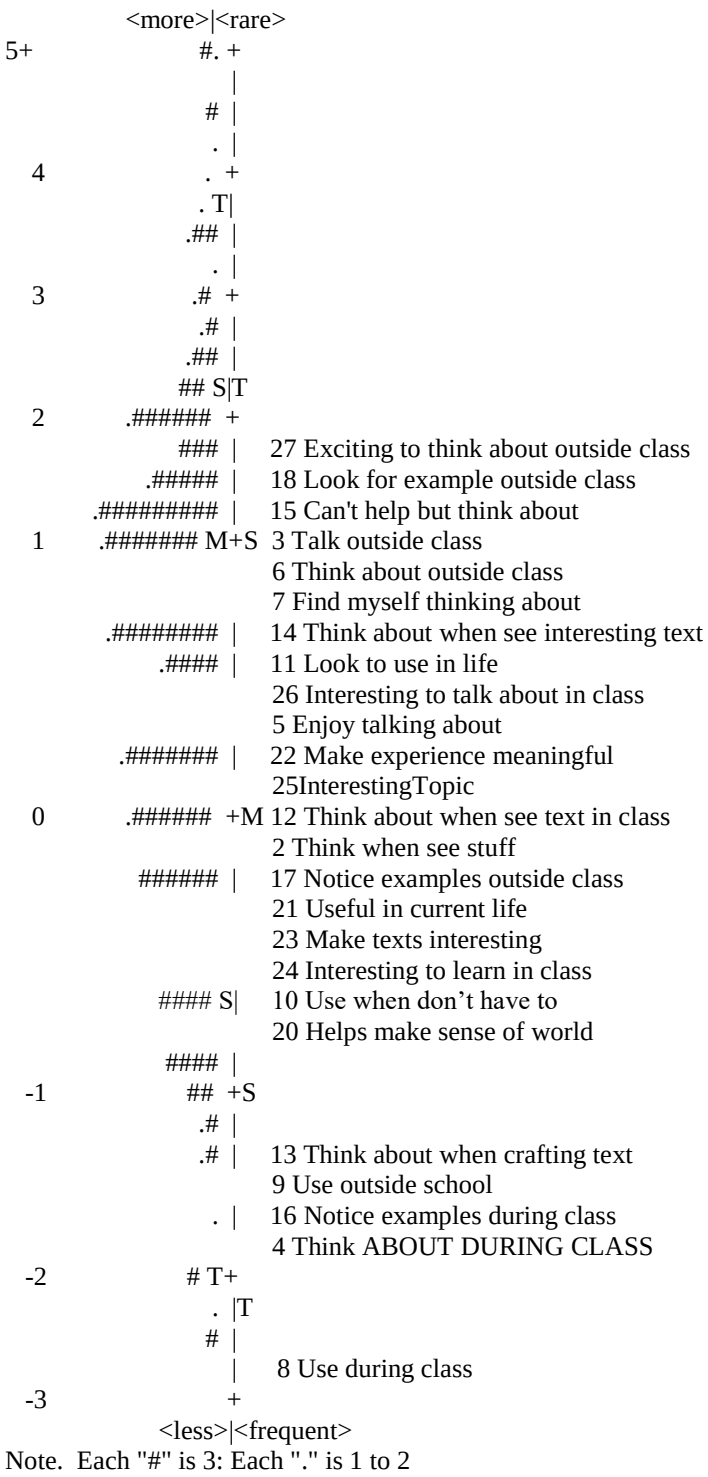

Figure 1. Item map of transformative experience survey responses.

Differences on Measures of Engagement

The first research question and its sub-questions were: Are there differences between conditions on measures of engagement? Are there differences on a measure of utility value for writing? Are there differences on a measure of transformative experience in relation to writing?

Utility Value Outcome

To examine the research question on the measure of UV, I conducted a 2x2 ANCOVA with UV intervention (present, absent) and TTE intervention (present, absent) as the independent variables, UV post as the dependent variable, and UV pre and expectation for success as the covariates. Descriptive statistics are reported using estimated marginal means as appropriate for ANCOVA in Table 5 and Figure 2. This figure illustrates similar levels of UV post across all conditions.

Table 5

Estimated Marginal Means Utility Value Post

Conditions	*N*	*M*	*SE*
UV only	45	4.00	0.07
TTE only	58	3.87	0.08
UV + TTE	69	3.95	0.07
Control	59	4.01	0.08

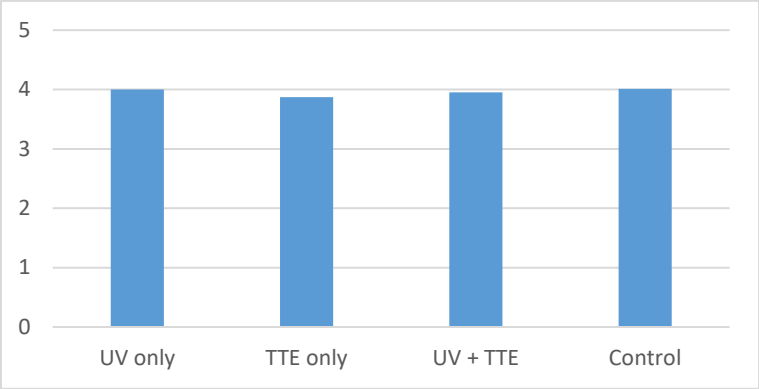

Figure 2. Estimated marginal means utility value post.

Assumptions for ANCOVA were verified. There was no indication of significant outliers as evidenced by the small difference between the mean and the trimmed mean for each intervention group (see Table 6).

Table 6

Utility Value Post Mean Versus Trimmed Mean

Conditions	*M*	Trimmed Mean
TTE Only	3.86	3.89
UV Only	4.08	4.12
TTE + UV	3.93	3.97
Control	3.95	3.99

The assumptions of skewness and kurtosis values were between -2 and +2, indicating normal univariate distribution (George & Mallory, 2010) as shown in Table 7.

The one exception was the UV post outcome for the kurtosis score for the TTE+UV condition. To further explore this normality violation, the histogram was examined (see Figure 3) and the violation became visible in the left skew.

Table 7

Skewness and Kurtosis for Utility Value Post Outcome

Conditions	Skewness	*SE*	Kurtosis	*SE*
TTE Only	-0.51	0.29	0.34	0.56
UV Only	-0.45	0.31	-0.08	0.61
TTE+UV	-0.91	0.27	2.35	0.54
Control	-0.62	0.28	0.34	0.55

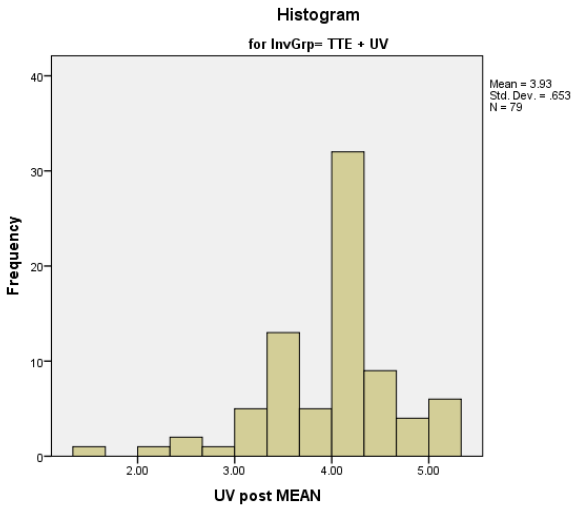

Figure 3. Utility value post outcome for normality test.

Further tests for normality were explored through the Shapiro-Wilk statistic. The results displayed in Table 8 indicate that normality assumptions should be rejected. However, ANCOVAs are considered relatively robust to violations of normality given large enough sample sizes like the one on the current study (Laerd Statistics, 2013).

Table 8

Shapiro Wilks Test of Normality

Conditions	UV post
TTE Only	.006
UV Only	.003
TTE + UV	<.001
Control	.001

Levene's test indicated that the assumption of homoscedasticity or equal variance for the pre and post UV measures was met because the *p value* was greater than .05 (UVPost: $F = .683$, $p = .564$).

After checking these assumptions, I moved forward with the ANCOVA analysis. I ran a 2X2 ANCOVA using a basic model including the covariates but without the covariate by intervention interactions (see Table 9). Results showed the UV pre was significant as expected, but there were no other significant effects. Effect sizes for all of the variables were small.

Table 9

Main Effects and Power for Utility Value Outcome

Conditions	*F*	*p*	η_p^2 Partial eta squared	Power
TE	(1,57) = 1.99	0.16	.009	0.29
UV	(1,44) = 0.40	0.53	.002	0.10
TE*UV	(1,68) = 0.07	0.79	.000	0.06
UV pre Mean	(1,230) = 79.8	0.00*	.262	1.00
ES pre Mean	(1,230) = 0.69	0.41	.003	0.13

Then, I ran a fuller model to investigate main effects and potential aptitude-treatment effects. I first conducted an ANCOVA with all the interactions between the covariates and interventions plus the three-way interactions between the covariates and UV*TE interaction (the three-way interactions are to test for interactions between the covariates and the combined condition). No statistically significant main effects were found for UV intervention or TE intervention (see Table 10). There also was not a statistically significant UV*TE interaction (combined condition). In addition, no significant differences were found for any of the interventions. However, the number of interactions in the model resulted in low power.

Table 10

Main Effects, Interaction Effects, and Power for Utility Value Post Outcome

Conditions	*F*	*p*	η_p^2 Partial eta squared	Power
TE	(1,55) = 1.69	0.20	.008	0.25
UV	(1,42) = 0.01	0.95	.000	0.05
TE*UV	(1,66) = 1.15	0.29	.005	0.19
TE*UV pre Mean	(1,55) = 0.18	0.68	.001	0.07
TE*ES pre Mean	(1,55) = 3.36	0.07	.015	0.45
UV*UV pre Mean	(1,42) = 1.50	0.22	.007	0.23
UV*ES pre Mean	(1,42) = 0.77	0.38	.004	0.14
TE*UV*UV pre Mean	(1,66) = 1.09	0.30	.005	0.18
TE*UV*ES pre Mean	(1,66) = 3.38	0.07	.015	0.45

Consequently, I conducted separate models for the two-way and three-way interactions. There were no significant interactions in the two-way model (see Table 11). In the model with the three-way interactions, there was a significant TTE intervention by UV intervention by UV pre-survey interaction, although all of the effect sizes were small (see Table 12).

Table 11

Two-Way Analysis of Covariance for Utility Value Outcome

Conditions	*F*	*p*	η_p^2 Partial eta squared	Power
TE	(1,57) = 1.01	0.30	.005	0.18
UV	(1,44) = 0.16	0.69	.001	0.07
TE*UV	(1,68) = 0.27	0.60	.001	0.08
TE*UV pre mean	(1,57) = 0.06	0.80	.000	0.06
TE*ES pre mean	(1,57) = 2.18	0.14	.010	0.31
UV*UV pre mean	(1,44) = 0.94	0.33	.004	0.16
UV*ES pre mean	(1,44) = 0.13	0.72	.001	0.07

Table 12

Three-Way Analysis of Covariance for Utility Value Outcome

Conditions	*F*	*p*	η_p^2 Partial eta squared
TE	(1,55) = 1.69	0.20	.008
UV	(1,42) = 0.04	0.95	.000
TE*UV	(1,66) = 1.15	0.29	.005
TE*UV*UV pre Mean	(1,66) = 20.2	0.00*	.270
TE*UV*ES pre Mean	(1,66) = 1.60	0.18	.028

To confirm further this result, I conducted a one-way ANCOVA with a single outcome variable comprised of four levels reflecting the four intervention conditions and the intervention by covariate interactions. In this model, I found a significant intervention by UV pre-survey interaction (see Table 13).

Table 13

One-Way Analysis of Covariance for Utility Value Outcome

Conditions	*F*	*p*	η_p^2 Partial eta squared	Power
InvGrp	(3,229) = 0.98	0.43	.013	0.27
InvGrp*UV pre mean	(4,228) = 20.2	0.00*	.270	1.00
InvGrp*ES pre mean	(4,228) = 1.60	0.18	.027	0.49

Together, these results suggest the effectiveness of the interventions, particularly the combined intervention condition, was dependent on students' prior level of utility value. To make sense of this result, I created high (top third) and low (bottom third) groups based on UV pre-survey scores and graphed these by condition. Figure 4 illustrates that all conditions displayed a gap between the participants who had a low pre-existing UV and the participants who had a high pre-existing UV. However, the gap was relatively larger in the TTE (μ1-μ2=0.67) and UV+TTE combined conditions (μ1-μ2=0.77) than in the other conditions (UV μ1-μ2= 0.29; control μ1-μ2= 0.44). In the original ANCOVA, both the TTE by UV pre and combined condition by UV pre interactions were marginally significant. These results suggest that the TTE and

TTE+UV interventions were slightly more effective for students who already possessed utility value and slightly less effective for those who did not.

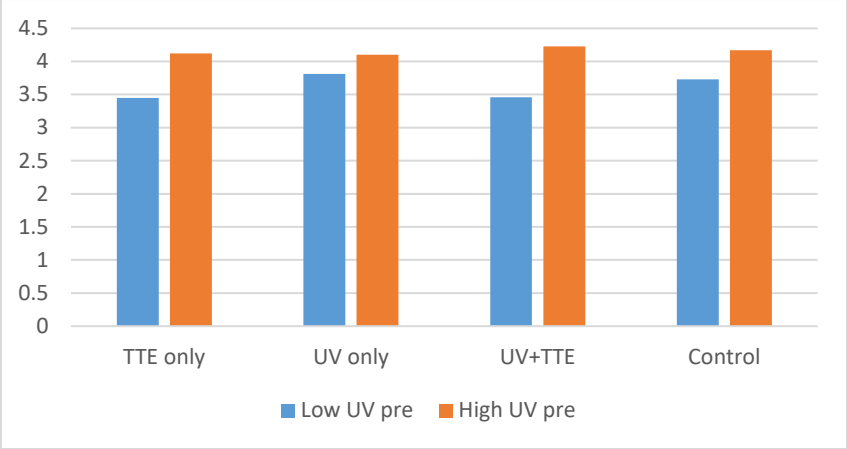

Figure 4. Estimated marginal means utility value post.

As a follow-up analysis, I investigated whether instructor effects contributed to the results. In my design, instructor was confounded with the intervention and a nested analysis (instructors nested within interventions) was not possible in SPSS. Further analysis was conducted in R. This analysis was performed working alongside Dr. Lalonde, a statistical consultant hired with grant funding. We used the restricted maximum likelihood (REML) to test the UV as dependent variable analysis accounting for imbalanced groups (resulting from errors in fidelity of implementation, noted in the limitations section) and nesting by instructor. We used a random intersect model with UV as the dependent variable, expectation for success and prior indicators of achievement as covariates and time and instructor. We plotted the residuals compared to the predicted values for instructor effect and found a very close fit, thus indicating a good fit for the model. The result (see Table 14) was that the students were explaining most of the

variation (22%), not the instructor (6%). Therefore, instructor effects did not play an important role in the results. However, the number of participants for some instructors was low (e.g., $n = 24$), thus making the detection of instructor differences difficult.

Table 14

Residuals Table Linear Mixed Model Fit: Random Effects

Group	Variance (*SD*)
Participant ID Code	0.22 (0.47)
Instructor	0.06 (0.23)
Residual	0.22 (0.47)

Transformative Experience Outcome

To examine research question 1b on the measure of transformative experience, I conducted a 2x2 ANCOVA with UV intervention (present, absent) and TTE intervention (present, absent) as the independent variables, TE as the dependent variable, and initial interest and expectation for success as the covariates. Descriptive statistics are reported using estimated marginal means as appropriate for ANCOVA in Table 15 and Figure 5, illustrating similar levels of TE post across the four conditions.

Table 15

Estimated Marginal Means with Transformative Experience as Dependent Variable Rasch Scores

Conditions	*M (SE)*
UV only	0.82 (.13)
TTE only	0.83 (.12)
UV + TTE	0.92 (.16)
Control	1.04 (.17)

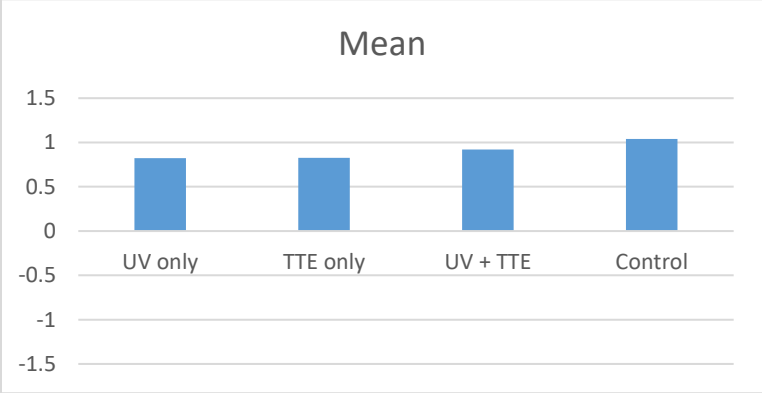

Figure 5. Estimated marginal means with transformative experience as dependent variable Rasch scores.

Assumptions for ANCOVA were checked. There was indication of the existence of outliers in one intervention group (TTE only) as evidenced by the difference between the mean and the trimmed mean (see Table 16). To explore these outliers further, Q-Q plots were evaluated (see Figure 6). This plot indicates that three data points do deviate from the line. In cases like this, transformations are recommended. However, given that the scores were already transformed in the Rasch analysis, we did not feel further

transformations would be recommended. Given that the TE measure was reliable and the data input was accurate, the decision was made to keep the outliers in the data set rather than reject them.

Table 16

Transformative Experience Rasch Outcome Mean Versus Trimmed Mean

Conditions	*M*	Trimmed Mean
TE Only	**0.80**	**0.66**
UV Only	0.97	0.88
TTE + UV	0.86	0.87
Control	1.11	1.07

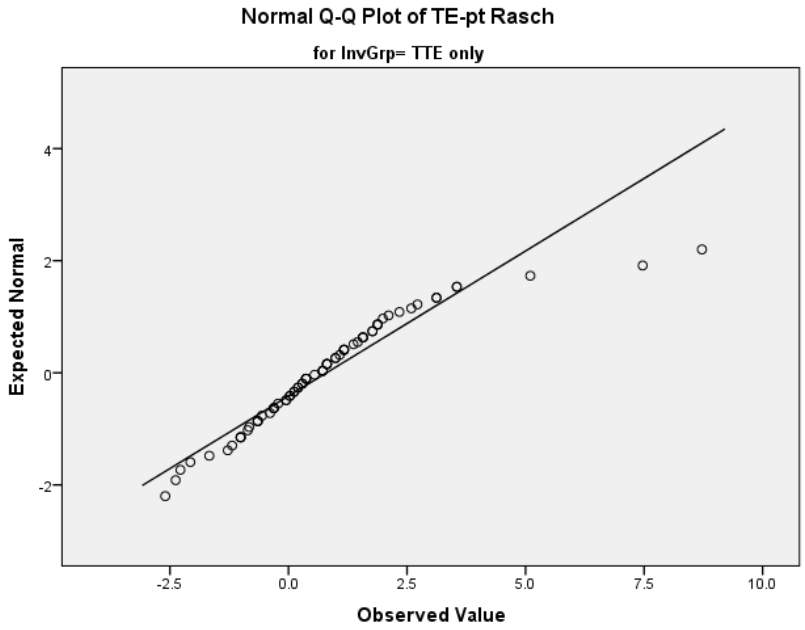

Figure 6. Q-Q plot for teaching for transformative experience only group.

The assumptions of skewness and kurtosis values were between -2 and +2, indicating normal univariate distribution (George & Mallory, 2010) as shown in Table 17. The one exception was the kurtosis score for the TTE only. To explore further this normality violation, the histogram was examined (see Figure 7) and the violation became visible in the right skew.

Table 17

Skewness and Kurtosis for Transformative Experience Outcome

Skewness	*SD*	Kurtosis	*SD*
1.55	0.29	**4.69**	0.56
1.03	0.31	1.18	0.61
-0.23	0.27	-0.01	0.54
0.51	0.28	0.74	0.55

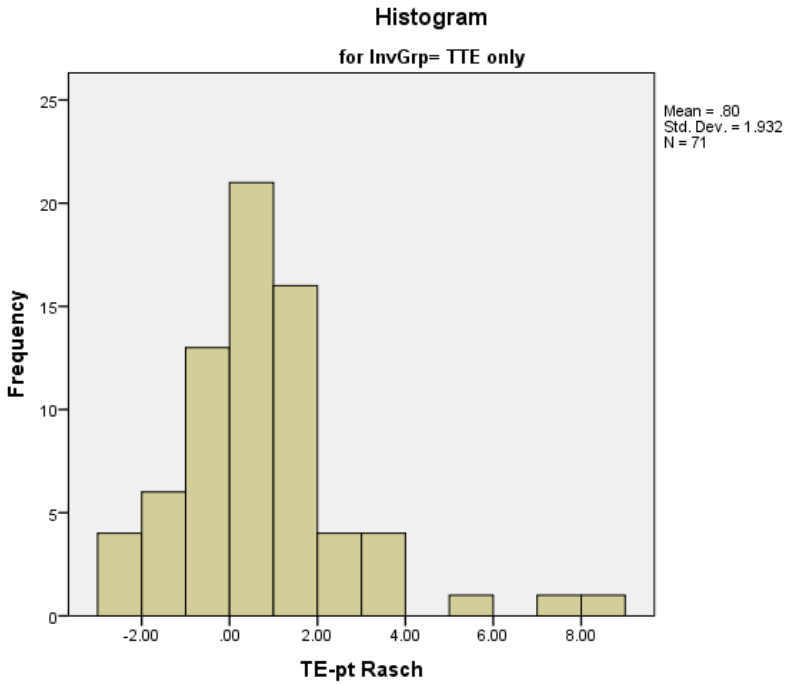

Figure 7. Histogram teaching for transformative experience only group.

Further tests for normality of distribution of data were determined through the Shapiro-Wilk statistic for the TE outcome (see Table 18). While these data indicated that the normality assumptions should be rejected, ANCOVAs are considered relatively robust to violations of normality given large enough sample sizes like the one on the current study (Laerd Statistics, 2013). Levene's test indicated that the assumption of homoscedasticity or equal variance for the TE measure was met because the *p* value was greater than .05 ($F = 2.59$, $p = .054$).

Table 18

Shapiro-Wilk Statistic for Transformative Experience Outcome

Conditions	*p*
UV only	.01
TTE only	.01
UV + TTE	.02
Control	.08

After checking these assumptions, I moved forward with the ANCOVA analysis. I ran a 2X2 ANCOVA. I ran a basic model including the covariates but without the covariate by intervention interactions (see Table 19). The prior interest for writing and the expectation for success covariates were both significant, however, the effect sizes in all conditions were very small.

Table 19

Main Effects and Power for Transformative Experience Outcome

Conditions	*F*	*p*	η_p^2 Partial eta squared	Power
TE	(1,57) = 0.08	0.78	.000	0.06
UV	(1,44) = 1.40	0.24	.006	0.22
TE*UV	(1,68) = 0.53	0.47	.002	0.11
IV pre Mean	(1,230) = 49.2	0.00*	.180	1.00
ES pre Mean	(1,230) = 6.35	0.01*	.027	0.71

Then, I ran a fuller model to investigate main effects and potential aptitude-treatment effects, I first conducted an ANCOVA with all the interactions between the covariates and interventions plus the three-way interactions between the covariates and UV*TE interaction (the three-way interactions are to test for interactions between the covariates and the combined condition). No statistically significant main effects were found for the UV intervention or TE intervention (see Table 20). There also was not a statistically significant UV*TE interaction (combined condition). However, the number of interactions in the model resulted in low power.

Table 20

Main Effects, Interaction Effects, and Power for Transformative Experience Outcome

Conditions	*F*	*p*	η_p^2 Partial eta squared	Power
TE	(1,57) = 0.08	0.78	.000	0.06
UV	(1,44) = 0.09	0.77	.000	0.06
TE*UV	(1,68) = 0.05	0.82	.000	0.06
TE*IV pre Mean	(1,57) = 2.05	0.15	.009	0.30
TE*ES pre Mean	(1,57) = 1.08	0.30	.005	0.18
UV*IV pre Mean	(1,44) = 0.02	0.89	.000	0.05
UV*ES pre Mean	(1,44) = 0.01	0.93	.000	0.05
TE*UV*IV pre Mean	(1,68) = 3.98	0.05*	.018	0.51
TE*UV*ES pre Mean	(1,68) = 0.92	0.39	.004	0.16

Consequently, I conducted separate models for the two-way and three-way interactions. There were no significant interactions in the two-way model (see Table 21). In the model with the three-way interactions, there was a significant TTE intervention by UV intervention by prior interest, although the effect sizes for all outcomes were small (see Table 22).

Table 21

Two-Way Analysis of Covariance for Transformative Experience Outcome

Conditions	*F*	*p*	η_p^2 Partial eta squared	Power
TE	(1,57) = 0.05	0.82	.000	0.06
UV	(1,44) = 0.09	0.77	.000	0.06
TE*UV	(1,68) = 0.73	0.39	.003	0.14
TE*IV pre mean	(1,57) = 0.82	0.37	.004	0.15
TE*ES pre mean	(1,57) = 1.71	0.19	.008	0.56
UV*IV pre mean	(1,44) = 0.04	0.85	.000	0.05
UV*ES pre mean	(1,44) = 0.01	0.94	.000	0.05

Table 22

Three Way Analysis of Covariance for Transformative Experience Outcome

Conditions	*F*	*p*	η_p^2 Partial eta squared
TE	(1,57) = 0.08	0.78	.000
UV	(1,44) = 0.09	0.77	.000
TE*UV	(1,68) = 0.05	0.82	.000
TE*UV*IV pre Mean	(1,68) = 13.7	0.00*	.201
TE*UV*ES pre Mean	(1,68) = 2.17	0.08	.038

To confirm further this result, I conducted a one-way ANCOVA with a single outcome variable comprised of four levels reflecting the four intervention conditions and the intervention by covariate interactions. In this model, I found a significant intervention by prior interest interaction (see Table 23).

Table 23

One-Way Analysis of Covariance for Transformative Experience Outcome

	F	*p*	η_p^2 Partial eta squared	Power
InvGrp	(3,229) = 0.05	0.99	.001	0.06
InvGrp*IV pre mean	(4,228) = 13.73	0.00*	.201	1.00
InvGrp*ES pre mean	(4,228) = 2.17	0.07	.038	0.64

Together, these results suggest the effectiveness of the interventions, particularly the combined condition, were dependent on students' prior level of interest. To make sense of this result, I created high (top third) and low (bottom third) groups based on the prior interest scores and graphed these by condition. The results indicate that there was a gap between participants who had a low prior interest and participants who had a high prior interest in all conditions. However, this gap was larger for the intervention conditions than the control (TTE only = 2.06; UV only = 1.57; UV+TTE = 1.53; control = 0.96). In the original ANCOVA, the combined condition by prior interest interaction was significant. These results suggested the TTE+UV intervention was slightly more effective for students who already possessed interest and slightly less effective for those who did not. Although, when I graphed these results, they are somewhat difficult to interpret. Figure 8 illustrates that the interventions were dependent on students' level of prior interest as stated above. Compared to the control, the level of TE is lower for those with low initial interest, but somewhat higher than the control for those with high initial interest, even though I only found a statistically significant interaction for the combined condition.

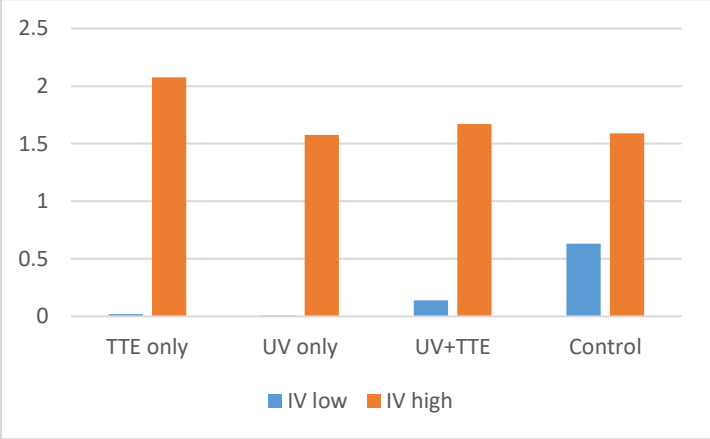

Figure 8. Transformative experience as dependent variable high versus low prior interest.

Differences on Measure of Learning

To examine the research question on the measure of learning, I conducted a 2 x 2 ANCOVA with UV intervention (present, absent) and TTE intervention (present, absent) as the independent variables, learning as the dependent variable, and expectation for success and prior academic performance as the covariates. Descriptive statics means are displayed in Table 24 and Figure 9. Estimated marginal means were reported because they account for covariates and are, therefore, the most appropriate means to use with an ANCOVA. These figures illustrate relatively similar levels of learning outcomes across the four conditions with the combined condition being somewhat lower.

Table 24

Estimated Marginal Means Learning Outcome

Conditions	*N*	*M*	*SE*
UV only	29	3.10	0.12
TTE only	48	2.86	0.09
UV + TTE	25	2.44	0.13
Control	10	2.85	0.20

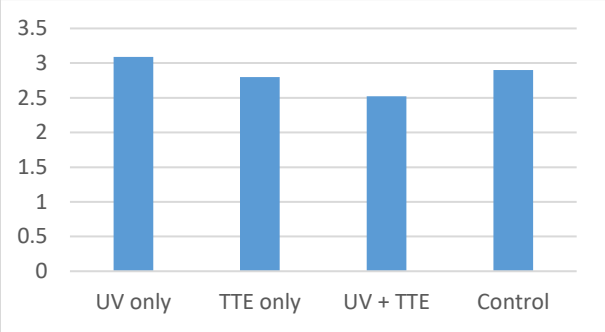

Figure 9. Estimated marginal means for learning outcome.

Assumptions for ANCOVA were checked. There was no indication of significant outliers as evidenced by the small difference between the mean and the trimmed mean for each (see Table 25).

Table 25

Learning Outcome Mean Versus Trimmed Mean

Conditions	*M*	Trimmed Mean
TTE Only	2.74	2.76
UV Only	3.13	3.14
TTE + UV	2.55	2.59
Control	2.95	2.96

The assumptions of skewness and kurtosis values were between -2 and +2, considered acceptable to indicate normal univariate distribution (see Table 26; George & Mallory, 2010).

Table 26

Skewness and Kurtosis for Learning Outcome

Conditions	Skewness	*SD*	Kurtosis	*SD*
TTE Only	-0.28	0.30	-0.34	0.08
UV Only	-0.50	0.37	0.41	0.73
TTE+UV	-1.31	0.39	2.47	0.77
Control	-0.54	0.66	-0.12	1.28

Levene's test indicated that the assumption of homoscedasticity or equal variance for the learning outcome measure was not met because $p < .05$ ($F = 5.13$, $p = .002$). To explore further this unequal variance, a bar and whisker plot was examined (see Figure 10). The unequal variance in the intervention groups was visible.

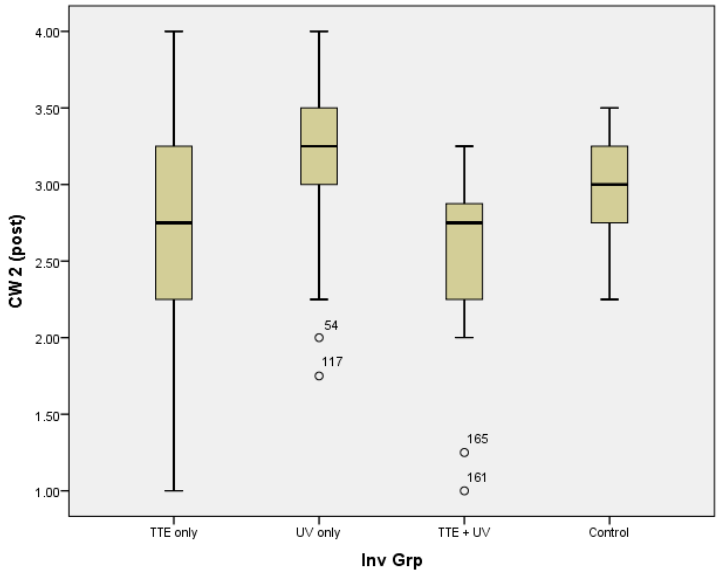

Figure 10. Plot for homoscedasticity of learning outcome measure.

Because the assumption of homogeneity of variance was not met for this data, I obtained Welch's adjusted *F* ratio (8.77), which was significant (3, 47.42) = 8.77, $p < .001$. Therefore, I was able to conclude that at least two of the four intervention groups differ significantly on the learning outcome measure. However, the maximum *SD* of the descriptive statics for the learning outcome measure (.70) is not four time greater than the smallest *SD* in the descriptive statistics for the learning outcome measure (.34). Therefore, the ANCOVA is robust to the violation of the heterogeneity of variance (Howell, 2013).

After checking these assumptions, I moved forward with the ANCOVA analysis. I ran a 2 X 2 ANCOVA including the covariates but without the covariate by intervention interactions (see Table 27). The TE intervention was significant but there were no other

significant effects. The mean scores indicate student in the TE conditions performed significantly lower on the learning outcome.

Table 27

One-Way Analysis of Covariance for Learning Outcome

Conditions	*F*	*p*	η_p^2 Partial eta squared	Power
TE	(1,47) = 6.42	0.01*	.057	0.71
UV	(1,28) = 0.49	0.49	.005	0.12
TE*UV	(1,24) = 3.39	0.07	.031	0.45
ACT English	(1,111) = 0.92	0.34	.009	0.16
ES pre Mean	(1,111) = 2.44	0.12	.023	0.34

Then I ran a fuller model to investigate main effect and potential aptitude-treatment effects I first conducted an ANCOVA with all the interactions between the covariates and interventions plus the three-way interactions between the covariates and UV*TE interaction (the three-way interactions are to test for interactions between the covariates and the combined condition). In the original design for the study, we had planned to treat the learning outcome measure as a repeated measure but, as explained in the methods section, problems with the first common writing assignment prevented us from doing so. Additionally, this lack of fidelity of implementation lead to a small sample size (n = 10) in the control condition. No statistically significant main effects were found for UV intervention or TE intervention. There was also no statistically significant UV*TE

interaction (combined condition). No significant differences were found for any of the two-way interactions or the three-way interactions (see Table 28). However, the number of interactions in the model resulted in low power.

Table 28

Main Effects, Interaction Effects, and Power for Learning Outcome

Conditions	*F*	*p*	η_p^2 Partial eta squared	Power
TE	(1,47) = 1.53	0.22	.014	0.23
UV	(1,28) = 0.00	0.98	.000	0.05
TE*UV	(1,24) = 0.37	0.55	.003	0.09
TE*ES pre mean	(1,47) = 2.25	0.14	.021	0.32
TE*ACT English	(1,47) = 0.02	0.88	.000	0.05
UV*ES pre mean	(1,28) = 0.00	0.95	.000	0.05
UV*ACT English	(1,28) = 0.01	0.92	.000	0.13
UV*TE*ES pre mean	(1,24) = 0.38	0.54	.004	0.09
UV*TE*ACT English	(1,24) = 0.35	0.55	.003	0.09

Consequently, I conducted separate models for the two-way (see Table 29) and three-way interactions (see Table 30). When I split the two-way and three-way interactions into two different models, there was no significance and the effect sizes were all small.

Table 29

Two-Way Analysis of Covariance for Learning Outcome

Conditions	*F*	*p*	η_p^2 Partial eta squared	Power
TE	(1,51) = 2.02	0.16	.019	0.29
UV	(1,31) = 1.13	0.29	.011	0.18
TE*UV	(1,27) = 5.20	0.03	.049	0.62
TE*ACT English	(1,51) = 0.31	0.58	.003	0.09
TE*ES pre mean	(1,51) = 2.45	0.12	.023	0.34
UV*ACT English	(1,31) = 3.73	0.06	.035	0.48
UV*ES pre mean	(1,31) = 0.01	0.92	.000	0.51

Table 30

Three-Way Analysis of Covariance for Learning Outcome

Condition	*F*	*p*	η_p^2 Partial eta squared	Power
TE	(1,57) = 2.06	0.15	.020	0.30
UV	(1,44) = 1.22	0.27	.012	0.19
TE*UV	(1,68) = 0.06	0.94	.000	0.05
TE*UV*ACT English	(1,) = 1.61	0.18	.060	0.48
TE*UV*ES pre mean	(1,) = 1.39	0.24	.053	0.42

Because none of the covariate by intervention interactions were significant, I decided to drop these from the model and go with the original model, which included the covariates but not the interactions. I followed this model up with a one-way ANCOVA with a single intervention variable (InvGrp) instead of the TE intervention variable and the UV intervention variable (see Table 31).

Table 31

One-Way Analysis of Covariance for Learning Outcome

Conditions	*F*	*p*	η_p^2 Partial eta squared	Power
Inv Group	(3,108) = 4.25	0.00*	.107	0.85
ACT Eng	(1,108) = 0.92	0.34	.009	0.16
ES pre mean	(1,108) = 2.44	0.12	.023	0.34

The only significant post hoc result pairwise comparisons was a significant difference between UV condition and combined condition ($r(23)=.171$, $n=54$, $p=.003$). However, the low sample size ($n = 10$) for the control group may have impacted the results. Also, the fact that combined condition had 100% novice instructors compared to only 25% in the UV only condition and 0% in the control condition may have impacted the results.

CHAPTER V

DISCUSSION

In this study, we attempted utility value (UV) and teaching for transformative experience (TTE) interventions in 16 different sections of first-year writing courses at a four-year university. No significant main effects were found in any of the intervention conditions for the UV outcome, in any of the interventions for the TE outcome, or in any of the interventions for the learning outcome, although all of the original analyses resulted in low power. On further investigation in the learning outcome analysis, the TTE intervention by UV intervention interaction is significant in the model with the two-way interactions. Mixed results on the leaning outcome suggest the combined condition may have differed from the others and that learning scores may have been significantly lower in the combined condition compared to the UV only condition, although it is of note that the control condition for the learning outcome had a small sample size (n = 10) which may have impacted the results.

Also on further investigation some evidence for aptitude-treatment effects were found. Using a three-way interaction in the UV outcome analysis, there was a significant TTE intervention by UV intervention by UV pre-survey interaction. That result suggests that the effectiveness of the interventions, particularly the combined intervention condition, was dependent on students' prior level of utility value. I then split the prior utility value covariate into highs and low. Those results suggest that the TTE and

TTE+UV interventions were slightly more effective for students who already possessed utility value and slightly less effective for those who did not.

In addition, on further investigation, using a three-way interaction in the TE outcome analysis, there was a significant TTE intervention by UV intervention by prior interest. Those results suggest the effectiveness of the interventions, particularly the combined condition, were dependent on students' prior level of interest. I then split the prior interest variable into highs and lows. The results indicate that there was a gap between participants who had a low prior interest and participants who had a high prior interest in all conditions.

Comparison to Prior Utility Value Intervention Research

Previously conducted UV interventions with both similar and different designs to the current study have been successfully deployed in psychology classes (Hulleman, 2010) and science classes (Hulleman & Harackiewicz, 2009). The results in these studies were moderated by expectations for success. Hulleman et al. (2010) conducted a UV intervention in a psychology course. The measures used for interest, expectation for success, and UV were the same measures used in the current study. In the first of two randomized experiments, the UV intervention was conducted in a laboratory setting versus the in-classroom setting that was used for the current study. Results reported in Hulleman et al.'s (2010) research indicated that the intervention was most effective for participants who reported a lower expectation for success in the initial measure. Results reported for the current study failed to support the hypothesis that the intervention would be most effective for participants who reported a lower expectation for success. In a different study (Hulleman & Harackiewicz, 2009), participants were instructed to write

persuasively about the value of the course content at multiple points during their science course. This design is consistent with the design used in the current study. Participants' expectations for success and initial interest in the course were measured in an initial self-report survey, also consistent with the measures of the current study. Hulleman and Harackiewicz (2009) reported that the intervention was most successful for participants who reported a lower expectation for success at the beginning. This result is not consistent with the results from the current study. As other researchers have found, UV interventions are not always effective (Albrecht, Rasch, & Karabenick, 2017; Canning, 2016). A UV intervention (Albrecht et al., 2017) that used a similar design to the current student found null results. In this study, Albrecht et al. (2017) used writing prompts to direct participants to self-generate UV for their course work. The study was conducted in a university-level statistics course. Results indicated that the treatment did not predict the task value outcome or the course grade outcome.

Comparison to Prior Transformative Experience Intervention Research

Previously conducted TE interventions with both similar and different designs to the current study have been successful deployed in sciences classes (Girod et al., 2010; Heddy & Sinatra, 2013; Pugh et al., 2010b, 2017). One of the differences of note is the current study was conducted using 10 different instructors and the previous TE interventions were using only one instructor. This one variation in design may have a large impact on outcome variables due to the higher level of fidelity of implementation. Pugh et al. (2017) found an aptitude-treatment effect on the TE outcome in the first year of their study. Pugh et al. (2017) speculated that the TTE intervention was effective for students receptive to transformative experiences (as evidenced by reports of higher levels

of transformative experience previously) but not effective for other students. These findings are similar to findings in the current student given the lack of main effects on the TE outcome and the mixed evidence that the TE intervention was more effective for students with high initial interest. However, compared to the control condition, students with low initial interest appeared to be negatively affected by the intervention which was not the case in the Pugh et al. (2017) study. Nevertheless, the results from the current study and Pugh et al. (2017) together suggest the TTE effectiveness may be sensitive to initial interest and inclination to engage in TE--particularly when the TTE is first being implemented by an instructor.

Why the Interventions Were Not Effective

One possible way to increase the effectiveness of a UV intervention in a writing classroom would be in to increase the frequency of the writing prompts. Our intervention used two separate prompts, which was perhaps not a sufficient number. Additionally, training teaching assistants to model the generation of utility value may help students' willingness and comfort in engaging with the assignment.

It is possible that these interventions did not produce significant results because the researchers did not have a complete grasp on psychological behaviors and thoughts that occur during writing. For example, the high level of self-regulation required during writing could be one of the psychological behaviors that the intervention did not address. Likewise, given that most students have been writing since early elementary years, it is possible that beliefs about writing abilities are less malleable at the university level. Walton (2014) in writing of characteristics of effective interventions, asserts that these

types of inaccuracies can manifest in flawed interventions because the interventions must be “wise to the population and the context” (p. 79).

To the best of our knowledge, neither UV nor TTE interventions have been attempted in writing classes. This may be because writing classes draw on a different set of skills than the other classes where these interventions have been successful. Much of mathematics education and learning is rule-bound and follows a prescribed number of steps from problem to solution. Writing on the other hand is subjective relative to mathematics and recursive rather than linear in process. The impact of this subjective and recursive nature may lead participants in the UV condition to encounter enhanced threat. When the threat towards competence is increased, an individual may react to negate the threat itself rather than to engage in the activity (Yeager & Walton, 2011). The result would be a withdrawal from the notion that the course and its contents are important. The subjective and recursive nature of writing may also impact participants in the TTE condition. Participants who have a false-belief understanding of their language skills (Milligan, Astington, & Dack, 2007) may be less willing to engage in an intervention designed to enhance those same language skills. Therefore, it is possible that the nature of writing skills impacted the interventions.

To account for these differences, we modified the interventions to fit the context (i.e., altering conversation topics about geology and the composition of rocks to be about writing concepts such as the value of a well-written introduction). While the interventions themselves were modified, the courses themselves appear to be too different in nature.

A related explanation for the differences is the need to ensure instructors have sufficient time to learn fully how to implement the intervention in a complete and

integrated manner. Such preparation is especially important in the TTE intervention. In one study (Pugh et al., 2010b), researchers attributed mixed results to the teacher's implementation of the model at a shallower level and disconnected from his existing practice. Similar results were found in the first years of a later study (Pugh et al., 2010a). However, year two produced stronger results that we attributed to the researchers having refined their model and the teacher having implemented the intervention more deeply and in a more integrated manner.

Why Was the Combined Condition Potentially Detrimental to Learning?

Analysis of the learning outcome revealed mixed evidence for a small difference between the combined and utility value condition, indicating that the combined condition was lower on the learning outcome. The implementation of the learning outcome measure was problematic as mentioned above. Not all sections in the current study were included given this lack of fidelity. Additionally, it is possible that the combined condition having the TTE intervention and the UV intervention was disruptive to student learning. However, the results for the learning outcome were weak and not robust in the analysis.

Limitations

One limitation to this study was the lack of supervision of the teaching assistants. Some of the teaching assistants assigned the wrong writing prompts, thus reducing the number of participants in the study with valid responses, creating unbalanced groups, and preventing researchers from having sufficient data necessary to treat the learning outcome measure as a repeated measure. Too, this lack of supervision may have lead participants to take the task less seriously in some of the treatment conditions than in others. Researchers who have access to teaching assistants' Learning Management Systems may

have more success through actively monitoring the application of the writing prompts. Additionally, having only one instructor in the study helps to ensure fidelity of implementation.

Another limitation of the study was the lack of previous interventions conducted in the writing classroom. This research could have guided us as we manipulated writing prompts and discussion prompts to fit the context. It is possible that the lack of effectiveness of this study was due in part to unknown errors in creating the writing prompts and guiding the teaching assistants in creating their class discussion materials.

The fact that the UV intervention and the TTE intervention were not successful in the writing classroom contradicts some of the earlier mentioned UV and TTE interventions that were successful. These successful interventions were all run in courses where knowledge is discrete and objective (science, mathematics, and psychology). Writing courses, however, are not discrete. Course work is graded on a rubric, rather than an exam or a quiz and, hence, can be seen as more subjective than objective. The different nature of the assignments and the grading may be so pronounced that interventions of this nature are less successful.

Another key difference in the nature of the courses (science and mathematics versus writing) can be seen through the lens of authentic application to the out-of-classroom experience. It is not uncommon for students to see the writing that they do in the classroom as writing for school's sake—writing to the teacher only versus writing for an authentic audience. On the other hand, science and mathematics have immediate and obvious real-world connections. Even if some students do not see themselves using those skills, they know that others use those skills extensively. In a college classroom, the

setting for this research, students tend to see writing as necessary or unnecessary because of their chosen major (e.g., I'm a chemistry major. I don't need to learn how to write.)

Conclusions and Future Research

Our results indicate that implementing a UV intervention and a TTE intervention in writing classes is not effective. To overcome the phenomenon of students seeing writing as just for school's sake, it would be wise for future researchers to use a writing class that focused on real-world writing (e.g., blogs and wikis) that was directly related to the students' areas of interest or study. This type of direct application could assist the students in seeing the authentic use of their writing skills.

On the other hand, UV and TTE interventions could be run with only a discrete part of a writing course, like grammar. Given its rule-bound nature, grammar mimics the concrete nature of mathematics in that it can be expressed in a series of formulas and can be tested in concrete ways through quizzes. Therefore, UV and TTE interventions should be successful in grammar units given the discrete nature of them.

In order to examine if the results of this study are due to the abstract nature of writing skills, this study should be replicated in other disciplines in the humanities such as history and philosophy. Neither of these areas of study have the concrete and discrete nature of math and science courses, and both rely on writing skills for the explanation of ideas and theories. Therefore, UV and TTE interventions experienced in these classes should produce the same results.

In conclusion, the purpose of this research was to examine the effectiveness of utility value and transformative experience interventions in a first-year writing course at a university. The rationale for this study was based on similar UV and TTE interventions

that were conducted with successful outcomes regarding increasing participants' utility value for the content (Heddy & Sinatra, 2013; Pugh, 2002; Pugh et al., 2017) and participants' transformative experience with the concepts. Overall, I found that outcomes were marginally affected by prior conditions, specifically utility value and prior interest, but that the main effects of the intervention were not present.

We hypothesize that the highly limited success of these interventions may be due to the abstract nature of writing as opposed to the concrete nature of mathematics and other disciplines where interventions were successful. Despite the attempt in this study to modify previous interventions to fit the unique context of a writing course, both implementation and a lack of authenticity of application may have contributed to the limited success of the current study.

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APPENDIX A

WRITING PROMPTS

Conditions: students were asked to select a topic that was currently being covered in class and write a one- to two-page essay.

Intervention (UV; UV+TTES)

Intervention Essay 1: Write a letter to a significant person in your life (e.g., friend, relative, partner) describing the relevance of your chosen topic to this person.

Intervention essay 2: Find a media report (e.g., magazine, newspaper, Internet, etc.) that pertains to your chosen topic and write an essay that discusses the relevance of the media report to information you are learning in class.

Control

Control essay 1: Write an outlined summary of the topic you selected.

Control essay 2: Search the PsycINFO database for two abstracts relating to the topic you selected and discuss how the abstracts expand upon the material you are learning in class.

APPENDIX B

INSTITUTIONAL REVIEW BOARD APPROVAL

UNIVERSITY OF
NORTHERN COLORADO

Institutional Review Board

DATE:	January 20, 2017
TO:	Stacy Bailey, MAT
FROM:	University of Northern Colorado (UNCO) IRB
PROJECT TITLE:	[970511-2] Transformative experiential impacts on students
SUBMISSION TYPE:	Amendment/Modification
ACTION:	APPROVAL/VERIFICATION OF EXEMPT STATUS
DECISION DATE:	January 20, 2017
EXPIRATION DATE:	January 20, 2021

Thank you for your submission of Amendment/Modification materials for this project. The University of Northern Colorado (UNCO) IRB approves this project and verifies its status as EXEMPT according to federal IRB regulations.

Best Wishes, Maria.

We will retain a copy of this correspondence within our records for a duration of 4 years.

If you have any questions, please contact Sherry May at 970-351-1910 or Sherry.May@unco.edu. Please include your project title and reference number in all correspondence with this committee.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within University of Northern Colorado (UNCO) IRB's records.

APPENDIX C

TIMEFRAME AND OUTLINE OF ACTIVITES BY CONDITION

Week	Data Coll.	UV	TTE	UV+TTE	Control
1					
2	Pre-Survey				
3	Common Writing 1	Control convo	UCV convo 1	UCV convo 1	Control convo
4					
5		Control convo	UCV convo 2	UCV convo 2	Control convo
6					
7		Control convo	UCV convo 3	UCV convo 3	Control convo
8					
9		Control convo	UCV convo 4	UCV convo 4	Control convo
10	Intervention essay 1	Interv. essay	Control essay	Interv. Essay	Control essay
11		Control convo	UCV convo 5	UCV convo 5	Control convo
12	Intervention essay 2	Interv. essay	Control essay	Interv. Essay	Control essay
13		Control convo	UCV convo 6	UCV convo 6	Control convo
14	Common writing 2				
15					
Post	Course grades, GPA				

APPENDIX D

SCRIPTS OF INVITATION TO PARTICIPATE

Script for the researcher to read on the first visit:

Hello, my name is [name] and [affiliation]. I am here as part of a research project funded by an I@UNC grant which was a competition on campus to support innovative program designed to improve education at UNC. We are hoping that you would be willing to participate in our research. This is probably not the last time that you will be asked to do this because UNC is a research institution. What we need you to do for us is simple. We will visit your class two times during the semester. The first time, today, we will ask you to complete a survey about your experience in writing. The final time we visit will be closer to the end of the semester and again, we will just ask you to complete a survey. We want to be clear that neither your decision to participate, nor the research activity will have any effect on your grade. You are welcome to decline to participate or even withdraw your participation at any point. The only limitation on your participation is that you must be 18 years old at this very moment. Although, we are being a little bit cryptic about the project now, once it is complete, we will make it clear to you what our aims were in this research and what the results were that we got thanks to your participation.

At this time, I will be passing out the Consent Forms to all of you. Please read them carefully. If you choose to participate, please sign it, bring it back to me, and get the survey. If you choose not to participate, please bring the form back up to me and sit quietly in your seat while the others complete the survey.

Script for the researcher to read on the final visit:

This activity is the final activity for the research student in which you agreed to participate. Today, we are simply asking you to complete a survey. If you have chosen to participate, please come forward to get a survey. If you have chosen not to participate, please sit quietly in your seat while the others complete the survey.

APPENDIX E

SURVEY MEASURES

Participants will respond to all self-report items in this study on a 5-point Likert-type scale from *Strongly Agree* to *Strongly Disagree*

Scale items for utility value
The information from this course could be useful in my academic career.
I don't think the information from this course would be useful to me in the future.*
What I will be learning in this course is relevant to my academic career.
To be honest, I don't think that the information from this course is useful. *
I think what we are studying in this course is useful for me to know for my academic career.

Scale items for transformative experience
Knowledge of writing concepts makes advertisements, newspapers, advertisements, and other texts much more interesting.
I find that knowledge of writing concepts makes my current, out-of-school experience more meaningful and interesting.
Knowledge of writing concepts is useful in my current life outside of school.
Knowledge of writing concepts helps to make sense of the world around me.
Learning about writing concepts is useful for my future studies or work.
I look for examples outside of class of writing concepts.
I notice examples outside of class of writing concepts.
During English class, I notice examples of writing concepts.
When I see a text now, I can't help but think about writing concepts
If I see a really interesting text (either in real life, in a magazine, or on TV), then I ***think*** about writing concepts
When I am working on a class assignment about crafting a text, I tend to ***think*** about writing concepts
When I see a text during English class, I think about writing concepts
I look for chances to ***use*** my knowledge writing concepts in my life outside of school
I ***use*** the stuff I've learned about writing concepts even when I don't have to.
Outside of school, I ***use*** the knowledge I've learned about writing concepts
During English class, I ***use*** the knowledge I've learned about writing concepts.
I find myself ***thinking*** about writing concepts
Outside of class, I think about writing concepts.
I enjoy ***talking*** about writing concepts
During English class, I ***think*** about writing concepts
I ***talk*** outside of class about writing concepts
I ***think*** about writing concepts when I see things like newspapers, billboards, advertising, or other pieces of writing.
During English class, I ***talk*** about writing concepts with other students or the teacher

Scale items for interest
I find writing concepts enjoyable.
Writing concepts just don't appeal to me. *
I enjoy working on writing tasks
I like learning new writing techniques.

I am not interested in writing concepts. *
I think writing concepts are interesting.

Scale items for expectation for success
I believe I will receive an excellent grade in this course.
I'm certain I can understand the most difficult material presented in this course.
I'm confident I can understand the basic concepts taught in this course.
I'm confident I can do an excellent job on the assignment and papers in this course.
I expect to do well in this class.
I'm certain I can master the skills being taught in this class.
Considering the difficulty of this course, the teacher, and my skills, I think I will do well in this class.

Items marked with an (*) will be reverse coded.