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TEACHING FOR TRANSFORMATION: A CASE STUDY INVESTIGATION ON

THE IMPACT OF TRANSFORMATIVE EXPERIENCE PEDAGOGY ON THE

IMPLEMENTATION AND ASSESSMENT PRACTICES OF INSTRUCTORS

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TEACHING FOR TRANSFORMATION: A CASE STUDY INVESTIGATION ON
THE IMPACT OF TRANSFORMATIVE EXPERIENCE PEDAGOGY ON THE
IMPLEMENTATION AND ASSESSMENT PRACTICES OF INSTRUCTORS

A DISSERTATION APPROVED FOR THE
DEPARTMENT OF EDUCATIONAL PSYCHOLOGY

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For Paul

Love runs deep.

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Abstract

After exploring the Transformative Experience pedagogy, six university professors representing five different disciplines articulated how their conceptualization of student transformation shifted. The study explored their responses to the transformative pedagogy and its effect on individual assessment and implementation practices, based on their initial level of engagement in transformative teaching practices. Semi-structured interviews, and field observations, were combined with student content knowledge tests and transformative experience questionnaires to explore the implementation experiences and changes in teaching practice of faculty participants. The study suggests when professors implement Transformative Experience pedagogy, students engage deeply in the course content by connecting it to their everyday lives, thus propelling students forward on a continuum of transformation. Professors who modeled transformative vocabulary and who implemented the pedagogy through the use of student journals in small group and large group discussions reported notable changes in their students' learning experiences.

Finding pedagogical practice leading to enduring student understanding is akin to uncovering the holy grail of teaching. Over the last 50 years, multiple instructional approaches sharing similar characteristics aimed at enhancing student engagement in terms of interest and cognition evolved (Slavich & Zimbardo, 2012). Spanning active learning to experiential and cooperative learning, the shift from teacher-centered, knowledge-giving focus to more student-centered, personally constructed experience has been titled transformative pedagogy. (Harrell-Levy, Kerpelman, & Henry, 2016; Slavich & Zimbardo, 2012). This "blending of teacher-centered and student-centered education" (Harrell-Levy et al., 2016, p. 76) allows teachers to know their students better and discern patterns that could explore targeted efforts to improve outcomes for diverse learners (Margonis, 2011). Transformative pedagogy "is the art of teaching students a socially constructed curriculum that is relatable to their own lives with the goal of facilitating transformations" (Harrell-Levy et al, 2016, p. 76).

Transformation, however, has a range of meanings when applied to student learning. Mezirow (1978, 2000) suggests students are transformed when their basic frames of reference are challenged through disorienting dilemmas, leading to a process of disequilibrium. Through discourse and critical reflection, new awareness and courses of action emerge that previously were unavailable. Pugh, (2004) describes student transformation as the result of deep engagement with content. Students transform through a process of moving along a "continuum of transformation" (Pugh, 2004, p. 191) from minimally to radically transformed depending on the degree of student investment with content in their everyday lives outside of school. Through a series of

transformative experiences with content, Heddy & Pugh (2015) propose radical transformation may occur.

Although widely adopted and commonly used in adult education research, Transformative Learning (Mezirow, 2000) faces several criticisms; one of which includes a lack of pedagogy beyond general reference to the importance of student critical reflection and discourse (Newman, 2012; Christie, Carey, Robertson, & Grainger, 2015). Explication of teaching praxis that fosters student awareness of new frames of reference is necessary to move the study of transformative learning forward and support meaningful assessment of transformation in students (Crawford, Heddy, Chancey, and Jurnigan, 2017). Research involving the implementation of teaching practice and assessment of student transformation has rarely been the focus of transformative literature. This literature review seeks to describe student transformation from a pedagogical perspective through the lens of two theories of transformative learning.

Terminology

Throughout this literature review, the word transformation will be used in several different ways. Clarification at the beginning of the review serves not only to provide a brief definition of the terminology, but to highlight the distinctions among seemingly similar vocabulary. Thus, the following definitions are provided to prevent confusion and ease the reading:

- **Transformative Learning (TL)** refers to Mezirow's (1978/2000) theory of student transformation. While proper grammar and APA style

would not usually promote capitalization, for purpose of clarity in this literature review, when Mezirow's theory is referenced it will be in capital letters. In Transformative Learning, students encounter disorienting dilemmas creating disequilibrium that lead to cognitive and emotional shifts in frames of reference. Through critical reflection and discourse, Mezirow proposes students begin to uncover new choices of actions previously unknown prior to the process of transformation.

- **transformative learning** (not capitalized) refers to learning opportunities offered to students with the intent of fostering a transformative learning experience.

- **transformative learning experience** – any opportunity intentionally designed, implemented, and assessed by instructors in coursework that fosters the potential for student transformation to occur. Transformative learning experiences may be in the form of an event, encounter, experience, assignment, or creative or scholarly activity.

- **Transformative Experience (TE)** – refers to Pugh's (2004) theory that students guided through the interrelated qualities of active use, expanded perception, and experiential value will deeply engage with a curricular concept that has the potential to impact transfer of content from one setting to another, conceptual change, interest, and enjoyment of learning.

- **Teaching for Transformative Experiences in Science (TTES)** – the specific pedagogical practice used by instructors fostering TE for students.

- **transformation**–is the process in which students shift their cognitive and emotional frames of reference that leads them to a new awareness and voluntary action is pursued that demonstrates their changed thinking.

Transformative Learning in Higher Education

Adopted as a philosophy for teaching in higher education, transformative learning experiences foster students' new awareness through critical reflection and discourse leading to new courses of action. Institutions of higher education are attracted to Mezirow's (2000) theory for the connection between discipline knowledge and building beyond-disciplinary skills that prepare students for success in life and in the workplace and community (Pepper, 2016). With all the purported benefits, Transformative Learning lacks a specific guidance for implementation; a pedagogy to be replicated in classrooms across higher education institutions. Research suggests the use of critical reflection and discourse to resolve disorienting dilemmas, but the knowledge of how to identify, design and assess the learning experiences has been left to the instructor's imagination and expertise. In an extensive literature review of Transformative Learning research, Taylor (2007) suggests classrooms promoting trusting relationships between instructors and students tend to foster a supportive learning environment (Cusack, 1990; Ludwig, 1994; Matusicky, 1982; Pierce; 1986). Beer et al. (2015) confirmed these findings with the addition of individual attention as a factor helpful to implementing transformation.

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One Midwestern university subscribing to transformative learning philosophy as a core value describes the expectation placed on faculty members by stating, "its not just course content that counts here; it's also that we create learning experiences which help transform student lives" (New Faculty Web page, 2014). Promoting transformation without preparing instructors for implementation of transformative practice in their courses creates elusive guidelines for providing suitable learning experiences. Transformative Learning teaching practices, as proposed by Mezirow (2000), include student critical reflection and discourse but actual instructor implementation strategies and assessment practices remain undefined in Transformative Learning research literature. Beer et al. (2015) finding highlights individual instructor attention as helpful for implementing transformation does not define replicable pedagogical practice that creates trusting relationships between students and instructors. Studies seeking to understand the experience of instructors using transformative learning practices are limited in the empirical research literature (Taylor, 2007; Christie et al., 2015) even though the expectation to involve students in such experiences is articulated through at least one university's philosophy and promotion and tenure procedures.

Joining the University community of teacher-scholars requires some orientation to the philosophy of our university's approach to helping students learn and to the idea that teaching is the most important thing that faculty do.

Philosophy: Transformative Learning means designing learning activities and environments that raise the odds your students will experience transformations in their perspectives of their relationships to themselves, others (local and global), their learning, their environment. It's not just course content that counts here; it's also that we create learning experiences which help transform student lives. You can do this without sacrificing anything related to course content — you just have to build your classes mindfully and intentionally to be transformative in the process.

Figure 1. New faculty information regarding transformative learning. Selection from university's new faculty web page shares the university's expectation of new faculty to design and implement transformative learning opportunities for students within their coursework.

Institutional Support Necessary for Fostering Transformation

While individual instructors may implement transformative teaching practices without institutional support, the degree of control in fostering transformative learning experiences for students perceived by individual professors may be limited (Neilson, 2015). Further, designing curriculum to implement Transformative Learning requires change on multiple levels within an institution – including the institutional, program, pedagogic and personal levels (Clifford & Montgomery, 2015). The institutional level represents decisions made regarding curriculum at the university administration level. Participants in Clifford & Montgomery's (2015) study identified "institutional engagement" (p. 53) as fundamental for transformation to happen throughout the university. Neilson (2016) suggests that without the institutional level change, instructors may feel powerless to implement transformative practice on their own. Beer et al. (2015) remind us of the importance of visible administrative support when implementing transformative practice:

"It is also important to explore that the professor is not the only individual who impacts a student's progress in school and ability to succeed but also factors such as the president's message and visibility, the accessibility of advisors and the integration of student support professionals into campus operations" (p. 179).

At the program level, teachers interpret transformation policy and reconceptualize the whole curriculum, aligning aim, teaching and learning strategies, and assessment practices (Clifford & Montgomery, 2015). This level includes determining how to balance the need for content and skill acquisition with need for more global perspective and awareness, or as one participant described, the students would "live the course instead of endure it" (p. 54).

The pedagogic level allows individual instructor interpretation of skills and strategies necessary to facilitate global awareness and transformation within one's own classroom. Neilson (2016) defined pedagogy as an important factor in transformation as demonstrated through shifts in teaching practices used to help international students. Her findings revealed strategies particularly helpful when working with non-native English speaking students.

Finally, at the personal level, changes within one's own practice allow for experiences and professional development necessary to foster transformation. Yet, finding such opportunities remains "highly sought after yet elusive" for what "best" fits an instructor is individually defined and contextualized within each person's unique and ever-changing worldview (Beer et al., 2015, p. 179). Thus, implementing

transformative learning practices university-wide becomes a multi-faceted endeavor. Every department must determine challenging concepts and misconceptions within their discipline. With changes needed at each level of university structure to truly implement transformative learning experiences for students, it takes a village to be transformative (Beer et al., 2015).

Understanding the distinction in the support levels for implementing transformative learning experiences relates to the context of the current study, and will be explored further in another section of this review.

Transformative Experience

A second theory, Transformative Experience (Pugh, 2004), elucidates a pedagogical model found to encourage students to deeply engage with science concepts in their everyday lives. As students seek real-life experiences with science content, they actively use the content to expand their perceptions allowing for experiential value for the knowledge to emerge. This voluntary engagement has been found to foster interest, conceptual change, transfer, positive affect and enjoyment for learning using the Teaching for Transformative Experience in Science (TTES) Model (Goodman, 2015; Heddy and Sinatra, 2013; Heddy, Sinatra, Seli, Taasoobshirazi &Mukhopadhyay, 2016; Pugh et al. 2009; Pugh, Linnenbrink-Garcia, Koskey, Stewart, and Manzey, 2010). Transformative Experience (TE) resides primarily in K-12 science education, with Teaching for Transformative Experiences in Science (TTES) as the pedagogical model. Recent literature has expanded both the reach of TE into different disciplines and the pedagogical model. Heddy & Sinatra (2013) expanded the model to include Use, Change, Value (UCV) discussions when working with high school students studying

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evolution. Alongi et al. (2016), investigated the transfer of the theory into social studies education with promising results. Their findings suggested the TTES model has potential to transfer to disciplines other than science education and adapted the name of the pedagogy to Teaching for Transformative Experience in History (TTEH). Heddy et al. (2016), further investigated the use of TE in other disciplines during a college success course using Educational Psychology content. Their findings suggest using TTES/UCV promotes TE when studying educational psychology content and that TE also promotes interest and transfer in disciplines outside of science with undergraduate students. Their study holds sanguine expectations to act as a catalyst for other disciplines to investigate TE as a means of promoting interest and transfer.

Investigating the Instructor's Experience

Regarding instructors, studies in TE research suggest the importance of exploring the instructor's experience implementing TE. One study proposed the mediating role of the teacher to be a significant factor in students' transformative experience. (Girod, Twyman, & Wojcikiewicz, 2010). The personal level of implementation of transformative practices to which a teacher subscribes also impacts the experience of students (Clifford & Montgomery, 2015; Pugh et al., 2010), emphasizing that shifts in teacher practice and core beliefs of the teacher are essential for fostering deep engagement in students (Pugh et al., 2010). In studies implementing Transformative Experience, the same training may infuse different implementation procedures based on the personal traits of the teacher (Alongi et al. 2016; Girod, et al., 2010). The ways in which teachers use humor, build relationships with students, smile, manage reward and punishment in their classroom potentially impact the transformative

experience of students. Translating information from individual teacher practice allows insight into variables that impact instruction in positive or negative ways (Girod et al., 2010).

Further, the instructor's comfort level with fostering Transformative Experiences may impact the implementation (Pugh et al., 2010). Changes to a teacher's personal practice to implement TE are difficult and require time and extended support (Pugh et al., 2010). Heddy et al. (2016) propose that future research explore how teacher differences, such as experience and teaching philosophy, impact TE instruction. Additionally, the teacher's perception of the pedagogical fit of Transformative Experience with their own teaching style has an impact on how it is implemented (Pugh et al., 2010). As TE theory continues to show promise in facilitating transformation with students, replicating these experiences will be limited without knowing the impact of implementation on instructors.

Pedagogy of Transformation

The Transformative Experience method has been suggested to work with students of various grade levels, including elementary, middle, high school and undergraduate students in science and history (Alongi, Heddy, & Sinatra, 2016; Girod & Wong, 2002; Girod, Rae & Shepige, 2002; Girod, Twyman, Wojcikiewicz, 2010; Goodman, 2015; Heddy & Sinatra, 2013; Pugh, 2002; Pugh, Linnenbrink-Garcia, Koskey, Steward, & Manzey, 2009; Pugh, Linnenbrink-Garcia, Koskey, Stewart & Manzey, 2010,). Students undergo a Transformative Experience when they voluntarily connect curriculum concepts with environments outside of their school experiences. This active use, or engagement of concepts expands student perception of the content

and can activate an experiential value for the concept. This experience has been suggested to fall on a continuum of transformation (Pugh, 2004), showing the progression from a minimally transformative experience towards a radically transformative experience to be a more accurate portrayal of TE, rather than an all or nothing experience.
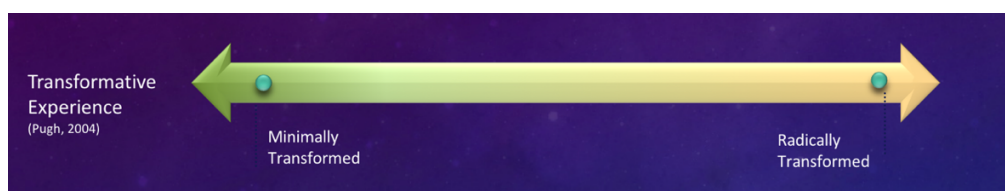
Figure 2. Continuum of Transformation. Pugh (2004) suggests students progress toward transformation on a continuum based on their engagement with content.

Yet transformation, by definition, has unique characteristics for each individual. Various factors such as interest (Pugh et al., 2009), aesthetic appeal (Girod et al., 2002) motivation Pugh et al., 2009), engagement (Pugh, 2002; Pugh, 2004; Pugh et al., 2010), and emotions (Heddy & Sinatra, 2013) vary for each student. The exact blending of these variables differs for each student, creating a unique need for a multifaceted teaching approach. The Teaching for Transformative Experiences in Science (TTES) approach defined by Pugh (2002), and expanded by Heddy through the introduction of Use, Change, Value (UCV) discussions has been used in studies investigating TE in students (Alongi et al, 2016; Heddy & Sinatra, 2013; Heddy et al., 2016; Pugh, 2010). This approach and discussion provides an articulated pedagogy for implementing TE into coursework. While a transformative experience by definition involves the

engagement of concepts outside of the classroom, TTES/UCV provides an instructor available methodology fostering TE through their planning, instruction and scaffolded discussion with students. In light of criticisms highlighting a lack of pedagogical practice in Transformative Learning (Taylor, 2007; Christie et al, 2015), a guided, specific pedagogy implemented into classrooms that aids transfer, interest, and positive affect deserves investigation.

Implementation of Transformative Experience

Determining who will be the instructor implementing TE has varied in the TE literature. Some TE studies report members of the research team as the primary instructor(s) in the TE treatment groups (Girod & Wong, 2002; Girod et al, 2010; Goodman, 2015; Heddy & Sinatra, 2013; Pugh 2002;) to act as controls for level of experience, teaching method and discipline knowledge. A few studies recruited teachers and trained them in TE through professional development (Alongi et al, 2016; Heddy et al., 2016; Pugh et al, 2009; Pugh et al, 2010), yet these studies found the individual teaching style, philosophy of the instructor (student-centered or teacher-centered), and belief in the fit of the treatment with their teaching style to be factors that potentially influenced the students' transformative experience. Within the studies training teachers, Pugh et al. (2009), listed the number of participating teachers as a limitation, asserting that future studies would need a larger sample size to further articulate the motivational and learning conditions conducive for undergoing a transformative experience. Girod et al. (2010), listed the mediating role of the teacher as the single most important limitation of their study of teaching and learning for transformative and aesthetic experience calling for larger study with multiple teachers

randomly assigned to control and treatment groups. The most recent TE literature (Heddy et al., 2016) lists differences between instructor's teaching experience as a limitation in the study leading to the suggestion that future research should explore how teacher differences impact TE instruction. Without the qualitative interviews unfolding the experiences of instructors implementing TE into their coursework, further quantitative measures investigating the kinds of factors beneficial for facilitating TE would be premature.

Training Instructors in Transformative Experience

The use of professional development to prepare instructors to implement TE is reported in several studies (Alongi et al, 2016; Heddy et al., 2016; Pugh et al, 2009; Pugh et al, 2010;). One study, (Alongi et al., 2016) outlined the content of the professional development session used to prepare participating history teachers and discussed suggestions for improving instructor training for future studies including: (a) clear and thorough modeling of TE with scaffolding for the three interrelated qualities of active use, expanded perception and experiential value, (b) training on how to identify quality controversial concepts as not every topic covered will lend itself toward transformation, (c) training on how to identify and address student misconceptions, and (d) alignment with the final assessments, including greater transparency for students regarding expected outcomes, meaning that student outcomes, academic goals, assessments and instructional practices should reflect the alignment with the TTEH pedagogy. If students are expected and encouraged to engage with content outside of the classroom, their inclination to meet them increases (Alongi et al., 2016).

The training protocols and suggestions documented in research can be used to replicate professional development sessions for instructors. These protocols coupled with suggestions for future training in TE (Alongi et al., 2016) provide the information and content needed for replicating the professional development experience for instructors interested in implementing transformative pedagogy.

Contrasting Theories

While the goal of transforming students remains the same in both Mezirow's transformative learning and Pugh's transformative experience, there are some basic differences between the theories. Both theories move students toward transformation along a continuum. Mezirow defined steps students encounter when working through their challenges to their foundational beliefs. Until recently, this process of transformation, however accurate, still largely depended on the engagement of the student. Without critical reflection and discourse, the question of the depth of the transformation remained. Relying on student self-report written reflection as evidence of a transformation, often professors remained skeptical of the authenticity of the student's claims (Crawford et al., 2016). Students were caught between writing their reflection through their experience at the risk of not including what they perceived the professor wanted to hear. To aid professors in their assessment of student transformation, a university where transformative learning was encouraged through coursework, operationalized the depth of a student's transformation through three distinct levels. Starting at exposure to new ideas that challenge assumptions, a student could remain at exposure, or they might progress further into integration as they ideas become infiltrated through their understanding and actions, to transformed, where the

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ideas are adopted and put into action. Progression through the continuum takes time and signifies a large change in perceptions, beliefs and actions when the transformation is complete.

Transformative experience, however, offers a smaller type of transformation (Heddy & Pugh, 2015). Beginning with content instruction, students who seek examples of the content in their everyday lives engage with the content and discipline knowledge in ways that build meaningful learning experiences (Heddy et al, 2017). These small encounters with content bring a sense of meaningful value to the student for knowing and understanding the content. As successive transformative experiences that build over time, students may use these smaller transformations with content to progress toward the radical transformation end of the TE continuum. Yet to date, research in TE has traditionally investigated student transformation through one cycle of implementation. Research is needed to explore the impact of transformation on students and professors when multiple cycles of TE are implemented.

Initiating Transformation

The starting event differs in both theories Transformative learning initiates from a disorienting dilemma, or life event that causes people to question their basic frames of reference or their deeply rooted personal assumptions. The event that sparks this dilemma often stems from momentous life experiences or changes and launches a series of steps to resolve the disorientation. Transformative experience, however, transpires from direct interactions with content in a student's everyday life. When these examples are brought back to their classrooms and scaffolded with their instructor, students may

develop a value for the content that moves them toward a transformation. These interactions with content are small steps toward transformation, with the hope that the more transformative experiences a student encounters, the more movement there is toward the radically transformed end of the continuum.

Student Expression of Transformation

The way students express their movement toward transformation also differs among the two theories. Mezirow's transformative learning utilizes critical reflection and discourse as two methods of progressing through the disorienting dilemma. Both are essential for students to discover new courses of action. In transformative experience, students write their experiences with content in a journal answering three specific questions regarding the use, change and value their observation brings. This writing is revisited during small and large group discussions while being scaffolded by their instructor to promote engagement with the content while resolving any misconceptions.

University-wide Implementation of Transformative Pedagogy

Studies with individual professors or university personnel from different universities as participants in transformative practice exist (Clifford & Montgomery, 2015; Beer et al., 2015) but focus on identifying barriers to transformation instead of identifying successful implementation of transformative practice at the institutional, program, pedagogy, and personal levels (Clifford & Montgomery, 2015). Research at the institutional level where support for transformative learning approaches are encouraged, expected and broadcast is rare. Additionally, research is missing from the literature for implementation at the pedagogical and personal levels (Taylor, 2000,

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Clifford and Montgomery, 2015) beyond the ambiguous "critical reflection and discourse" suggested by Mezirow (2000). Specifically, research investigating pedagogical and personal practices fostering student transformation in universities where institutional and program support is clearly established is sparse.

Evidence of institutional support can be seen through the use of transformative language in the university's mission statement and an established campus department dedicated to excellence in teaching and transformative learning. This department assists faculty in their implementation of student transformative initiatives through professional development opportunities, book studies, a digital journal of transformative learning and a yearly transformative learning conference. Allocated resources for continued faculty development in Transformative Learning are available for faculty through multimillion dollar grants that compensate faculty for completing training and offering transformative assignments and activities into their coursework.

At the program level, campus departments encourage faculty members to consider implementing transformative opportunities through department meetings and document such opportunities through the inclusion of transformative student learning outcomes in course syllabi. At the pedagogical level, teachers are trained to identify, design and assess student transformation through consistent protocols across the university. At the personal level, faculty are encouraged to submit their student transformative activities as scholarly activity to the yearly transformative learning conference and share with small collaborative groups across campus. With all levels of implementation receiving support, factors found to thwart implementation from

previous studies (Nielson, 2016; Clifford & Montgomery, 2015) are removed through the university's commitment to transformative learning opportunities for students.

Student Transformative Learning Record

Believing that students grow in both academic and non-academic ways while in college, one university designed the Student Transformative Learning Record (STLR) to act as a second transcript to track student growth beyond discipline knowledge. Based on six core tenents essential to transformative learning, STLR records student growth in global and cultural competencies; health and wellness; leadership; research, creative and scholarly activities; and service learning and civic engagement. Students participate in STLR through transformative class assignments, events, student organizations and student projects.

Regardless of the way students engage with STLR, each assignment is assessed through a rubric defining four levels of transformation. The levels are defined as (a) exposure- where students are introduced to a new concept (b) integration-where the concept become a part of the student's own thinking, (c) transformation- where the student is "changed whether it be changed in their mindset on a topic or moved to action based on their experience with a related assignment or activity" (STLR Training Manual, 2014) or (d) not transformed meaning student did not complete the assignment, or did not engage deeply enough to have a minimum understanding of a deeper meaning (STLR Training Manual, 2014).

Faculty and staff are encouraged to create and implement STRL assignments through training designed to articulate the process of designing rubrics for STLR

assignments and to provide consistent understanding regarding the university's operationalized definition of transformative learning (personal communication, November 6, 2014). The volunteer training consists of two sessions, each totaling two hours in length. Faculty are paid a generous stipend for attending, completing, and integrating the training into course assignments. Participation in the STLR training and implementation has been high across the university and is anticipated by the office accountable for the program that an increase in creating STLR assignments will continue (Personal communication, Nov. 6, 2016), particularly as funding for STLR projects is available for faculty members who have completed all training requirements (personal communication, May 15, 2017).

Faculty engagement with STLR assignments post-training varies (personal communication, May, 15, 2017). Some teaching faculty have continued to apply to the STLR office for approval of multiple projects and assignments in additional courses once the initial training requirements are fulfilled. Other faculty have taken both sessions of the training, but have yet to complete the requirements or have only completed the requirements for the initial STLR project designed through the training. Additionally, there are still faculty members on campus who have not yet undergone STLR training. This variance can be divided into three levels:

Student Transformative Learning Record (STLR)

College students grow and transform through both academic and non-academic experiences while at the University. Students' academic transcripts display their aptitude in their Discipline Knowledge, but how can they track and display their growth in other important areas?

Student Transformative Learning Record (STLR) is like a second transcript that records students' growth and Transformative Learning across the other five of Six Tenets pictured below.

For example, students might:

- learn how to work well in teams with people whose opinions differ from their own;
- develop leadership skills as president of a student organization;
- improve their ability to interact positively and appropriately with co-workers, customers, and others from different countries and cultures in their classes;
- find out how to contribute as productive citizens to their local communities, the nation, and the world through volunteering;
- or might practice solving unscripted problems and devise creative solutions while doing independent research.

Students reflect on their experiences, then receive feedback from a trained faculty or staff member. Students store these experiential artifacts in different versions of ePortfolios that they can share with potential employers, graduate schools, or others to highlight their most employable strengths.

STLR - Because College is About More Than a Degree.

Figure 3. Student Transformative Learning Record Description. This image is a screen shot from the university web page defining the purpose of STLR and potential examples of student transformative learning.
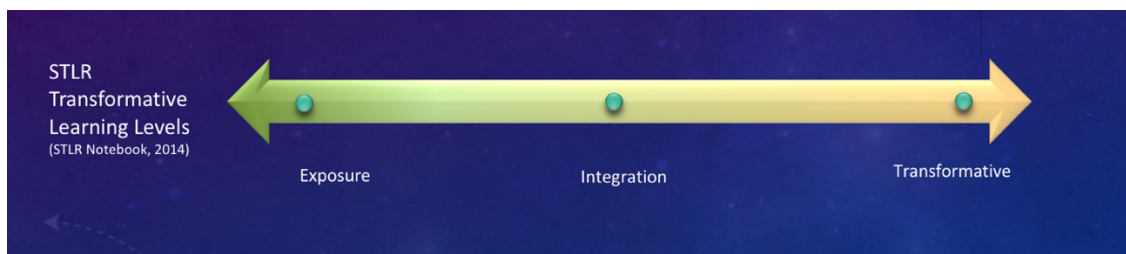
Figure 4. Student Transformative Learning Record Levels of Transformation. This figure shows the progression of transformation student may follow through their direct involvement with STLR approved assignments, event, or activities.

- Engaged – faculty who continue to implement STLR designed assignments and assessment rubrics into courses not included in their initial training.

- Compliant – faculty who have yet to complete all of the requirements for the initial STLR training or have completed all of the requirements for training purposes but have not designed or initiated any other STLR work into any other courses.

- Untrained – faculty members who have not taken STLR training.

STLR training, however, focuses on the design of assignments and assessments of transformative learning, not the teaching practices known to foster transformative learning for students. With multiple faculty trained in transformative learning assessment, follow up professional development encouraging pedagogical practice that fosters transformation would be beneficial for those professors implementing STLR assignments into their coursework.

Summary

Teaching for Transformative Experiences (TTE) offers a potential pedagogical model for implementing transformative practice into undergraduate classes. Layering TTES pedagogy over existing transformative strategies (critical reflection and discourse) would provide a look into a replicable, pedagogical method for teaching for transformation in higher education. Investigating the TE implementation experience of professors at a university where implementation of transformative teaching practice are expected for teaching faculty and encouraged through the institutional, program, pedagogical, and personal level support would offer a new perspective on implementing

transformative pedagogy. An in-depth, qualitative exploration of instructors would

share an account of the lived experiences of faculty members implementing

transformative pedagogy.

Research Problem

Despite studies showing promise fostering student transformative experiences,

(Goodman, 2015; Heddy and Sinatra, 2013; Heddy et al., 2016; Pugh, Linnenbrink-

Garcia, Koskey, Stewart, and Manzey, 2009; Pugh, Linnenbrink-Garcia, Koskey,

Stewart, and Manzey, 2010) research exploring the impact of TE implementation on

instructors continues to be listed as a limitation in TE studies (Alongi, Heddy, &

Sinatra, 2016; Heddy et al., 2016; Heddy & Sinatra, 2013; Pugh et al., 2009; Pugh et al.,

2010). This problem limits TE research, as training instructors in TE pedagogy is

necessary to foster student transformative experiences. Prior studies have either used a

researcher trained in TE pedagogy as the instructor, or have given a one-time

professional development session to science instructors using the treatment with

students without follow-up sessions or collaborative support.

Significance of Study

Little is known on the impact of implementing TTES for instructors at the

pedagogical and personal levels of transformative implementation, particularly in an

environment supported at the institutional level for Transformative Learning. This study

expands the body of knowledge of Transformative Experience Theory by (a) focusing

on the experience of instructors as they implement TTES/UCV pedagogy into their

coursework (b) providing an expansive look at implementation of TTES/UCV

pedagogy beyond one cycle of implementation (c) and exploring the impact of

transformative pedagogy on instructors intentionally seeking to foster transformative

learning experiences for their students. Specifically, this study explores the impact on

pedagogical and personal practice of professors implementing Teaching for

Transformative Experiences model in a university setting where transformative learning

is valued at all levels of implementation (institutional, program, pedagogical and

personal (Clifford & Montgomery, 2015), thus reducing the lack of perceived control as

indicated by previous research (Neilson, 2016). Awareness of these phenomena through

faculty members' lived experiences will aid in understanding TTES and UCV as

pedagogical strategies for implementing transformative practices regardless of

discipline. Understanding this knowledge has the potential to identify specific

pedagogical practice favorable for fostering transformative learning experiences in

undergraduate courses in addition to self-reported critical reflection.

Research Purpose

Engaging faculty members exposed to transformative learning practices (such

as critical reflection and discourse) (Mezirow, 2000) at the pedagogical (e.g. praxis

within the classroom) and personal (e.g. changes in personal practice) levels (Clifford

and Montgomery, 2015) allows for this study to focus on the lived experience

professors undergo when repeatedly implementing specific pedagogy outlined through

the Teaching for Transformative Experiences in Science and Use Change Value

discussions.

As indicated through prior research, implementing TTES opens the possibility

for critical reflection on a teacher's own pedagogy and personal subscriptions (Pugh et

al., 2010). The personal nature of interviews asks for reflective thought regarding lived

experiences. While prior research has informed the implementation of TE over one unit of content, this study seeks to discover how repeated implementation of the TTES/UVC pedagogy over multiple units of content will impact instructors' perception of student transformation over the course of a semester. This process of repeatedly implementing specific pedagogy practice may give additional insight into the impact TTES implementation has on the personal level of implementation, as described by Clifford and Montgomery (2015).

Research Questions

This study investigates the following questions:

1. How do professors conceptualize transformation? Is there change in their conceptualization when they implement Transformative Experience pedagogy? If so, in what ways?

2. How does response to Transformative Experience pedagogy (TTES/ UCV) vary, for faculty who have differing initial buy in and experiences, over two implementations of Transformative Experience pedagogy (TTES/ UCV). Is there change? If so, in what ways do they change?

These research questions, will be investigated through qualitative research methods involving semi-structured interviews, observations and journals collected at designated time points over one semester.

Methods

Theoretical Framework

The epistemological stance that describes how I identify the role of knowledge, and connects to my research is constructionism. Crotty (1998) states constructionism claims that "meanings are constructed by human beings as they engage with the world they are interpreting" (p.43). Because each person constructs his or her own interpretation, I believe multiple realities can exist. These realities can shift and change with unexpected challenges lending to the idea that there can be more than one reality. Shutz, Chambless, & DeCuir (2004) elaborate by stating "we construct meaning within our world of physical objects and we interact, as part of that reality, based on that social construction" (p. 271). We make choices differently, thus the reality of our world and how we construct the meaning within it cannot be the same as someone else's. Crotty supports this stance, as he says constructionism stipulates "there are *no* true or valid interpretation. There are useful interpretations (p. 47)." Yet, we can create our truths within our realities through these useful interpretations. This process of constructing and deconstructing our own truths creates the space for transformative learning to be experienced (Mezirow, 2009). Shutz et al., (2004) refer to the creation of our own truths by saying that "at any particular point in time, students may identify with themselves, their family, their ethnic group, or even their school" (p. 272). All of these areas can be combined or addressed singularly when looking at who we are as knowers. Still, these multiple definitions contribute to who we think we are and what we know. Shutz et al., (2004) say that "although much of human action is repetitive, there is always the potential of new activities and new ways of looking at external reality and our socially

constructed views." Depending on how we identify ourselves, our view of knowledge can be malleable. It can shift and change, making it fallible. Thus we make meaning of what we know based on the way "we construct our understanding of our external reality" (Shutz et al, 2004, p. 272).

This epistemological stance frames my theoretical perspective. I identify with symbolic interactionism. Believing that individuals each have their own useful interpretations of meaning, I agree with Crotty when he states "what is said to be 'the way things are' is really just the 'sense we make of them'" (p. 64). Discovering the sense an individual subscribes to a certain phenomenon unveils their personal construction of the experience. Yet, personal meaning making processes allow for multifarious understandings among and between individuals when defining the same phenomena. The variety in interpretation opens the possibility for incongruent understandings, thus establishing a need to unpack "what is" to reveal a larger picture of the initial meaning construction to discover the origins of the dissonance. This need to uncover the underpinnings of meaning construction add the necessary components of effective practice and reflection to my theoretical ideology.

I believe meaning is constructed through experiences, thus my research questions ask faculty members to share their personally constructed experiences with a new pedagogical practice. Specifically, I want to discover the pedagogical and personal impact of implementing a new pedagogy on instructors teaching in a university dedicated to providing transformative learning experiences to undergraduate students.

Research Design

　　While research recommends investigating teacher differences (Heddy et al., 2016) and the use of mediating variables such as humor, building relationships with students, smiles or meted out reward and punishment (Girod et al., 2010), an overall picture exploring the implementation practice from multiple perspectives has yet to be developed. Exploring the phenomena of instructors implementing TE pedagogy involves a qualitative approach. Discovering the meaning making process each participant subscribes to during the implementation process requires the data to emerge. This collective case study employs multiple sources of data that develop a rich, in-depth understanding (Creswell, 2012b). Qualitative interviews, field observations and journal entries will provide insight into the lived experience of individual faculty members as they prepare, plan, instruct, and assess student transformation using specific TE pedagogy over two units of content. Quantitative data from pretest and posttest student surveys and content tests will corroborate if and to what extent, the pedagogy impacts student learning or transformation. Both types of data are needed to inform the research questions.

　　A collective case study design offered the most appropriate method for exploring the lived experiences of professors implementing transformative pedagogy. This study investigated in-depth the experience of six faculty members implementing specific pedagogy designed to foster Transformative Experiences (Pugh, 2004). Following protocols guided by prior research implementing TTES/UCV discussions (Alongi et al, 2016; Heddy et al., 2016; Pugh, 2004; Pugh & Girod, 2007; Pugh et al., 2010;), the study used semi structured interviews, classroom observations, journal

entries, student pre/posttest assessment scores and student surveys as multiple data points to gather a rich view of the professors' experiences through the process of implementing repeated cycles of TE pedagogy in their courses.

A collective case study working with multiple individuals has the potential to provide insight into a phenomena (Creswell, 2012a). Creswell defines typical sampling as "a form of purposeful sampling in which the researcher studies a person or site that is typical to those unfamiliar with the situation" (Creswell, 2012a, p. 208). Two types of participants were needed for this study; teaching faculty members and the undergraduate students enrolled in their courses. While the study focuses on the experience of the faculty members, without the students' participation in the quantitative portion, the study would not be corroborated with additional valid sources of data. The quantitative data, however, reciprocates the need for corroboration, as Greene (2015) recommended that self-report measures be accompanied by additional forms of data. Analyzing the results of both qualitative and quantitative data points will allow a more complete and thorough understanding of implementing transformative teaching pedagogy for faculty members.

Context

Creswell (2012b) defines a case study as "a qualitative approach in which the investigator explores a real-life, contemporary bounded system (a case) or multiple bounded systems over time, through detailed, in-depth data collection involving multiple sources of information, and reports, a case description and case themes" (p. 97). This study takes place at a metropolitan university in the central Midwestern United States. Unique to this university's mission is the adoption of Transformative

Learning Theory (Mezirow, 2009) as a foundational philosophy for helping students

learn (STLR, 2015). Institutional support (Clifford & Montgomery, 2015) for

implementing transformative learning exists through considerable resources available to

faculty and staff.

Examples of institutional support include a yearly transformative learning

conference open to all faculty and staff, and a peer-reviewed journal centered around

transformative learning practices throughout the world. A department called the Center

for Excellence in Teaching and Transformative Learning (CETTL) was created for the

advancement of transformative learning for faculty and students and resides in a campus

building named The Center for Transformative Learning. Additionally, a commitment

to fostering transformative learning exists implicitly in the vision and mission

statements of the university (See Figure 1). Faculty commitment to providing

transformative experiences for students is reflected in the philosophy communicated to

new faculty. In the faculty resources web page, new faculty are informed that:

> Transformative Learning means designing learning activities and environments
> that raise the odds your students will experience transformations in their
> perspectives of their relationships to themselves, others (local and global), their
> learning, their environment. It's not just course content that counts here; it's also
> that we create learning experiences which help transform student lives. You can
> do this without sacrificing anything related to course content — you just have to
> build your classes mindfully and intentionally to be transformative in the
> process. (University de-identified for IRB, 2014, para 2).
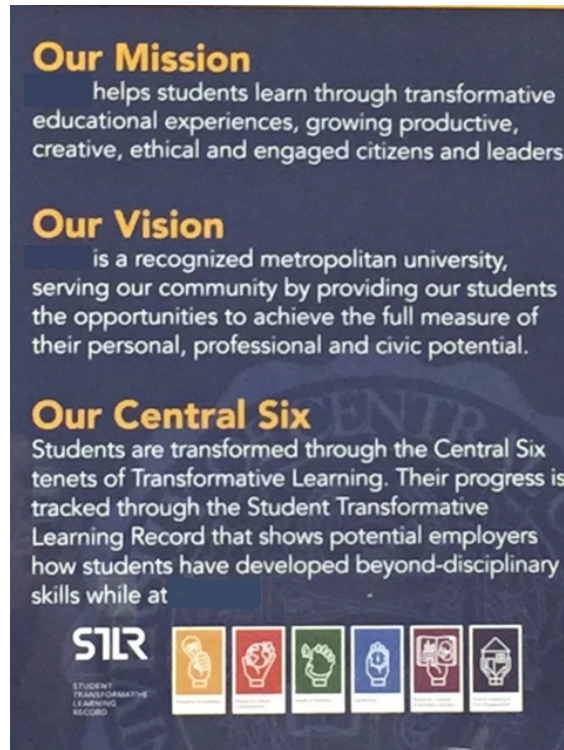
Figure 5. Poster of the University mission statement.   This figure represents posters placed throughout every building on campus advocating the mission statement and dedication to transformative learning.

Over the last two years, a multimillion dollar grant enabled the university to launch the Student Transformative Learning Record (STLR) initiative. The grant offered interested faculty a voluntary professional development training with a generous stipend for completing, implementing, and assessing critical reflection and discourse in coursework. While the possibility exists that not all faculty members participants will have attended the STLR training, every instructor employed at the university is expected to foster transformative learning experiences. The range of faculty involvement spreads from the most basic level (e.g., student learning outcomes are defined in the syllabus but not integrated into the course) to deeply engaged experiences

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(e.g., service learning or study abroad opportunities that offer new and challenging contexts for students.) The emphasis and expectation for instructors to offer transformative learning experiences, combined with institutional and department level support for professors implementing transformative learning experiences at this university contribute to unique bounded system in this case.

Faculty Participants

Six faculty members (two from each category) with the following characteristics were sought as participants:

- *Engaged* faculty members who have completed both STLR training sessions, implemented and assessed initial student STLR assignments, and have offered additional STLR assignments in other courses.

- *Compliant* faculty members who have either started their STLR training but have not yet completed all the requirements for training, or have completed STLR training, and implemented and assessed their initial STLR assignments, but have not offered additional STLR assignments in their courses

- *Untrained* faculty members who have not completed STLR training.

Faculty member participants meeting the characteristics above were recruited for the study with data obtained with assistance from the STLR office. Email blasts using STLR records were sent to all teaching faculty who meet the criteria for participants in the compliant and engaged categories. For participants in the untrained category, notices in the daily university news circular, CETTL newsletter, and STLR records were used to identify potential participants who had not yet completed STLR

training. Recruiting also took place through word of mouth announcements at department meetings for participants and campus research organization meetings were polled for potential participants. Personal emails and follow up phone calls were used to recruit potential faculty for participation in the study.

The six professors in the study responded to recruiting efforts through word of mouth, campus daily news publication, direct email, presentations at campus research organization meetings and department meetings. Recruitment took place over one semester. Purposeful sampling was employed to find two participants for each category. Both male and female professors were sought for participation in the study. After the initial contact and indication of interest, participants met the principle investigator for a screening interview with a question and answer session at which informed consent forms were signed if the participant met the criteria and was volunteered for the study. Follow up meetings were then scheduled to facilitate the professional development session, conduct interviews and establish timeframes for the two cycles of implementation.

Participants were screened for their perceived level of buy-in for transformative teaching based on the categories of engaged, compliant, or untrained as defined by the researcher. A purposeful sample was obtained allowing for two participants in each category. Table 1 summarizes the participant characteristics. Early semester recruitment secured four professors enabling them to complete training, lesson preparation and delivery of both cycles of TE in the same semester. The last two professors recruited for the study attended their training toward the end of the semester,

but waited until the next semester to begin the implementation. All participants completed both implementation cycles within one semester.

Faculty participants in this study were university professors with varying levels of experience teaching transformative practices in their courses. Providing a rich, in-depth understanding of the case through the collection of multiple data points allows for a small number of participants. In this study, six faculty members voluntarily consented to participate in multiple forms of data that gave an expansive and rich account of the phenomena (Creswell, 2012a, Creswell, 2012b). Within this university's bounded system, professors structuring some form of transformative practice in his or her courses are considered typical. University requirements articulate every faculty member include transformative student learning outcomes in the course syllabus. Yet the degree to which faculty members adopt transformative practice varies greatly. Participants ranged from a minimal level of transformative practice (objectives listed in syllabi only) to a highly engaged level of transformative practice (completed faculty STLR training and involved in multiple STLR approved assignments in more than one course they teach). The participants varied in their perception of transformative teaching. Some participants highly valued the concept of student transformation and diligently worked toward fostering transformative experiences in their coursework, while others initial perspective was viewed as irrelevant to their coursework (Crawford, Heddy, & Chancey, 2017) Regardless of their subscribed value of student transformation, the use of critical reflection and discourse (Hallmarks of Transformative Learning; Mezirow, 2000) are commonplace assignments included by faculty members in their courses.

Faculty participants in the study varied in the degree of involvement with STLR training. Varying the degree to which faculty members are comfortable with intentional student-led input and discussion will provide a rich range of implementation experiences.

All six participants taught undergraduate level courses. Participants ranged in age from 33-62 years of age and in experience from 1.5-27 years teaching in higher education. Three female and three male professors participated in the study representing the disciplines of education, business, forensic science, mathematics and psychology. Four participants hold doctoral degrees. Of the two participants with masters degrees, one is pursuing a doctoral degree and the other is considered a doctoral candidate.

Participants were placed into categories of engaged, compliant, and untrained based on their answer to the question - how would you describe your current transformative teaching techniques? Sharon and Mitch (pseudonyms), had previously completed STRL training and continued to implement STLR tagged assignments in their courses after training requirements were satisfied. Based on their description, they were placed into the engaged category. Both Sharon and Mitch had 27 years of teaching experience and were very comfortable with student led discussions. Jamie and Kristin were identified in the compliant category. Both participants had satisfied the requirements for STLR training, yet neither had expanded the requirements into other courses or assignments. While very supportive of the training, both claimed time constraints and faculty responsibilities and university obligations as barriers to further implementation. Both participants described themselves as student-centered in their

teaching style and were very comfortable in facilitating student-led small groups and large group discussions. Rhys and Samuel fit the untrained category as neither had taken STLR training. Rhys identified his reason for not seeking STLR training due to the disconnect he perceived between transformative practices and the typical methodologies adopted when teaching in his discipline. Samuel's reason for not seeking STLR training reflected his personal belief that assessment of transformation in students is not his to make. True assessment of transformation comes from within the student who undergoes the transformation, and professors are not objectively able to assess something that he may or may not see during the time he has the student in class. While both Rhys and Samuel entered the research with articulated reasons for not implementing transformative teaching techniques, both were amiable and intrigued by the prospect of engaging in the research. Rhys expressed an interest in trying to connect to the university's adoption of transformative learning even with his skepticism that transformation and his discipline were compatible structures.

Table 1. Summary of Faculty Participant Characteristics

Participant Characteristics

Name	Category	Highest Level of Education Completed	Years Teaching in Higher Ed	Years Teaching at this University	Teaching Style
Rhys	Untrained	Doctoral Degree	9	1	Lecture
Samuel	Untrained	Master's Degree	1.5	1.5	Lecture with some student discussion
Jamie	Compliant	Doctoral Degree	7	2	Facilitative, small group discussion
Kristin	Compliant	Master's Degree	3.5	3.5	Facilitative, small group discussion
Sharon	Engaged	Doctoral Degree	27	22	Facilitative, small group discussion
Mitch	Engaged	Doctoral Degree	26	9	Lecture

Note. All participant names are pseudonyms

Participants were extremely willing to work with the preparation, implementation, observations, communication, and interview portions of the research. Every participant generously shared their time both in the classroom, during preparation and participating in the three interviews. They expressed a desire to "get it right" for the integrity of the research project and made the most genuine effort in implementing the pedagogy. Interactions that included personal contact (email, phone calls, meetings) with the researcher were well received and often became enjoyable and engaging conversations.

Faculty Procedures

Once identified, participants attended a professional development session over Transformative Experience pedagogy. Before instruction began, participants shared basic demographic data, their reasons for participating in the research project, and their availability and time commitments. The initial interview recorded faculty members' initial responses regarding their current perceptions of student transformation, how they currently teach to foster student transformation, and how they assess student transformation. Recording each participant's definition of content understanding and student transformation prior to implementation proved essential for establishing baseline comparisons for how TE implementation impacted their current perception. Participants were asked specific questions in the initial interview that established the baseline criterion and captured their current understanding.

Professional development. Introducing participants to TE pedagogy required a two-day professional development session. The first day included a three-hour workshop that detailed the specific attributes of TE, selecting worthwhile content,

writing metaphors, modeling TE experiences, and the re-seeing process.   The second

day included a one on one consulting session with the researcher to prepare and plan

the first cycle of implementation.

   Workshop Session. The workshop began with the research sharing a story of her

own experience with TE. She related an unexpected conversation with her son when he

found a use for Newton's laws of motion when applied to hitting golf balls. Setting the

stage for the remainder of the workshop, participants were directed to an overview of

the interrelated qualities of TE (use, change, value) and how students develop these

qualities when they seek examples of content in their everyday lives. The workshop

focused on how professors prepare to facilitate transformative experiences based on TE

literature. Three distinct areas were highlighted through the three-hour session.

   Selecting worthwhile content. Exploring the interrelated qualities through the

example modeled by the researcher led participants to begin selecting worthwhile

content and framing the content in meaningful ideas. Worthwhile content was defined

as content that students deliberately seek in their everyday lives outside of the

classroom (Pugh & Phillips, 2011). Such content depends on the scope of opportunity it

offers students for such things as solving meaningful problems, seeing the world in a

different way or developing relevant skills (Pugh & Phillips, 2011). Brophy (2008)

notes some topics covered in a course will lend themselves to students making

connections to their own lives more than others and argues that content should be

considered for the self-relevant applications it has to a student's everyday life:

   The content strand should afford opportunities for self-relevant applications to
   life outside of school…Although there are societal benefits to empowering each

new generation with knowledge and skills of enduing value, these benefits will not be realized unless individual students appreciate the enduring value and begin to apply the knowledge and skills in their lives outside of school. (p. 138)

Caution, however, must be exercised by instructors that in the attempt to select worthwhile content, enduring, valuable content is not overlooked.

Framing content as compelling ideas. The manner in which an instructor frames, or presents, the content has been suggested to have an important role in how the students perceive its relevance (Pugh & Phillips, 2011) and applicability to other settings, times, people and activities (Engel, Nguyn, & Mendelson, 2011). In TE, framing the content stems from Dewey's (1933) notion distinguishing between the established meaning of a concept and the possibilities brought by ideas. Dewey claimed ideas promote anticipation, enticing the student to expand their perceptions and actively use the connection of content in everyday life promoting an experiential value for the concepts (Pugh, 2004). Research proposes that students taught through curricular ideas to be explored rather than established concepts to be learned by rote are more likely to approach content from a framework of "here's an interesting idea, what would happen if…" instead of "here's some more stuff I need to master" (Pugh & Phillips, 2011, pg. 289). Triggering this curiosity through intentional framing instigates student engagement that is relevant and meaningful for students who seek content experiences outside of school. Contexts in which students engage with meaningful content as ideas to be explored act as opportunities for the student to intentionally contribute to larger conversations that extend across times, places, people, and activities are defined as expansive framing (Engle et al., 2011). These "expansive" frames alert students to the future use of the content and promote transfer of the content in other settings.

Conversely, "bounded" frames limit and discourage transfer by limiting the information to a "particular instructional context and by keeping learners as disconnected from it as possible" (Engle et al., 2011, p. 623). Engle posits that engaging students in expansive framing has implications for teacher practice:

> If students come to regularly orient to learning activities in an expansive fashion, then one would expect them to make greater use of prior knowledge more generally as they become increasingly accountable for sharing what they know across connected contexts. (p. 623)

Framing content as compelling ideas has foundations in TE literature through the use of metaphor to connect relevant ideas to students (Pugh & Phillips, 2011; Girod and Wong 2002; Girod, Rau, & Schepige, 2003). Using metaphor, or "artistically crafted compelling ideas" (Heddy et al,. 2017) to present content as ideas creates anticipation for students to connect the content to their everyday life. Girod and Wong (2002) illustrate the use of metaphor through a case study of three, fourth-grade students studying geology. Framing the content through the metaphor that "rocks are stories waiting to be read" engaged students to discover the story behind the rock and its characteristics, thus not only creating a need for teaching geology concepts but creating anticipation through the mystery of uncovering the rock's story. After sharing the examples from the literature, faculty participants were given the opportunity to begin crafting their own compelling metaphor. Asking participants to consider the content they wanted to implement TE and the student learning outcomes as described in their syllabus, participants and the research brainstormed ideas together. As ideas emerged, they were compared to questions from Girod & Wong (2002), list of questions for formulating compelling ideas. These questions included:

- What does our metaphor help us to see?
- What kind of things are more clearly illuminated because of the metaphor?
- What kinds of things does our metaphor not help us to see or explain?
- What could we add to the metaphor to make it more effective or more illuminating?

For example, Jamie initially brainstormed the metaphor "Creativity – Beyond Art" to showcase the content and student learning outcomes. We tested the metaphor using the questions above. When compared to the questions asking what the metaphor not help us see or explain, she realized "Creativity - Beyond Art" did not encapsulate all the learning outcomes she had for her students in this unit. With discussion, her metaphor shifted to "Creativity is Risky" to include the differences in how young children are creative and adults view creativity. Once she landed on using "Creativity is Risky," her examples of her own transformative experiences in creativity began to emerge.

Modeling transformative experiences. To maintain relevance to the content in contexts outside of school, modeling the metaphor through one's own personal experience allows instructors to show his or her personal transformation through active use and expanded perception. When students observe their instructors transferring the content from classroom settings to real world settings, anticipation is created with the expectation that they will also find examples of the content in their everyday lives outside of school. This process naturally encourages instructors to scaffold student attempts to recognize and actively use ideas in their everyday lives (Girod & Wong, 2002).

The implementation structure of TE calls for professors to model their own transformative experiences on Day 1 and Day 2. On both days, the process begins with

the professor modeling their own transformative experience under the metaphor introducing the compelling idea for the topic. On the first instructional day, students are introduced to the content using the instructor's personal experience. During this session, instructors focus on compelling content ideas that have been carefully selected by the instructor and are framed in ways that connect to value in student's immediate experiences and foster appreciation of content (Brophy, 2008). The content may be presented through a teacher-directed discussion, sharing the content as an idea to be explored although recent studies report instructors using pictures representing the instructor's personal experience with the content (Heddy & Sinatra, 2013; Alongi et al, 2016; Heddy et al., 2016). As the instructor shares his or her own experiences, he or she begins to use the language of TE, deliberately pointing out the active use, expanded perception and experiential value through personal experiences or examples of content being shared. Using the vocabulary in their stories models for the students how to write about their own experiences with content in their everyday life. The session ends with the instructor asking students to voluntarily bring an example of their own experience with the content back to the next class.

When the researcher modeled this process at the beginning of the professional development session, a clear example helped professors make the same relevant connections to the content that the students would also experience. Allowing time for the professors to share their initial thoughts into the stories helped them craft how they needed to word and share their own stories. This was mentioned in the workshop portion of the professional development, but was more thoroughly explored during the

second consulting session after participants had time to consider the content unit in which they were implementing TE.

Facilitating the reseeing process. Directing the participant's interactions with students was also an important section in the professional development workshop session. The second and third days of implementation utilize the process of reseeing. Day 2 instruction begins with the instructor reviewing concepts by providing a picture representing a few of the ideas from the previous discussion. The students then break into groups of two or three and discuss concepts by share examples from their own, everyday life. These discussions are centered on recognizing the interrelated qualities of TE (active use, expanded perception and experiential value) and are called Use, Change, Value (UCV) discussions. Instructors help students "re-see" their experiences through listening to the student discussion and scaffolding how the students' examples adheres to the dimensions of TE. Intentionally asking students to recognize examples of the content in their everyday lives outside of school promotes active use. Relating the context in which they recognized the content outside of school demonstrates an expanded perception of the curricular ideas that leads students to the creation of experiential value for the content based on their subscription to its relevance and meaning. Asking the questions "how did this example make a difference for you" and "how is changing the value you have for the content?" when students share their examples helps student to frame their content using a TE lens. At the end of the class, the instructor repeats the same request from the first day of instruction, asking students to bring their own encounters with the content outside of school to share with the next class.

On the third day of the implementation, students break into groups to discuss content from their own personal experiences after seeking more examples from the last class. The instructor continues to walk around the room scaffolding the TE experience using the same questions from above. After 20 minutes, the teacher brings the class back together asks each group to share one member's TE, and match their experience to the three qualities of active use, expanded perception and experiential value.

Consulting sessions. Each participant followed up the TE workshop with a one-on-one consulting session with the researcher. In this session, the metaphor was decided, and the basic structures for Day 1, Day 2 and Day 3 were planned. Participants were able to ask any specific questions related to their own endeavor to implement the pedagogy into their courses. This session was less structured and geared toward each professor's needs for complete their planning for implementation. After the session concluded, the participants were given contact information for the researcher should they need additional support as they continued their planning.

Journals. Faculty member participants were emailed a journal entry after the second session to record their thoughts and progress followed by an optional open lab session providing additional time with the researcher to collaborate, design and develop unit plans and assessment tools under the TTES/UCV pedagogy. The researcher was available to assist the participants at any time during their planning and preparation stage for implementing TTES/UCV pedagogy. Before the TTES/UCV discussions occurred in class, students were recruited and informed consent was granted. Pretests were administered to students through teacher-created content tests and the TEQ survey. Each unit required adapted wording of the TEQ prompts to align with the content.

Observations. Observations began when the participants prepared the TE cycle

for facilitation with the students and the pretests were administered. Journal entries

were emailed to the participants at the end of Day 2 and Day 3 of TTES/ UCV

discussion implementation, however, receiving and responding to the prompts became

problematic. The prompts were either not received by the participants via email or they

were not returned to the researcher.

After the TTES/UCV discussion ended on Day 3, two posttests were

administered to students for content understanding and transformative experience. The

first cycle finished after the second semi-structured interview was completed. This

process completed one cycle of data collection. To complete the study, faculty member

participants repeated two cycles of TTES/UCV discussion implementation.
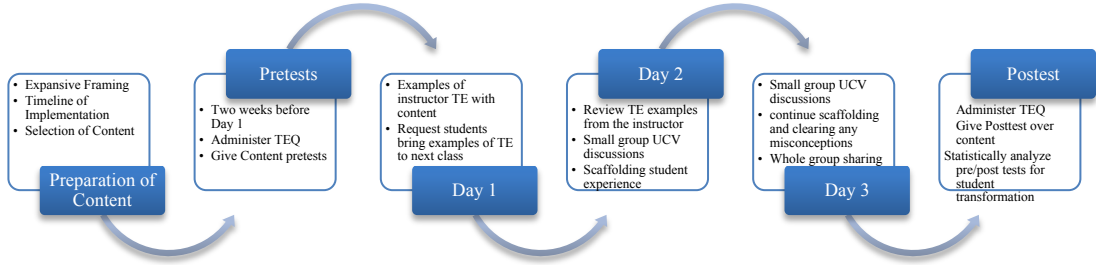
Figure 6. Cycle of TE Implementation. The figure above represents the stages of the
TE implementation cycle for participants in the study.

Student Participants

Student participation in the study was needed to corroborate the qualitative

findings. Past studies in TE used quantitative data to determine if the TTES/UCV

pedagogy fostered transformative experiences for students. This study follows the precedent from the literature and used pre/post design to administer teacher-created content tests and Transformative Experience Questionnaire (TEQ). A self-report survey, the TEQ, employed a four-point Likert Scale ranging from disagree strongly, disagree, agree, agree strongly. These instruments provided an additional data source that indicated if and to what extent students were learning content and undergoing transformative experiences.

Student participants were recruited from students enrolled in each professor's class prior to implementing TE pedagogy. Students were given an opportunity to learn about the study, ask questions and sign informed consent forms. Students from six different classes (N=166) volunteered to participate. Eighteen students were removed from the study for incomplete data sets, leaving a sample of 148 students. Students ranged in age from 18-64 and in classification from concurrent high school enrollment students to graduate students. The study included 110 female students and 38 male students.

The student participants were enrolled in courses taught by participating faculty members in the study. These cluster samples were naturally occurring groups (Creswell, 2012b) and were self-selected during the enrollment process. Students were unaware of their professors' involvement in the study prior to enrolling in the course, as enrollment occurred in the semester prior to the TTES/UCV pedagogy implementation. Students ranged from courses specific to incoming freshman, to junior and senior level elective and required coursework. Courses catering to freshman hosted a variety of majors whereas students in upper level courses tended to have the same major field of

study. Survey courses, used to introduce students to a broad range of topics in a particular discipline, tended to have a variety of majors represented in the sample. For example, students in the business course were all business majors with a variety of emphasis. Accounting, Marketing, Business Management, Economics, Fashion Marketing and Human Resources were all represented in the sample. Other courses had a more homogenous blend of majors. The course from the College of Mathematics was made up of all Mathematics and Mathematics Education majors. Likewise, a course from the College of Education included Early Childhood and Elementary Education majors. Although a large proportion of students in each class participated, 100% participation was not achieved in any of the six courses. Table 2 summarizes the student characteristics. The study included students with disabilities, but additional accommodations on the surveys were not required for student participation. Participation in the study was voluntary without any impact on student's course grades. Informed consent was granted by the students prior to using their scores in the study.

Table 2. Summary of Student Participant Characteristics

Student Characteristics (n=148)

Category	Demographic	Number of Students
Gender	male	38
	female	110
Class	Freshman	49
	Sophomores	28
	Juniors	35
	Seniors	25
	Other*	6
Age	18-25	129
	26-35	15
	36-45	3
	46-54	0
	55-64	1
Race	White	85
	African American	11
	American Indian/Native Alaska	8
	Asian	15
	Hispanic/Latino	7
	Other**	2

* Other in Classification Category refers to students who identified as concurrent high school students, international, graduate or did not specify a classification.

**Other in the race category represents students who did not specify their race or wrote in a different option than what was provided.

Student Procedures

Student participants completed two measures: The Transformative Experience Questionnaire (TEQ) and professor-created content tests. Descriptions follow below. Both measures were administered four times to each student participant during the study totaling 592 surveys. Each cycle of TE implementation included a pretest administration of both tests at the same class period. Students completed basic demographic data (gender, age, classification, race and major) before taking the TEQ and the content tests. Participating professors were not in the room during the administration of the TEQ and the content tests to protect the identity of the student participants and to remove any threat of coercion. The unit concluded with a posttest administration of both tests.

Professors who implemented TE pedagogy in the first semester of the study were able to select the dates and content in which to implement both cycles of TE. The four professors who implemented during the first semester each selected a unit of study that best allowed for the TE implementation. Typically Cycle 1 was administered between the third and fifth week of the semester, with the second cycle implemented during the tenth – fifteenth week of the semester. Professors implementing TE pedagogy in the second semester implemented both units within the first six weeks of the semester to meet the constraints of the research timeline. Students in these two courses did not have the same interval of time between the two cycles of implementation as did the students participating in the first semester. Thus, the students in the

49

second cycle often were given a posttest from Cycle 1 on one day and the pretest for Cycle 2 at the next class meeting time.

Data Sources

Case studies gather multiple data sources to provide an enriching and in-depth understanding of the case being explored (Creswell, 2012a). In this study, data was collected from faculty through three semi-structured interviews, observations by the researcher during class time and through administering pretest and posttests of content understanding and the TEQ survey instrument to students at the beginning and end of each cycle of TE implementation.

Semi-structured interviews. Eighteen interviews were conducted throughout the study. Interviews ranged from 26-73 minutes in length and were conducted in faculty offices or in conference rooms conducive to audio recording. Participants were asked to define their teaching styles, their definition of student transformation and how implementation of TE impacted their practice in each interview. The initial interview questions were designed around the interrelated qualities of Transformative Experience (active use, expanded perception, and experiential value) and the research regarding implementation of the Teaching for Transformative Experience model (Alongi et al., 2016, Heddy et al., 2016; Pugh et al, 2010; Pugh & Girod, 2007). Additional interview questions emerged as participants gained experience and exposure to the pedagogical practice within the theory and from the observational data collected during class time. Probing questions were used to elaborate and clarify the participant's experience in implementing TE. Example questions included: What is your definition of student transformation? How did the preparation and facilitation of TE compare with your

previous practice? Has anything surprised you? What challenges did you encounter?

Actual interview protocols can be found in Appendix A for all three interviews.

Participants were interviewed prior to implementing TE, after the first cycle

was completed, and finally at the end of the second cycle of implementation. At any

time during the study, participants were able to contact the principle researcher for

consultation or help prior to facilitating TE during their course.

Informed consent was obtained from the participants permitting the interviews

to be audio recorded. Interviews were transcribed with a marked effort to maintain the

anonymity of participants by de-identifying the data.

Journals. Participants were asked to respond to journal prompts to record their

own reflective process throughout the TE implementations. The digital journal provided

another data point with the advantage of recording the participant's own words and

thoughts without the need for transcription. (Creswell, 2012b). In this study,

participants were emailed specific prompts prior to implementation, during

implementation, and after implementation, and a post journal entry as a follow up after

the last unit was taught. Prompts were sent using Google Forms at each time point.

Entries solicited the participants' observations, thoughts, celebrations of things that

went well, things they wanted to repeat, and things that needed additional attention

depending on the sequence of the journal entry in the implementation cycle.

Participation in the journal prompts was extremely limited. Most participants either did

not find the prompts in their email or did not return a response.

Classroom observations. Forty hours of field observations were collected over the two semesters. The observations took place in the class meeting location. Professors whose class met three times a week for 50 minutes received five hours of field observations while professors with courses that met twice a week for 75 minutes received seven and a half hours of observation over the two cycles of implementation. The researcher used a protocol adapted from TE literature (Pugh, 2010). The protocol documented professor use of the TE pedagogy and is included in Appendix E. Field notes were documented by setting, date, time, length of observation, and consisted of descriptive and reflective notes recorded over multiple classroom sessions. The primary researcher maintained a non-participatory observational role (Creswell, 2012b, p. 213) during the classes, meaning that the researcher recorded notes without becoming involved in the activities of the participants. The observational data allowed for both the faculty member and the students' responses to TTES/UCV discussions to be collected. The field notes collected data in addition to the semi-structured interviews to construct a more comprehensive account of the faculty participants experience.

Student data. Prior to implementing TE with students, two measures were administered to students as pretests. First, teacher-created content pretests were administered for each unit of study to measure students' understanding of the concepts covered during the class. Second, the Transformative Experience Questionnaire (TEQ) was given to students enrolled in the class. When the implementation cycle ended, both measures were administered to students again as a posttest.

Teacher-created content pre/posttest. Student transformation may begin with the acquisition and application of discipline knowledge. It is possible, according to

Keegan (2000), for changes in "one's fund of knowledge, one's confidence as a learner, one's self-perception as a learner, one's motives in learning, one's self-esteem" to occur without any transformation "because they could all occur within the existing frame of reference" (Keegan, 2000, p. 50-51). Transformation is not the result of any change in understanding, only ones that reconstruct epistemologies (Keegan, 2000).

Yet assessing student transformation as the personal application of skill or discipline knowledge is a common characteristic among faculty members reading student's critical reflection (Crawford et al., 2016). Without looking for changes in frames of reference, using skill application as the criteria for determining transformation displays a limited understanding of student transformation from the instructor (Crawford et al., 2016). According to the university's definition of transformative learning, student transformation occurs when beyond-disciplinary skills are developed and when a student's perspective expands in their relationships with self, others, community and environment (Student Transformative Learning Record Participant Notebook, 2015). Yet showing gains in discipline knowledge is necessary, as new understandings may become the catalysts for disorienting dilemmas and identifying misconceptions. Thus, pretest and posttests over content knowledge were needed to capture the student's acquisition of discipline skills. Additionally, previous studies implementing TE support using pre/posttests as measures of basic knowledge and conceptual change (Alongi et al., 2016; Girod et al., 2010; Heddy et al., 2016; Heddy & Sinatra, 2013; Pugh et al., 2009). Previous studies varied in their pretest content. Heddy & Sinatra (2013) used the Evolutionary Reasoning Scale consisting of 14 closed - ended questions to measure student growth in content. Pugh et al. (2009) utilized a 10

question, multiple choice question test of basic knowledge of adaptation and natural selection. Girod et al. (2010) also used tests of basic knowledge over weather, erosion, and matter as pre/posttests. Both Pugh et al. (2009), and Girod et al. (2010) used items aligned to content standards for their state and included items from the textbook series.

In disciplines outside of science, using content based pre/posttests is also established in the TE literature. Alongi et al. (2016) included four, open-ended questions addressing the students' understanding of the history concepts covered. Likewise, Heddy et al. (2016) used a pre/posttest consisting of 10 multiple-choice questions over motivation concepts covered during a college success course as a measure of content mastery.

In this study, faculty participants designed their own pre/posttest measures. Through the criteria given in the professional development session, participants considered the student learning outcomes as outlined by their course syllabus, and college and department assessment requirements for two units of instruction. Multiple choice, short answer, and short essay formats were used by the professors to create their pre/posttests. An answer key was provided for the researcher to grade the pre/posttests for multiple choice and short answer tests. Short essay questions were scored using a rubric created in collaboration between the professor and the researcher. When student answers were not clear, the researcher consulted the professor for clarification by phone or email to protect the anonymity of the student participants. Pre/posttests results were used for feedback to the students and the faculty, and were not included as course grades as outlined in the student informed consent form.

Transformative Experience Questionnaire. The Transformative Experience

Questionnaire was developed to measure a student's level of transformative experience

based on a continuum from minimally transformed to radically transformed. The

survey, designed by Pugh et al. (2010) and re-evaluated by Koskey, Sondergeld,

Stewart & Pugh (2016) measured the interrelated constructs of motivated use, expanded

perception and experiential value using a self-reported 29 item, four-point Likert scale,

ranging from strongly disagree to strongly agree. The TEQ measured student

engagement with the content they were learning (Koskey et al., 2016). The TEQ was

intentionally adapted for each unit to survey students regarding multiple topics (Koskey

et al., 2016). In this study, the TEQ was adapted by the participants to address the

concepts covered in the coursework taught by the participants. Participants were trained

in adapting the TEQ for their content in the professional development session at the

start of the research study and had collaborative time with the researcher to create their

TEQ scales. The four-point scale recommended by Koskey et al. (2016) was used as

well as the suggestions for the wording of several items. A copy of proposed stems

from Koskey et al.'s (2016) recommendations that have been pilot tested by myself are

found in Appendix B. The TEQ was administered as a pretest and posttest to measure

student transformation over both cycles of TE implementation. This study was the first

to measure the TEQ at the pre/post time points over repeated cycles of TE. Allowing for

comparison of means of pre/post test scores over two cycles of implementation

provided data on student transformative experiences throughout the course instead of a

single cycle of TE implementation.

Data Analysis

Qualitative Analysis

The qualitative data were transcribed verbatim from recorded audio files into Word documents for analysis. Files were analyzed by two researchers using an inductive process beginning by reading the files and taking notes in the margins to form initial emerging codes. After "tidying up" (LeCompte & Preissle, 1993) the data, items were identified by the frequency, omission, or declaration to begin the process of identifying emerging categories and themes (LeCompte, 2000). Data was compared, contrasted, aggregated, and ordered (LeCompte & Preissle, 1993) then differentiated for linkage and emerging relationships within the data using Spradley's (1979) chart to aid the process. These links established themes or patterns (LeCompte & Preissle, 1993). The interviews and field notes brought a broader comparison of the initial categories and were used to triangulate the data.

LeCompte & Preissle's (1993) method of analyzing data was selected due to the time-sequenced nature and progression of interviews with each participant. By analyzing the data in terms of categorical units, a comparison and aggregation process revealed similarities and differences experienced by each participant that lead to more in-depth understanding of the impact of the model on individual personal and pedagogical practices. Segmenting and identifying units of analysis prevented data from being overwhelming to the researcher. It also permitted the combining of a variety of data collection methods.

Trustworthiness

To ensure the trustworthiness of the data sources, a two-step method of member checking was employed. First, transcripts of interviews were sent to the participants to check for congruency in their experiences. Second, "polished" interpretations (Creswell, 2009, p.191), including themes, narration and patterns from the data were sent to the participants for their agreement. Ensuring the data accurately represents the participant's interview was essential in capturing the richness of the answers given by the participant. All participants positively responded to both member checking procedures, agreeing that the transcript and the polished interpretations were accurate representations.

Trustworthiness was strengthened through an additional researcher to help with triangulation. Each de-identified interview was segmented into three tracks based on the research questions: conceptualization of student transformation, assessing student transformation and impact of implementation on instruction. Each researcher read the segmented transcript on their own and wrote initial coding notes. Due to the magnitude of the data and the timeline for the research project, specific quotes from each interviews that articulated change from the faculty participant's initial understandings of the three areas were documented into data tables and a written summary of the data for the specific interview was included (see appendices G through I for the qualitative data tables). Both researchers reviewed the data tables and met to discuss agreement. The triangulation discussion was audio recorded for trustworthiness. The researchers agreed on the coding and any areas of discrepancy were resolved by further conversation and comparing back to the initial interview data and field notes. This method complies with

LeCompte & Preissle's (1993) constant comparison of key passages of data between researchers. Creswell (2012b) defined triangulation as the "process of corroborating evidence from different individuals, different types of data, or methods of data collection in descriptions and themes in qualitative research" (p. 259). Triangulation was essential in maintaining trustworthiness in this study as the principal researcher is also a faculty member at the university where the research is being conducted. Although the possibility existed for familiarity between the participants and the researcher, bracketing protocols were maintained throughout the study. Contact between the participants and the researcher were limited to appointments and observations as defined by the research timeline and methods. The addition of the second researcher in the analysis process also served as prevention for bias in the interpretation that might result from any familiarity with participants

It is important to note in this study, the quantitative data did not warrant comparison between faculty participants. The variety in disciplines among the faculty participants precluded the ability to compare the quantitative data across participants, as each faculty member designed content tests that best fit their own student learning outcomes as defined through each course syllabus. Further, due to the focus of the research questions on the lived experience of the faculty members when implementing TE, the design of the research does not allow for consistent measurement among the quantitative measures between faculty member participants. Participants created different tests based on their content within each unit where TE pedagogy is implemented into their teaching practice. The variety of content on pre/post measures made comparing scores between participants inappropriate as their content tests do not

measure the same outcomes. Thus, the quantitative data collected was used as descriptive data within each individual participant's implementation experience and was compared within the set of data collected from each faculty member's course and enrolled students.

Quantitative Analysis

The role of the quantitative data in the research design was to indicate whether transformative experiences occurred in students undergoing the TE implementation. Student scores from each faculty member were compared within that faculty member's class. The pre/post scores on the TEQ and content tests for each cycle of implementation for each faculty member were compared using dependent samples t-tests conducted in SPSS. These individual analysis were necessary to provide feedback for individual faculty members on their own implementation of TE in Cycle 1, and the impact of any changes or accommodations made in Cycle 2. A dependent samples t-test was an appropriate measure for the analysis as the focus is on the difference between pretest and posttest mean scores across one cycle of implementation.

Validity

Anytime quantitative measures are repeated potential threats to internal validity exist. Typically, historical threats to validity exist when events occur between the pretest and posttest that influence the outcome (Creswell, 2012b). In this case, by definition, TE asks for students to seek encounters of classroom content in their everyday life. The voluntary level of engagement in which the student interacts with the content outside of the classroom is a defining characteristic of the interactive qualities of TE (motivated use, expanded perception, and experiential value), and

influences a student's level of transformative experience. As this is encouraged and desired through TE implementation, students with high levels of interaction with content outside of the classroom are not seen as a threat to validity, but rather a successful implementation of the pedagogy.

Additionally, mortality threat to validity existed as students may have dropped the class before the second implementation of TTES/UCV pedagogy or were absent for either pretest or posttest administration of the TEQ and content tests. Missing either administration of the pre/posttest nullified the set of data. Although a student's decision to drop the course is out of the researcher's control, time for beginning of term attrition was allowed at the beginning of the semester to lessen this threat to validity.

Actual testing procedure validity threats existed as students could readily remember questions and responses from the pretest when taking the posttest. Steps were taken to minimize these threats, and procedures outlined in the professional development session were shared with faculty participants to intentionally plan for an instructional break between the first and second cycles of TE implementations. Ideally, the time provided between the implementation cycles prolonged the distance between testing times for both the content tests and the TEQ, minimizing the impact of repeated pretest and posttest measures.

A potential threat to validity resided with the TEQ itself. Koskey et al., (2016) analyzed the TEQ using Onwuegbuzie's Instrument Development and Construct Validation (IDCV) process as a mixed methods approach to evaluating instruments (Onwuegbuzie's, Bustamante, & Nelson, 2010) where both quantitative and qualitative

data are gathered to capture an in-depth understanding of participants perceptions of the survey. Koskey's analysis determined that the original TEQ supported the constructs of motivated use (also known as active use), expanded perception, and experiential value. However, nine of the 28 items were found to be interpreted by participants in ways outside of their intended use. Their analysis yielded suggestions for practitioners and researchers intending to use the TEQ in future research. To alleviate this threat to validity, prior to conducting this study, the researcher conducted a pilot test using the new suggestions from Koskey et al. (2016). The pilot study yielded favorable results and can be found in Appendix F.

Findings

Rhys

"Rhys," a professor in Mathematics and Computer Science, had no STLR training. His interest in transformative learning was marked by skepticism in weaving transformative assignments with mathematics. He was not opposed to adding transformative practices into his courses, but had yet to find a connection that allowed the demands of his subject to be met. While not completely lecture oriented in his teaching style, Rhys relied on step-by-step directions when working with calculations and mathematical problems. Students were encouraged to ask questions and engage in discussions as needed to understand the content.

Before implementing TE, Rhys witnessed student transformation "anytime you can see a noticeable change in a student's understanding" (Interview 1, Line 158). Changes occur when clarity of understanding is observed where "you just see that all of a sudden the clouds part and they see what needs to be done" (Interview 1, Line 167)

implying that transformation happens in a-ha moments that give way to new ways of thinking.

Prior to TE implementation, examples of content in his everyday life were shared in happenstance moments after the content was presented "but now it's sort of specific. I'm telling you something to try to make you think in a particular way rather than us coming across something that may spur me to tell a story" (Interview 1, Lines 486-489). This awareness changed his approach to teaching content with his students:

> But thinking about this stuff, since our, you know, the presentation you gave me…it has put ideas into my mind of things that I need to be more aware of and sort of strive for…trying to get the students to…realize that even though some math is just dry computation… there's more to it. And underlying a lot of these things that we're doing, there is something connected to them…and having them see this connection, even if it's some small, tiny thing where its applicable… it's just tried to make me mindful of don't just go in and go from point A to point B in my lecture. Now let's try to give more background and more conceptual ideas. (Interview 1, Lines 181-194)

Implementing TE changed Rhys' instructional approach to an intentional effort to direct students thinking of math with the conceptual underpinnings rather than the specifics of the calculations. After implementing TE, Rhys summarized his experience.

> I feel like I've verbalized it much better…of not just seeing something click…But they [students] realize something clicks and they realize that if they keep doing this, or hopefully if they keep going down the same path they are going down now, or maybe changing what need to be changed, that can continue to happen. (Interview 3, lines 604-610)

Table 3. Summary of Rhys' TE Implementation Experience

Summary of Rhys' findings before and after TE Implementation

Before TE	After TE
Planning for transformation was purely accidental	Intentional and directed
Student transformation was happenst:	Realized student transformation includes the student's personal recognition of awareness of their own transformation
He had never done anything like this before	Not even comparable to previous practice

Samuel

"Samuel," a professor in psychology, taught an introductory freshman course each semester. He described his teaching as "probably interactive" and sees it as "empathetic" (Interview 1, Lines 54-55) with students' perspectives and experiences. He described engagement as "trying to see elements of what you are learning in real life" (Interview 1, Line 65) and sought to create a classroom environment where students would entrust him with open discussion and create a collective learning experience. Samuel had not taken STLR training, placing him in the untrained category of engagement.

Although Samuel described his teaching style and student assignments as fostering growth in student's self-perceptions, prior to implementing TE Samuel did not assess student transformation. While his course may present new ideas and challenges to the precepts students bring to the course, the student was the only person to assess their own transformation.

> I don't think it's right to…how could I? That's a subjective thing and I don't
> know if I could quantify it…and I don't know that it's my business to do that.
> It's my business to assess whether or not they've engaged in the material and

remembered the material. If they've had some transformative experience for the better, then that's for them to gauge and for them to have. (Interview 1, Lines 407-417)

Initially, Samuel wrestled with the time involved in TE implementation. His course is an introductory course surveying broad discipline topics. As an overview with considerable content to cover, the thought of "giving up" class time for discussion was unsettling, even causing anxiety for Samuel. "So the prospect of it does create anxiety, or initially it did, but as I thought about it more, I thought 'how many of these students actually retain any of that anyway?' (Interview 1, Lines 551-553). He understood he would volunteer the time in class, but shifting to a new pedagogy was difficult for him to comfortably implement, knowing the pressure to cover the course content in depth.

After implementing TE, Samuel's awareness of his shift in teaching with an intentional focus on helping students grow showed a marked difference from the earlier interviews. "…but I do think if, as an instructor, the effort of transformation is more intentional in my approach to teaching, then the effort of transformation will be more recognizable by the student on their own" (Interview 3, Lines 407-411). Even with a considerable amount of content to cover, restructuring some assignments and adapting the UCV journal process to his teaching style and comfort levels while interacting with the students allowed him flexibility and awareness to cover material in different ways. He experienced the highest score on the first unit test in the three years he had taught the course. Student comments indicating their own transformation were occurring earlier than ever before in a semester, making him aware that his intentional efforts to ask students for their own experiences with content had an impact on students

recognizing their own transformation. "If you don't have the little t's, you're not going to get to the big T's" (Interview 2, Lines 647-662).

Table 4 Summary of Samuel's Findings

Summary of Samuel's findings before and after TE Implementation

Before TE	After TE
Covered a chapter per week	Recognized changes in delivery of content are needed to sustain student engagement
Assessment of student transformation was inappropriate for him as an instructor.	Actively began identifying criteria used to assess student transformation
Any student transformation was revealed at the end of the semester through writing assignments	Began seeing student transformation typically not seen until the end of the semester at week 5 of the semester

Jamie

"Jamie," a professor in the College of Education had taught in higher education for seven years. While completing STLR training on campus, she had not developed any additional STLR assignments other than the requisite one to complete training, placing her in the compliant category. Jamie described her teaching style as "trying my best to be a facilitator." She expected students to come to class having read the material and ready to participate in active, hands-on experiences. Her constructive approach to teaching involved facilitating student discussions and leading a student-centered classroom. Selecting a junior and senior level course she had taught every semester to implement TE, she described herself as very comfortable with the content.

Preparing for TE was a process of disequilibrium for Jamie. She began planning knowing the process aligned with her current style of teaching, yet shared her apprehension in trying a new strategy. Having taught the class for seven years, adapting her comfortable and confident style of applying theory to practice was daunting. Jamie

wanted to give the research her best effort, but also wanted to get it right. "The whole thing is new and so it's going to be…it going to put me in disequilibrium trying to get it all figured out. And I hate to say it, make sure I'm doing it right" (Interview 1, Lines 822-824). Student-led discussions were already a staple in her class, thus adapting her teaching style to TE became an exacting change.

The demands of the change in teaching style were evident when Jamie called for additional help in planning on the weekend before she was scheduled to start the first cycle of TE. Being a self-proclaimed perfectionist, Jamie was uncomfortable and frustrated with the planning. TE forced her to think of her content in new, unfamiliar ways. Her usual strategies for lesson planning did not work when implementing TE and she found using the metaphor challenging. She described her thinking process as very "linear" and she did not "work in metaphors in her brain."

> But you saw my planning for it and it was like a web, crazy all over the place and I look at it and I was like 'this is not how I work!' But it is how I work! Cause that's how I worked! I don't know if the looseness of the metaphor took me out of my very linear mode or not, but that affected me a great deal. (Interview 2, Lines 311-316)

Her disequilibrium in planning led to a rethinking of course content. Having taught the course for seven years, Jamie described herself as on "auto pilot" with the material. TE required a different way to plan and present her content. "It forced me…to really rethink it—how I looked at the class. I had to… I did more planning than I thought" (Interview 2, Lines 126-128). She surprised herself by creating a PowerPoint in a way that allowed her to cover the content with a flexible sequence. "There's this like running

thing that Dr. Jamie doesn't do PowerPoints…so putting it together, I had to really do it

in such a way that it wasn't typical PowerPoint" (Interview 2, Lines 131-135).
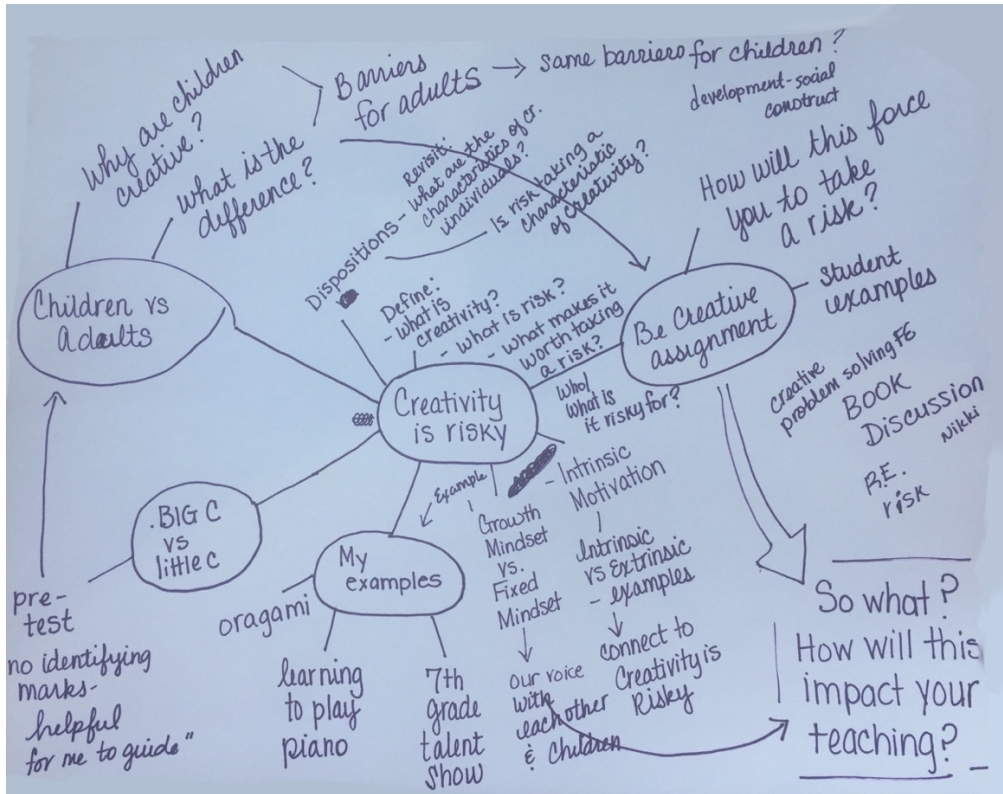
Figure 7. Jamie's planning web. Picture of Jamie's planning process, showing her thorough but non-linear thoughts in preparing for TE implementation.

Changing her approach to planning the unit helped her realize the difference that

implementing TE brought to her class. "…where I thought I was weaving this

information in this semester, but it wasn't very explicit. It was like 'Oh, they'll get it.'

But this…forced it to be explicit. Not in a bad teaching way…they looked at it and they

made those connections I had hoped they would before but now I know they made those

connections" (Interview 2, Lines 254-259). When planning for the second cycle of TE,

Jamie did not experience any anxiety. She looked forward to how the students would

connect to the metaphor and how she would observe the small transformations through the journals and discussions.

Table 5 Summary of Jamie's Findings

Summary of Jamie's findings before and after TE Implementation

Before	After
Linear planning from one point to the next	Designed Power Points with flexible sequences
Used quotes to introduce topics to students	Used metaphor as a connecting thread throughout the unit.
Uncertain in assessing student transformation	Became confident of assessing student transformation with the documentation TE provides.
Student transformation was revealed at the end of the semester through a written reflection	Began seeing student transformation much earlier in the semester

Kristin

"Kristin", a forensic science professor, was recruited from a word-of-mouth discussion during a faculty meeting. She was interested in transformation and had completed STLR training. She had not yet implemented any additional STLR assignments, thus placing her in the compliant category of engagement. Kristin described her teaching as student-centered where discussions, collaborative group activities, and hands-on assignments were predominant tools in her pedagogy. She tried to avoid straight lecture courses, yet acknowledged that some courses tended more toward a teacher-directed style. Knowing her teaching style was already student-centered made incorporating transformative teaching practices less daunting to Kristin than to other participants.

Kristin's placed the responsibility for transformation on the student and included the thought that she could not observe transformation. Transformation might occur through her facilitative teaching style and opportunities she provided in class, but she

could not plan lessons and see transformation as a result of her planning. In her own words, transformation was "being exposed to something new or either exposed to something in content, particularly in a way they never thought of before and thinking wow, this really makes a difference or this really changes my perception" (Interview 1, Lines 70-72). She did not think, coming into the research project, that transformation was something she could direct students toward. She could offer opportunities and activities that potentially foster transformation, but the actual transformation remained the responsibility of the student. "I can just provide opportunities for it and see what happens with the student" (Interview 1, Lines 95-96).

Assessing transformation revealed an ongoing challenge for Kristin, causing some reservations regarding assessing student transformation. She struggled with seeing students' written reflections at the end of the semester as being genuine cogitation instead of merely composing assumptions based on their perception of her expectations.

> How are they going to assess? And I think that's a hard thing to do because it's on an individual basis… how do you assess a transformation for a student without being the student themselves? I mean, that's a really hard thing? I don't know that I have an answer… I still think it is hard, because you have, you're either exposed, integrated or transformed. But there's not any room for a grey area. Do you know what I'm saying? So I think it's a continuum, the scale and not these definitive like, you're one, or the other, or the other. So. But I don't know. I don't know how to fix that. (Interview 1, Lines 309-324)

Kristin selected an entry-level survey course into forensics with predominantly freshman students to implement TE and looked forward to the examples the students would bring.

By the end of the second implementation, Kristin was very comfortable with the

facilitation of TE and began looking for ways to adapt the pedagogy into other courses.

She felt TE led students to small scale transformations because it made content more

relatable and more personal.

> Now with TE, not only am I learning about my students, but I am learning what
> they already know about forensics. What are they seeing in their lives in regards
> to forensics. What path do they want to take? Why are they interested in this?
> So all of these things that are individual to them and allow me to get to know
> them on a more personal level, if that makes sense, versus just a lecture.
> (Interview 3, Lines 377-384)

Integrating the student perspective into her facilitation changed the way she looked at

instruction on a grander scale than just her classroom. TE enabled her to observe the

students truly retaining the content covered in class because they had to internalize it

with their everyday life.

> We talk about the banking system of education and lecture-based is a banking
> system of education and hopefully with the TE pedagogy we move away from
> that banking system of education and we move to where they are really retaining
> the material because it's becoming more personal, more relatable to them based
> on their experiences. (Interview 3, Lines 377-392)

Kristin concluded that TE changed her instructional practices. It engaged her

students not only in the classroom discussions, but in content outside of the class as

well. "It made them more excited about learning, more proactive about learning"

(Interview 3, Lines 790-791). When asked if their engagement contributed to how she

saw her students transforming, she enthusiastically replied: "Yes. Absolutely. A million

times. YES! I think that is… the engagement, this active learning, …eagerness to learn

is a critical component of the transformation. I don't think the transformation would

happen without this, without that component" (Interview 3, Lines 825-828).

Table 6. Summary of Kristin's Findings

Summary of Kristin's findings before and after TE Implementation

Before	After
Assessing student transformation was hard to distinguish	Assessment of transformation could be documented through UCV journals and discussions
Described "grey areas' of student transformation that exist when assessing a student's STLR level of transformation	Clarity emerged from implementing TE to know when a student had reached a more in-depth STLR level of transformation
Students participated in the class due to requirements	Students engaging with content in meaningful and relevant endeavors

Sharon

A veteran of incorporating STLR projects in her classes, "Sharon" met the criteria for

the engaged level of engagement with student transformation. Her classes were

hallmarked by student-led discussion, collaborative group-work and critical reflective

writing assignment. She described her teaching style as "hands-on, interactive, lots of

[student] talk" (Interview 1, Line 37) and student-centered. Sharon focused on

collaborative learning with her students and preferred application type activities such as

student presentations and role playing scenarios. She described herself as extremely

comfortable leading student discussions. She considered her class "a critical thinking,

highly reflective class…. I just start really early on the highly reflective part" (Interview

1, Lines 146-147). Sharon chose to implement TE into an introductory education

course. Although worried about implementing TE correctly, Sharon didn't anticipate

TE changing her teaching practice. Students were already writing reflections on the

blog and she intended for them to use the same format for their UCV journals. She

worried the structure of TE might limit her creativity as a teacher, but felt the directed and intentional practice of connecting content to everyday life would benefit her students. "I'm just going to have to be a little bit more directed or intentional. Intentional. That's the word I want. More intentional about what I am doing" (Interview 1, Lines 500-503).

After implementation, Sharon observed that TE caused her to rethink her content in terms of what she needed to teach to get the message across to the students instead of the familiar routine of what she had always done. The preparation was much smoother the second time and was a catalyst for changing her teaching methods. "I think one of the things that I've learned through this process is, I assume, maybe – after you teach something for a really long time you start making assumptions or you skip over things, or… you have patterns that you just want to stick with because it's easier that way" (Interview 3, Lines 27-31). This process of rethinking helped her see how the students were experiencing the content and what she could change in her instruction to help them finish the course knowing they had fully grasped the information. She felt TE didn't necessarily change what she was doing, instead TE "enhanced it" (Interview 3, Line 479). Sharon's greatest change came in the realization that the student contribution to a transformative process had been missing.

> "…I've always given the stories...but I didn't give them time to do this, like the three question journals. That's where, I guess, that's the biggest change. You're reading those stories, that's probably – that was a definite change, that was something I wouldn't have done. And giving them time to talk about it in an organized manner. I think that's the secret right there. It wasn't just haphazardly discussing it here or there, but it was a systematic organized manner of looking at situations. (Interview 3, Lines 479-491)

As she reflected over her experience, Sharon was convinced the inclusion of TE pedagogy helped students move toward transformation earlier in the semester than anticipated. Awareness of intentionally sharing her own transformative experiences using the vocabulary of use, change and value revamped her current practice. "It was happenstance before, but now it's more intentional" (Interview 3, Line 887).

Table 7. Summary of Sharon's Findings

Summary of Sharon's findings before and after TE Implementation

Before	After
Assessing student transformation was hard to distinguish in STLR levels	Assessment of transformation became clearer through the use of UCV journals, small groups and large group discussions
Highly comfortable with her teaching style	Realized she was making assumptions about the content based on preferred teaching methods and had to rethink her content
A students awareness of a change that needed to be made constituted a student transformation	Without action on the part of the student, transformation is incomplete

Mitch

"Mitch", an experienced professor in the College of Business, heard about the research project at a campus research organization meeting. Afterwards, he contacted the researcher for more information. An avid supporter of STLR, Mitch had completed the training on campus and offered several STLR assignments in multiple courses in addition to being involved in on-campus groups and seminars for transformative learning. He considered himself to be in the engaged category of engagement. Mitch chose to implement TE into an introductory course typically taken by junior and senior business majors. The course covered an extensive amount of content and was required for all business majors.

Mitch described his teaching style as a "constant process" where he was "constantly updating things, adding new examples, and I do it after every single class" (Interview 1, Lines 39-40). He considered his classes to be "3/4 student-driven" (Interview 1, Line 54), with the caveat that while he was comfortable with students leading the class and tried to encourage it, most students would not engage in it. Mitch liked to "apply an example to every single concept" (Interview 1, Line 61) and often discussed examples with his students after presenting the content.

Prior to implementing the UCV journals, Mitch used words like "hopeful" with some ambiguity in relating his observation of student transformation. While he agreed with teaching to foster transformation and understood the benefits of allowing students the opportunity to connect to the material out of class, he was concerned with time constraints and the amount of content to cover in the survey course. Allowing time for the TE implementation would require a sacrifice of class time.

Mitch also struggled with the authenticity of written student reflection. The depth of the transformation revealed by the students was always accompanied with the skepticism that students wrote what they thought would give them the highest level of transformation, instead of being open to what they actually experienced. Assessing student transformation was not always clear.

After implementing TE, Mitch found the UCV journal assignments helped bring more clarity for students in understanding the content. "To me, always the best sign is, you know, when they mention, "Hey, I saw this in the real world," but now you understand because, actually, it was there the whole time and you just didn't notice it

until…now" (Interview 3, Lines 277-279). The peer-to-peer interaction provided

another level of engagement with content that helped students form a deeper

understanding.

> I'd describe it like a transformative experience of training wheels because it makes it easy to do because you're letting the students do it….when they talk to the other students, their peers, it's like, "Oh, no, this is how it works." They relate to each other without that confrontation. It really, it just – it works in a way that I can't do it because of my role. If I do it, they view it as it comes with a big judgment attached, whereas when their peers do it amongst themselves and share it more organic, like 'We did it' (Interview 3, Lines 540-552).

Students had to understand the concept to find an example to bring back and share,

allowing observation of feedback for student understanding that was unavailable to him

prior to implementing TE. The confirmation of student understanding provided

affirmation to Mitch that without TE implementation, he would have continued the

level of skepticism he articulated before TE.

> …for me it provides kind of feedback that really the tests never tell you. But the tests will only really tell you so much about do they really understand or is it an automated response. When I see this word I know to spit out this phrase. But when they do this then you detect they really do understand, it's not just memorization. But to find an example of something in the real world you've got to really understand what you're looking for. And, then, when they share it with their friends and they get positive feedback that only kind of feeds full process about, 'Ah, I do get it.' (Interview 3, Lines 564-572)

After implementing and observing TE, he speaks with confidence having

witnessed the affirmation that students are understanding the material in situations

beyond his own classroom.

It gives me a lot more confidence that they're able to see it. Before I just hoped that with all the examples, I had one that like, turns on the light for them, but now having them look through the examples and sharing and now you really get the reflection that they really do get it… Because that's the thing that you're ultimately looking for, you know, your validation comes from -a lot of times - just that one student per class that will come up and say, "Hey, I saw this, and this, and this, is that an example of this?" "Exactly. That is exactly what we are talking about." And it's just so reassuring to see that…because the classes are structured, you know, everything is one direction from me to them, and then they write it down and repeat it in a test. But this more incorporates it into the class. It gives everybody a chance to have their moment to really see it (Interview 3, Lines 517-533).

Mitch's involvement with TE gave him the confidence to see transformation in his students.

Table 8. Mitch's Findings

Summary of Mitch's findings before and after TE Implementation

Before	After
Provided real world examples of content from his travels to other countries	Used the examples students provided through the UCV journals
Worried about voluntary student participation	Shocked by the high level of engagement from the class
Assessment of student transformation demarked by student trying to meet assignment requirements and not an authentic representation of their awareness of their transformation	Formative assessment of student transformation throughout the course allows for confidence in assessing student transformation

Student Results

Transformative experience questionnaire. To address if the implementation efforts of the professor yielded transformative experiences for students, dependent samples t-test were conducted in SPSS. Table 9 reports the statistical results. T-tests conducted on TEQ scores from Cycle 1 indicated that students engaging with TE pedagogy made statistically significant gains in TEQ score in all six cases. In Cycle 2,

five out of six cases made statistically significant gains. Out of the twelve tests, Samuel's second TE cycle was the only result not showing student movement toward a transformative experience.

To shed further light on changes in TEQ scores, effect size was calculated on each of the tests. In Cycle 1, dependent t-tests on student scores of faculty in the untrained category of engagement had small (Samuel's students) and medium (Rhys' students) effect sizes (Cohen, 1988). Effect sizes for dependent t-tests on student scores of faculty in the compliant (Jamie, Kristin) and engaged (Sharon, Mitch) categories were large. In Cycle 2, effect sizes for students of faculty in the compliant and engaged categories were all larger than in cycle 1. Dependent t-tests from students of Jamie, Kristin, and Sharon's effect size notably increased to a very large effect. Kristin's and Jamie's students demonstrated the most impact.

Table 9. TEQ Student Data

Summary of Mean, Standard Deviation difference in TEQ Pretest and Posttest Scores

Participant	M		SD		N	Cronbach's Alpha	Cohen's d	p
	Pretest	Posttest	Pretest	Posttes				
Cycle 1 TEQ Data								
Rhys	2.56	2.98	.586	.403	13	.964	-0.720	.019*
Samuel	2.74	2.85	.312	.355	21	.868	-0.331	.010*
Jamie	3.15	3.47	.353	.344	16	.924	-0.892	.011*
Kristin	2.77	3.05	.316	.272	18	.910	-0.887	.002*
Sharon	2.86	3.28	.432	.416	24	.955	-0.982	.001*
Mitch	2.37	2.75	.460	.268	21	.951	-0.825	.000*
Cycle 2 TEQ Data								
Rhys	2.90	3.10	.521	.440	17	.958	-0.38	.001*
Samuel	2.72	2.69	.405	.463	16	.928	-0.07	.609
Jamie	2.62	3.37	.708	.367	16	.980	-1.05	.001*
Kristin	2.28	3.13	.798	.394	23	.989	-1.07	.000*
Sharon	2.71	3.17	.452	.453	23	.940	-1.01	.000*
Mitch	2.51	2.74	.246	.333	18	.851	-0.93	.005*

Note.* p < .05 level.

Professor-created content tests. Professor-created content test results were analyzed to determine student mastery of the content. Dependent samples t-tests using pre/posttest student scores were conducted in SPSS. In Cycle 1, students in classes with professors in the compliant (Jamie, Kristin) and engaged (Sharon, Mitch) categories showed statistically significant gains in content knowledge over the course of the TE integrated unit. Students in classes with professors in the untrained category (Rhys, Samuel), however, did not show statistically significant changes from pre-test to post-test. In Cycle 2, students in Samuel's, Kristin's, and Mitch's classes showed statistically significant gains in content knowledge over the course of the second TE integrated unit. It is important to note that administration of the posttest in Rhys', Sharon's and Jamie's classes was prior to unit completion, opening the possibility that content not yet covered was included on the posttest.

Table 10. Professor Created Content Tests

Summary of Cycle 1 and Cycle 2 Pretest and Posttest Means, Standard deviation, number of participants and significance.

Participant	Format	Mean		SD		N	p
		Pretest	Posttest	Pretest	Posttest		
		Cycle 1 Data					
Rhys	Short Answer	7.29	7.50	1.59	1.55	14	.620
Samuel	Multiple Choice	5.62	5.62	1.32	1.53	21	1.00
Jamie	Short Answer	4.88	7.24	2.19	1.82	17	.002*
Kristin	Short Answer	57.8	69.8	20.4	21.3	19	.007*
Sharon	Short Answer	3.71	5.67	.859	1.71	24	.000*
Mitch	Short Answer	.86	2.52	.910	1.50	21	.000*
		Cycle 2 Data					
Rhys	Multiple Choice	4.59	5.18	1.37	2.19	17	.180
Samuel	Multiple Choice	3.67	6.20	1.99	1.94	15	.001*
Jamie	Multiple Choice	2.33	2.53	1.23	.915	15	.595
Kristin	Multiple Choice	68.3	89.2	14.9	11.4	24	.000*
Sharon	Multiple Choice	4.22	5.00	1.59	1.54	23	.095
Mitch	Multiple Choice	2.05	4.85	1.67	1.23	20	.000*

Note.* p < .05 level.

Interpretation

A concept is defined as an "idea of something formed by mentally combining all of its characteristics or particulars" (Random House Dictionary, 2018), and as such most often involves or even requires more than one singular, simple definition. Grasping the meaning of student transformation is one such example. Multifaceted and layered, the act of conceptualizing transformation in classroom settings brings together the collective processes in facilitating learning: planning and preparation, comfort-level with content, instructor styles of teaching, student perceptions and understanding, instructional methodologies, and assessment practices. Thus, for professors to conceptualize transformation their definitive awareness of their own understanding, practice, and assessment of transformation must be articulated to answer the questions 'How do I know my students may have experienced a transformation?' and 'How do they know they have experienced a transformation?'. In this study, six different professors across five disciplines articulated their own conceptualization of student transformation and shared how their concept of transformation shifted as they explored a transformative teaching pedagogy found to propel students forward on a transformative continuum. The study further explored their response to the transformative pedagogy in their transformative assessment and implementation practices.

Research Question 1

How do professors conceptualize transformation? Is there a change in their conceptualization when they implement a Transformative Experience pedagogy? If so, in what way?

Initial faculty understanding of student transformation. Before implementing TE, the faculty participants defined student transformation in short, broad terms. Transformation was equated with an illuminated thought that occurred when students clearly and suddenly understood challenging content. Rhys and Jamie both shared the belief that transformation involved specific moments of inspiration and clarity. Rhys referred to the moment where "you see the clouds part and they [students] see what needs to be done" while Jamie defined it as the "moment where everything clicks" and that moment varied by individual. Mitch and Kristin viewed student transformation as a change in perspective in their initial definition. Mitch described student transformation as "changing the way they look at the world" while Kristin relied on the "definitive change in a student's perception of something," undergoing a transformative process. Kristin stated "Being exposed to something in content and making a change in their life exhibits a transformation for me."

Samuel agreed that transformation involved shifts in a student's thought, but went on to clarify that it was about the place from which the thoughts originated. Transformation "involves a shift from a precept that we were given that we didn't generate on our own into something that is more applicable that is understanding in society and community." For Samuel, transformation came from a shift in a student's assumptions into their own broadened understanding.

Sharon's initial understanding of transformation expanded beyond a change in student thinking and implied future, directed actions. For her, transformation occurred when the changes in thought brought an awareness that changes in plans needed to occur as well. The student had to be cognizant of the fact that changes in their thinking

could have an impactful reach toward their future. "When they feel like it's changing their path from what they were doing before to what they are going to do now based on their experience that they had…maybe a decision they are going to make that might determine their career." Prior to TE implementation, every participant recognized student transformation as a shift that occurred in a student's thinking or perception, but no one included how that shift was instigated outside of a random flash of understanding.

Initially, the professors shared that while they may provide opportunities for transformation to occur, transformation was ultimately the responsibility of the student. Transformation "was not something I can direct… I can just provide opportunities for it and see what happens with the student" (Kristin, Interview 1, Lines 94-96). Samuel considered transformation so much a part of the student's responsibility that when asked how he would assess a transformation he replied "I don't know that it's my business to do that" (Samuel, Interview 1, Line 409). Mitch responded: "there's no way of knowing if they got it or not" (Mitch, Interview 1, Line 589). While the professors saw transformation as a student responsibility, their role was to offer opportunities with the potential for transformation if the students engaged. Transformation, was something to be fostered and its occurrence was more of the result of happenstance. Should a transformation not occur, the professor had no further contribution.

Assessing transformation was another area in which professors struggled in during their conceptualization of transformation. Samuel,

belonging in the untrained category of engagement, began the research adamantly declaring it was not his place to assess transformation. "I don't think it's right to…how could I? That's a subjective thing" (Samuel, Interview 1, Line 407-409). Yet participants in the compliant and engaged categories also struggled with assessing transformation. Both Kristin and Sharon described their challenges when assessing how much a student had transformed. Kristin states, "I think it's hard because you have, you're either exposed, integrated or transformed. But there's not any room for a grey area. So I think it's a continuum, the scale, and not these definitive like, you're one or the other, or the other…I don't know how to fix that" (Kristin, Interview 1, Lines 315-324). Sharon exclaimed "It's so hard to figure that out as a professor. Why is it so hard?" (Sharon, Interview 1, Lines 365-366). Kristin also implied that students could experience transformation in areas that were not observed by her, and she would never know that a transformative shift had occurred. "A student may undergo a transformation in leadership or in civic duty or something that we may never actually know about. It may be an internal process. (Kristin, Interview 3, Lines 498-500)

Faculty conceptualization after first implementation cycle. After implementing the first cycle of TE, five of the six participants changed their conceptualization of student transformation to include the student as an active participant in the process. Transformation was expanded from a-ha moments or enlightened student understanding to including a student's personal awareness of their changing perspectives. Rhys described this added element as "having a student make

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that change, not because you told them to, but because they realize that's what it should be." Samuel's definition concurred stating "students gaining awareness from little interactions to where they can move it into implementation….for me, its seeing the need for the difference." Jamie stated, "it's changing their way of thinking how they do things." Sharon defined the student process as "rethinking how they view the world" and "thinking about plans they are going to do differently." Mitch recognized the student's role in the transformation by including transformation as a "change in way they perceive themselves involved in the subject" and not only in the way they view the world. Including a student's personal awareness in their change in perception constituted a shift in faculty conceptualization of transformation after the first cycle of TE implementation.

Although Kristin still considered transformation a "change in perspective," implementing TE helped her change her conceptualization of transformation. Prior to the first cycle of implementation, Kristin understood transformation as a result of a large-scale life event. Her conceptualization shifted as she now saw transformation in her students through "a change in experience. It can be a small experience, change in experience, or a small change in perspective." This shift in her conceptualization of student transformation allowed her to easily see her students experiencing transformation in relation to her content. After utilizing UCV journals and scaffolded discussions, she feels "like we can see those little transformations" (Kristin, Interview 2, Lines 484-494).

Implementing TE began to change the participants perception that student transformation was happenstance. Rhys had never thought he could direct students'

thinking towards a transformative change prior to implementing TE. "I really think it's just…, me, [*sic*] realize that if I make this motivated, this actual effort in doing this, I can elicit more, at least hopefully more of a response in them rather than just flying by the seat of my pants" (Rhys, Interview 2, Lines 124-127). Sharon had a similar experience. "It's helping me help them be more intent on what they are seeing and learning instead of what they are just guessing, or assuming" (Sharon, Interview 2, Lines 978-979).

Faculty conceptualization after second implementation cycle. After completing two cycles of TE, each faculty member's conceptualization continued to expand. Rhys recognized that transformation happens for a reason and it can bring an element of control back to the student.

> I think the first definition I gave was just noticing the "a-ha!" moment of when a student finally catches on with something…it's kind of like that, but I feel like I've verbalized it much better…of not just seeing something click…but something clicks, they [students] realize that it clicks and they realize that if they keep doing this, or hopefully if they keep going down the same path, they are going down now or maybe changing what needs to be changed, that can continue to happen. (Rhys, Interview 3, Lines 604-610)

Samuel's conceptualization of student transformation expanded to include two specific segments. Successful transformation would include a student beginning to question "why they do what they do, or why they think what they think, or why they feel as the way they feel" to discover their reasons for the assumptions and beliefs they currently hold. Full blown transformation compels students to make changes because of the answer to the "why" questions they are asking of themselves. "For me, successful transformation would be just getting that first question going. Just getting

the why. Full blown transformative experience would run the gamut of all their questions and figure out who they are and make changes of themselves." Samuel described his difference in his perception of student transformation after the first cycle of TE as "seeing the real impact instruction can have on them" (Samuel, Interview 2, Line 256). He continued, "I do think if, as an instructor, the effort of transformation is more intentional in my approach to teaching, then the effort of transformation will be more recognizable by the student on their own" (Samuel, Interview 3, Lines 407-411).

After the second cycle of TE both Jamie and Kristin expressed changes within their conceptualization of student transformation from witnessing transformation from much smaller, content-centered experiences. Jamie stated "I look at it again as it doesn't have to be a big, huge change…the little changes can still transform and it might be just a little bit of chipping away at it and then it eventually becomes something that's big." (Jamie, Interview 3, Lines 1049-1050) Kristin's shift in conceptualizing student transformation still included student reflection: "…but they don't have to be these huge moments of transformation." (Kristin, Interview 3, Line 996)

Sharon's definition of student transformation began to include the value that a student holds for the experience. "I feel that student transformation is when the student can take a situation, or concept, or topic, apply it to their life…and see its value and what they might need to do to either work with it or against it, whatever direction they need to go." (Sharon, Interview 3, Line 587-588) The value ascribed to the experience may lead them to new courses of action. Recognizing a student's intent to act or actions already-in-place are a new addition to Sharon's conceptualization of student transformation. "If they stop and say 'this is what I know, this is what I value, that's

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not far enough. We've got to move it a step further to – so now - what?'" (Sharon, Interview 3, Lines 870-871).

Mitch's conceptualization of student transformation was validated through the TE implementation. He witnessed students truly internalizing the content by observing the student discussion from their journals. His definition of student transformation still included changes in the way students think, but his confidence and affirmation in observing transformation in his students had solidified. Their awareness of their own change brought confidence to the students in return. Mitch's initial skepticism regarding the authenticity of student reflections shifted to confidence through the two implementations of TE. "[TE] gives everybody a chance to have their moment to really see it" (Mitch, Interview 3, Line 533). His confidence in knowing the students were grasping the concepts grew when he heard students collaborating with other students when discussing and evaluating examples. He referred to the process as "transformative training wheels" because the students were engaging with the content and with each other. He was able to sit back, observe the interactions, and then to assess who had a firm grasp on the content and who was struggling. He did not have to worry if his presence caused a change in the dynamic of the conversation. "If I do it, they view it as it comes with a big judgment attached, whereas when their peers do it amongst themselves and share it more organic, like 'We did it!'" (Mitch, Interview 3, Lines 540-552).

Over two cycles of implementation conceptualization of student transformation altered to include a student's cognizance of their changing perceptions. While students may still have an "a-ha!" moment when everything clicks in their understanding, they

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have a higher potential for transformation when the intentional persistence from professors asks for change and value is present. The faculty participants changed their conceptualization to include not only the student awareness but their own role in intentionally directing students toward transformation. They discovered that for transformation to occur, a collective effort involving both teachers directing students in experiences with content and students engaging with content in their everyday life.

Research Question 2

How does response to Transformative Experience pedagogy vary for faculty who have differing initial buy in and experience over two implementations of Transformative Experience pedagogy? Is there a change? If so, in what ways do they change?

Impact of intentional transformative pedagogy on instruction. Across all six participants' experiences, TE implementation allowed them to see the impact of their intentional instruction on student transformation. Depending on the initial understanding of student transformation, professors saw varying depths of transformation in their students. In every case, TE pedagogy moved students toward having a transformative experience. Statistical analysis of the TEQ indicated that eleven out of the twelve instructional units taught throughout the two cycles of TE implementation showed movement toward transformation, with nine of the tests having large to very large effect sizes (Appendix I).   These impressive results prompted an in-depth look at the nuances in each professors' experience. Discovering the modifications made by the professors during their instruction with students developed a broader understanding in using TE as a transformative pedagogy.

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Professors who had experience integrating transformative teaching practices into their classes prior to study participation were found to have higher effect sizes as calculated from the TEQ dependent samples T-test in both implementation cycles (Appendix I). Effect size represents the magnitude of the phenomena (Sullivan and Feinn, 2012) thus making it a reasonable tool for analyzing the differences among each professor's experience. In this study, while student scores cannot be compared across participants, the effect sizes triangulate with the interview and field observations as to which participants' students experienced the most impactful transformation. Comparing the variance in the implementation methods of the faculty participants allows for key differences to be noted. Results indicate that faculty participants in the compliant and engaged category yielded larger effect sizes than those in the untrained category and were consistent over both cycles of implementation. Participants in the engaged category (Sharon and Mitch) and in the compliant category (Jamie and Kristin) increased the effect sizes in their second implementation their second cycle of TE with Sharon, Kristin and Jamie moving from a large effect in Cycle 1 to a very large effect in Cycle 2. When comparing the effect size with the semi-structured interviews and field observations patterns emerge that may offer an explanation for this increase.

Student engagement. Student engagement with content is an essential component for transformation to emerge. Without students seeking examples of content in their everyday lives, movement toward transformation will not occur. Participation in class discussions, investing through completing the UCV journal, and class attendance are three ways that engagement was impacted in this study. Samuel and Rhys, both in the untrained category, struggled with students completing the assignment

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outside of class. Samuel's first UCV journal discussions had student groups in which one or none of the students had completed the assignments. By the last journal in the second cycle, only three students in the entire class had completed the UCV journal assignment, suggesting an explanation for the cycle's non-significant statistical result (p = .609) With only three student examples, Samuel chose to facilitate a large group discussion instead. Without the small group scaffolding, students were precluded from hearing other examples where students contributed to the discussion of how change in perception and experiential value for content was shifting. Without student engagement, the potential for transformation becomes limited. In Rhys's experience, students became less engaged in as the second cycle of implementation progressed. Students came to class without completing the UCV assignment or minimally participated in the UCV discussion. While enough students were engaged in the process to suggest transformation occurred in the second cycle (p=.001) the effect size was small. Without Rhys interjecting the UCV language and scaffolding the small group discussions toward change and value, the students enjoyed the activity but did not move into deeper, more critical thinking. Additionally, attendance for both Rhys and Samuel was problematic, meaning that students missed the interaction of the UCV journal assignment and the ensuing class discussions.

Modeling transformative experiences. Modeling a transformative experience was crucial in connecting students to the value of the content. Sharing a personal transformative experience with content that included how a professor's own perceptions were changed and their own ascribed value not only built community in the class with the professor, but it also demonstrated how the content was relevant to their own lives.

Rhys' examples of his own transformative experiences with content helped signal to the students that the content mattered and warranted their attention. The students joking with Rhys about the metaphor showed that they were engaging with the content outside of the normal lecture. Rhys, Jamie, Kristin, Sharon, and Mitch all recounted how their examples were essential in communicating the metaphor to the students. For Kristin, Jamie, Sharon and Rhys, the greatest challenge faced in the second implementation was determining the best experiences to share with their students.

Assessment of transformation. Assessment became a shared responsibility between students and the professor. Students participating in small group discussions had the opportunity to scaffold learning for each other and assess their own progress. Mitch observed students engaging with content through the group discussions. Hearing other students' examples brought confidence and affirmation to individuals in understanding their own growth in their content knowledge and ability to apply the knowledge in real world situations in an "organic" and natural way. "When they talk to the other students, their peers, it's like "Oh, no. This is how it works." They relate to each other without that confrontation [of the professor's assessment.] It really, it just – it works in a way that I can't do it because of my role." (Mitch, Interview 3, Lines 548-552). Kristin was surprised by the motivation of the students. She knew they would do the assignment, but did not anticipate the level of excitement they brought as they bought into the process.

> …not just when I was there, but having conversations within their groups where I wasn't just standing next to them, but really discussing these examples with their groups… and getting feedback from each other, and not just myself…I could hear other groups and they were actually doing the assignment. (Kristin, Interview 2, Lines 183-189)

Jamie witnessed students scaffolding for other students when one student had trouble seeing how his interaction with the content in everyday life was changing his perspective. Members of his small group were helping him see how the content related to more than his own personal endeavors with creativity and he could see the content in a perspective broader than his own life. He left the class saying he would look for other's examples of creativity everywhere. (Field Observation, Cycle 1, Day 3).

Impact on planning and instruction. Professors who wrestled with selecting their stories and examples of their own TE articulated that the process of framing their experiences changed the lens in how they viewed and delivered their content. Samuel discovered his own transformative experience when he realized the marked difference in student engagement directly resulting from a change in his delivery. In an effort to cover content quickly, he switched from the TE pedagogy to a "stand and deliver" lecture. "All I can say is I see it now…I don't know if that's normal or if that's situational, but either way, it tells me that I've got to do something else" (Samuel, Interview 2, Lines 257-261). Kristin looked for examples that would show her students exactly what she was asking them to look for out of their own experiences. Sharon realized teaching the same topics for many years developed patterns, assumptions and gaps in her teaching that "you just want to stick to because it's easier" (Sharon, Interview 3, Lines 30-31). Sharing her own transformative experiences made her approach her content from a different perspective. Instead of assuming her previous practice was what she needed to do, TE implementation made her contemplate "what I needed to teach… instead of just assuming and just going with what I'm used to going with, I had to rethink things" (Sharon, Interview 3, Lines 44-45). Jamie also struggled

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with her examples. Once her initial anxiety of facilitating something new abated, the

lens in which she viewed her planning process and her content delivery changed. She

planned with a concept web instead of an outline, which surprised her. She developed a

PowerPoint that was flexible and not sequential. Both of these changes made her realize

before implementing TE, her classes -while interactive-were content discussion based.

TE shifted her instruction to include how students were constructing their own

relevance for the content.

> I wasn't asking them…to relate it back to other aspects of their life. So, I mean,
> that's – that's a big difference. So then thinking back it's like - so what I was
> doing, it was discussion. That would mean if you think of like, this little
> continuum, it was further over on the continuum, the discussion, it wasn't
> lecture, but this even pushes it further away, just that - them making connections
> to their own lives. (Jamie, Interview 3, Lines 563-569)

Mitch also saw changes in his practice as he restructured the PowerPoint presentations

to include his examples before the content. Before TE, he would cover content first

before sharing his photographs and stories. Having never done anything like TE before,

Rhys became aware he could help direct students' thinking toward their skills as a

mathematician, and not computation alone. Every participant underwent their own

transformative experience through the two cycle process.

Use of transformative experience vocabulary. Professors who directly

engaged with students using the UCV vocabulary during the re-seeing process saw a

very large effect size change from Cycle 1 to Cycle 2. Jamie, Kristin and Sharon

directly interacted with their students using UCV vocabulary during the small group

facilitation time. In addition to the formative assessment practice that confirmed

students were understanding the concept, Jamie, Kristin and Sharon constantly asked

their students to articulate how their experiences with content outside of the classroom were making a difference in their perception of the content and defining the experiential value created from recognizing the changes they were making in their thinking. The consistency of the professor in questioning students about their use, change, and value guided students into deeper levels of critical thought and engagement on an individual level and in the small groups. Starting with their own examples, students had to engage in the critical thinking process to answer the questions for change and value. Sharing their example with the professor and going through the re-seeing process not only clarifies the process and content understanding, it allows for students to hear multiple examples of the content in relevant and meaningful ways. Collectively sharing their experiences with content outside of the class also built the expectation that the students would be learning from each other. As students completed subsequent UCV journal assignments and discussions, students elaborated more on the change and value sections of the journal, placing less emphasis on what they saw in their everyday life. The enthusiasm and excitement from the students to share their journals led to an expectation that they would leave the class having gained something worthwhile to retain. Kristin observed this change in through emails from students missing her class asking for outside of class meetings to cover what they missed. Mitch was completely surprised by the engagement of the students. Jamie experienced students retaining the content as her students continued to bring up examples from the first metaphor throughout the remainder of the semester. Overall, when students experienced deep engagement with content in meaningful ways, they continued to connect their learning.

Student-centered facilitation. Participants in the compliant and engaged categories of engagement tended to be more open to student-centered facilitation in their classes. Content delivery was framed in the form of questions and facilitated through guided discussion in which the students were allowed to lead. Content was accessible and directly available to support student discussions and counter misunderstandings, but the way it was delivered was not teacher-directed. Jamie, Kristin and Sharon in particular, framed content and facilitated discussion through the TE pedagogy by way of their personal stories, questions, and by connecting discussion back to content in ways that were constantly encouraging and evoking critical thinking from their students. Jamie's fluid use of her PowerPoint led her to comment "it really was flexible in the way we didn't just go thru the slides...to me, this is how PowerPoint should probably work" (Jamie, Interview 3, Lines 65-67).

Although each faculty participant varied in their implementation of the pedagogy, their experiences over two cycles of TE implementation shared common characteristics in changing their intention, modeling, and assessment of student transformation. A new lens for planning and delivering content was awakened in the participants that fostered not only transformation in their students, but transformation in their own praxis. While the extent to which changes in praxis occurred varied, across all the participants, a need to shift their current practice was recognized.

Discussion

This study explored the experiences of six university professors implementing two cycles of TE pedagogy into one of their courses. It offered insight into each professor's conceptualization of student transformation and the changes that expanded

their previous definitions. Implementing TE provided a magnified view into their

experiences with the pedagogy and identified instructional methods found to foster

student transformation. This study overwhelmingly found the Transformative

Experience pedagogy is an effective strategy to foster transformation not only in

students, but in professors as well. Movement toward a transformative experience was

well documented regardless of discipline, classification of students, or their current

teaching style.

Purposeful Effort

Transformation happened in the study when professors initiated a purposeful

effort to guide students in transformative thinking and the student engaged in the

process. Realizing that transformation could be directed as a part of class activities was

new for every professor in the study. Before implementing TE, transformation was

often considered magic, or happenstance. Yet after implementing two cycles of TE,

every professor discussed their realization that engaged students could be directed

toward transformation through their intentional facilitation of the UCV journals and

discussion. Even though the scope of the intentional effort of professors varied in the

study, when intent was met with student engagement, the impact on student

transformation increased.

Student engagement in transformation increases when professors specifically

inject scaffolding with students during the small group discussions. Professors who

scaffolded the re-seeing process with students used the student-led discussions to frame

the whole-class content instruction. This step allowed the students to approach new

content already framed by their personal engagement with content. Having the small

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group sessions without the direct scaffolding still fostered transformation, as seen through Mitch and Rhys' experience. Mitch used small group discussion where the students facilitated their own conversations and he did not engage with them in conversation. Rhys actively participated in the small groups, but did not promote the UCV vocabulary. In both cases, transformation still occurred, but with less of an impact than if the UCV vocabulary had been scaffolded.

Levels of Intentional Transformative Implementation

This study suggests that students moved toward transformative experience with content transform when intentional effort was given by the professor. Moreover, the degree of the professor's intentional effort, however, may impact the size of the student transformation. In this study, the most impactful student transformative experiences -- as evidenced by the effect size of the TEQ t-tests -- happened when professors deliberately engaged in the re-seeing process in the small groups using UCV vocabulary (use, change, and value).

When professors facilitate small group discussions student engagement in content occurs through individual and collective processes (see Figure 7). The individual student UCV journals share insight for professors to gauge how students are internalizing the content. The small group discussions allow for individual student conversations and peer-to-peer feedback that helps construct understanding and valuing of the content in real-world experiences. Large group discussions continue to provide more opportunities for experiential value when the content is woven into the discussions. This is particularly the case when professors are comfortable allowing the student discussions to guide the instruction. This flexible sequencing in their

presentation of content encourages students to become active participants within instructional decisions. Thus, when students are engaged in both individual and collective ways through the UCV discussions and through the deployment of UCV vocabulary, the potential for a sizeable impact on student transformation transpires.

Flexible sequencing of content is much easier in theory than it is in practice. In this study, Jamie and Sharon were the only professors to utilize such practices, and their use of flexible sequencing in their PowerPoint presentations came from the organic and natural flow of the conversation. Professors who primarily use teacher-directed content delivery may struggle with allowing their students this leeway during UCV small and large group discussions. Addressing the effectiveness of flexible sequencing in the teacher professional development may help professors persist as they become more comfortable implementing TE into their course. It is important to note that while TE has been shown to foster transformation in students and create a new lens for how professors view their own content, it does not replace the delivery of content. TE benefits instruction by deepening student engagement with content, which enhances the students' perceived value.
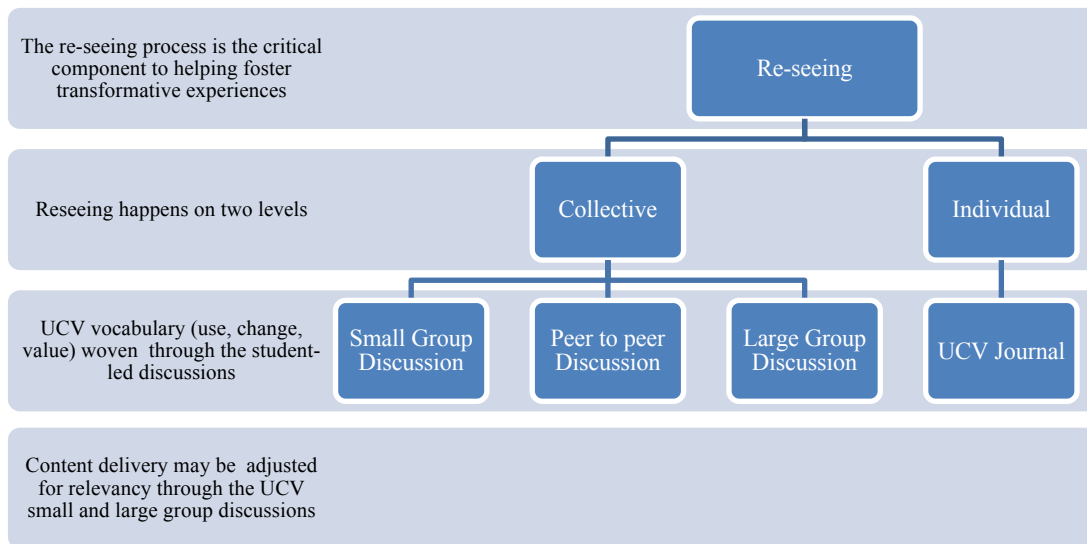
Figure 8. Model of re-seeing process. This figure shows the individual and collective possibilities for engagement of students with content during the scaffolding process.

Assessment of Student Transformation

At the end of each semester, the instructors in this study were encouraged by their University to report the degree to which individual students in their classes experienced transformation during the semester. Prior to their research participation, professors found assessment of student transformation challenging for several reasons. First, assessment tended to be based on written critical reflections due at the end of the semester, leaving little time for feedback loops to occur between professors and students. Waiting until the end of the semester to receive the student's account of their growth over the semester delayed the professors assessment and limited how much could be assessed throughout the course. There was also skepticism on the part of professors as to the authenticity of the writing, noting possible pressure for students to

write what they felt the professor wanted to hear, instead of providing a clear account of any transformative movement that occurred.

Further, professors were instructed by the University to classify student change as indicating one of three designated levels of transformation: exposure, integration, or transformation. The use of standard categories was intended to produce consistency in assessment across instructors, but also presented problems when a student's transformation did not rigidly fit in one area alone. These "grey areas" (Kristin, Interview 1, Line 319) between categories made it difficult for instructors to categorize a student's transformation on the basis of the critical reflection alone. TE provided professors with more clarity and documentation into a student's level of transformation, aiding professors in their assessment practice.

When TE was implemented in this study, professors with experience assessing student transformation in their courses found that the assessment process became clearer with evidence from UCV journals and discussions. TE affirmed and documented that transformation was happening in multiple ways. The written student responses to the UCV journal entries documented the student's engagement with the content and the ways in which their perceptions were shifting. The UCV small group discussions allowed for the professor to observe shifts in student thinking. These small groups also gave practice, or as Mitch implied "transformative training wheels" (Mitch, Interview 3, Line 540) for students as they experimented with their own perceptions and how other student's examples helped to hone their understanding of the content through numerous real world examples. Finally, the large group discussions continued to give students the opportunity to experience the scaffolding process, providing feedback to the professor

on how the students were changing, particularly when the student-led discussions

crafted the sequence of the delivery of instruction.

Pedagogy Malleability

The current findings attest to the malleability of the TE pedagogy to different

disciplines. In this study, courses in mathematics, business, social science, forensic

science, and education were all represented suggesting that TE can be adapted to a wide

variety of disciplines. While for some disciplines it may at first appear to be more

complex to implement transformative teaching practices due to the sequential nature of

the content, it is important to remember TE, at its core, promotes student engagement

with content. When examples of content applications are deliberately found by students

outside of the classroom setting, TE can be utilized in order to help students engage at

content in deeper levels of critical reflective thinking. When students ask themselves,

"how is this content making a difference for me?" and "what value do I have for this

content now?" they are engaging in critical, reflective thought. Rhys shared that he

directly addresses this process when answering the question "What can I do with a math

degree?"

> People come by and say "what can I do with a math degree?" or "Why should I
> do math?" and you know, it's hard, because we say you can do anything with
> math, but *why* [emphasis added] can you do anything with math? Ah, its, not
> always about the calculations. I mean, the calculations are great, but maybe
> more so, the answer I give is if you can succeed at math, you have those critical
> thinking skills. You know, if you can sit down and solve a complex math
> problem, then you can probably sit down and think of some other problem
> someone gives you. And so it's not just about the mathematics, but it's about
> the critical thinking skills that mathematics gives you. (Rhys, Interview 3, Lines
> 697-706)

In this study, the disciplines in which TE was implemented did not hinder the success of those implementations. While it may have caused professors to rethink their practice in the beginning, the intentional effort to assist students to engage deeply in content brought the potential for student transformation. TE provided a systematic, organized manner for introducing transformative teaching practices into a range of undergraduate-level university courses.

Overall, Transformative Experience was found to be a replicable pedagogical practice for fostering transformation. It removed ambiguity from "critical reflection and discourse" that was questioned by critics of Transformative Learning. It provided a directed approach from professor to students and asked students to specifically engage with content in deeper, more critical structures. Student responses to TE pedagogy provided not only documentation of a student's evolution of thought, but also confirmed for the professor whether transformation was occurring and how students were progressing in their transformation through student engagement with content. Additionally, when TE was a repeated practice, professors and students became more comfortable planning and participating in the pedagogy.

Limitations

As with any study, limitations were encountered that impact the outcome. This study was conducted at a university with a direct emphasis on transformative learning for their student population. Professors at the university have access to resources and support that may not exist in other locales. Conducting the study at universities with a different infrastructure or campus culture when implementing TE could yield

confirming knowledge of the impact of TE in fostering transformation for students and for professors and the malleability of the pedagogy.

A second limitation was related to the posttest content tests. In this study, the posttest was administered at the same time as the TEQ survey due to the research timelines. As a result, the entirety of the content instruction included in the pretest may not have been covered in class at the time of the posttest. Although professors in the study found a richness and depth in the UCV discussions, the engagement of students impacted the pace of their intended content coverage. This undermines the validity of the posttest scores as an indicator of content learning. In future studies, considering the sequence of the content and the timeframe of the posttest administration would allow for flexibility in scheduling the posttest administration. Perhaps separating the posttest administration of the TEQ survey from the posttest content administration would allow for the flexibility exercised by instructors to adapt the pace of their content delivery based on student engagement.

Another limitation occurred in the homogeneity of faculty participants. While faculty participants came from different colleges, every faculty member identified as Caucasian. Providing diversity in the participants was ideal in the research design, but limited in execution when the practicality of the research recruiting timelines were considered. Future studies should consider a more diverse representation of faculty members for participation in the study and would need to adjust the time involved during the recruiting process to meet such specificity.

Student participants contributed to the limitations as the majority of students were female. While this was unavoidable due to the recruitment of students from naturally occurring enrollment lists, future studies could consider the impact a more equal ratio of male and female students would have on the TEQ survey.

The timing of the TE implementation during a regular sixteen-week semester is also a limitation. Participants enrolled early in the recruiting process were able to select which weeks worked best within their semester schedule to implement the TE pedagogy. Faculty members recruited later in the study had less flexibility and were limited by the date of the semester. Some faculty were implementing over scheduled holiday breaks, while others were limited to the first few weeks of class to meet the research timeframes. Additionally, it should be considered that the ebb and flow of a semester yields some weeks are less likely to for students to engage than others. For examples, asking students to look for examples of content in their everyday life in the same week when several courses have exams may cause students to be less engaged in TE process than the week after.

Future Research

This study found TE to be a pedagogical practice found to foster transformation for students and professors in multiple disciplinary areas. The faculty participants in the study varied in their years of experience and in their levels of engagement with transformative teaching practices. Future research may want to explore the years of teaching experience more in depth. Discovering the experiences of professors with less years of experience who perceive themselves at the 'engaged' level of engagement may help determine if TE is impacted by experience or by perceived level of engagement

when compared with professors with both experience and perceived engagement in transformative teaching practices.

The study also revealed new avenues of research in transformative experience that encourage further investigation. The malleability of TE pedagogy extends to courses in business, psychology, mathematics, education and forensic science. Further expansion in a variety of disciplines will continue to determine the reach of TE outside of its origins in science education.

Discovering the levels of intentional transformative implementation (see figure 7) through independent and collective methods during the reseeing process could be explored in greater depth. The professors in this study varied in their implementation of the reseeing process during small group discussions. Mitch did not engage with students during the small groups, but did scaffold their experiences through large group discussions. Rhys interacted with students during small groups, but did not use the UCV vocabulary. Further investigation into the role that UCV vocabulary usage by professors as well as their presence during scaffolding processes could define professor practice that is essential to student movement toward a transformative experience.

This study was the first study investigating repeated cycles of transformative experience pedagogy. Participants indicated the cumulative effect of small transformative experiences may lead to larger scale transformative learning transformations. Investigating the implementation of TE over longer intervals of time than two cycles of implementation could confirm TE as a pedagogical practice that leads to student transformation.

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Appendix A: Interview Protocols

Professional Development Attendees Survey

Basic Survey information

> Gender

> Age

> Race

Experience teaching at the university

> First year

> 1-2 years

> 3-5 years

> 5-10 years

> 10-15 years

> 15 + years

Years teaching at UCO

> First year

> 1-2 years

> 3-5 years

> 5-10 years

> 10-15 years

> 15 + years

Highest Level of education

> Bachelors

> Bachelors + graduate hours

> Masters

> Masters + graduate hours

> Doctoral Candidate

> PhD.

Professional degree (Medical School, Law, Business).

Course teaching during research study

Location of course on campus

Time class meets

How long have you taught the current course in which you want to implement transformative pedagogy? _____ Years/ Semesters (circle one)

Have you taken STLR training? No/ Yes   If yes, when?
_____

Which Center for Teaching and Transformative Learning Resources do you use? (check all that apply)

        Journal of Transformative Learning

        Attending the Yearly Transformative Learning Conference

        Transformative Learning Resources Web Page
        (www.uco.edu/academicaffairs/cettl-tl/transformative-learning-resources.asp)

        Transformative Teacher Scholar Blog

        CETTL Hardcopy Library

        CETTL Resource Repository

Attended any CETTL training No/Yes   If yes, what was the training and when did you attend?

Attended any TL Conference No/Yes   If yes, when?_____

College on Campus

Department

Best contact information for member checking and follow up

Email

Office phone

Cell phone

Department administrative assistant (name, phone number)

Questions for professional development participants:

My teaching practice includes: Check all that apply

Students working in small groups

Student presentations

Discussions with the entire class

Student led lectures

Teacher led Lectures

Scaffolding student experiences

Encourages student interaction

Reserving time for student questions during class

Modeling examples for students

A combination of student centered and teacher centered

Please rate your use of the following teaching practices.

Lecture and have students take notes

Use collaborative small groups

I am more comfortable when

Students are more engaged in the class and ask questions based on their study and research.

I ask students questions to demonstrate their understanding.

In your own words, describe student transformation.

In your own words, describe how the discipline you teach fits with the concept of student transformation.

What is your own experience teaching in ways that could encourage student transformation?

How would you describe a class that fosters student transformation?

How would you describe your own comfort level with teaching for student transformation?

Do you foster student transformation in your classroom?

What does that look like?

Are there barriers to teaching for student transformation?

If so, could you describe them?

If not, why do you think so?

Open ended survey questions on Qualtrics:

Why do you want to come the TE training?

What do you want to learn?

What questions do to you need to ask?

What do you want to leave training knowing?

Recruitment: Professional development in Transformative Experience is offered in conjunction with a qualitative research study conducted by Alissa Crawford for her doctoral dissertation. The qualitative study involves implementing Transformative Experience pedagogy into two units of instruction over the Fall semester. A time commitment involving three, one-hour, face-to face interviews, six classroom observations by the primary researcher, short journal responses, and pretest/posttest data collected from your students. In addition to the professional development sessions, research participants will receive one-on-one collaborative planning time with the researcher to prepare TE lessons, continued support and collaboration throughout the semester, as well as feedback on the implementation process. Open lab sessions would be available for additional collaboration time to help design and complete preparation for instruction with students.

Incentives: Each faculty participant will receive a $50.00 amazon gift card upon completion of the study requirements.

Study Requirements: Yes/ no include a space for comments or questions

Do you teach face to face classes on the UCO campus?

Do you design and facilitate my own coursework?

Would you be I willing to implement TE pedagogy in one of my courses for two units of instruction in one class for one semester?

Would you be willing to participate in 3 face-to-face interviews?

Would you be willing to write and submit an electronic journal? (Specific prompts will be given for you to answer for each journal. A total of 8 short entries over the semester are requested).

Would you allow a researcher to attend your class and record observations six times during the semester?

Would you adapt two teaching units to include a transformative teaching pedagogy?

Would you be willing to instruct students during scheduled class time using the pedagogy for two units of instruction during the semester? (Typically three class sessions per unit)

Am I willing to participate in follow up interviews?

Research Participation: Would you be interested in participating in a dissertation research study over the Fall 2017 semester? Participants with a variety of comfort levels with student transformation are sought for this study. Whether you find fostering transformation in students a perfect fit or if the thought of teaching for transformation makes you want to throw a fit, you might be the perfect participant in this study.

Initial Interview: After Professional Development training

<u>Personal Level Questions</u>

My own teaching

How would you describe your teaching?

What is my most comfortable style to teach?

How comfortable are you in facilitating student discussions?

How comfortable are you in student-centered classrooms?

How do I feel when students bring questions and I don't have all the answers at my fingertips?

Student Transformation

What is my definition of student transformation?

If I were to ask you, 'Am I teaching for student transformation', how would you respond? Would your students know this is your intention?

Framing Content

What do you usually do to help students understand content?

How do I help student have context and purpose for learning?

TE asks students to find examples of content in their everyday life outside of school. Do you look for the concepts that I teach in my everyday life outside of the university? Why or why not?

<u>Pedagogical Level</u>

Teaching for Transformation

How would you describe your current transformative teaching practices?

What teaching practice do I already incorporate into my classes to foster transformation?

Do you have students write a critical reflective piece at the end of the course? Why or why not?

How do I assess student transformation?

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How do I document student progress toward transformation?

How involved are the students in deciding their own progress toward transformation?

TE Professional Development

From the TE Professional Development, what aspect of the implementation do you think will be most helpful for you as a teacher? Why?

What aspect will be most helpful for your students? Why?

How will TTES help me frame content for my students?

Impact of TTES/UCV Pedagogy

What do I anticipate TTES/UCV impacting:

 in my planning?

How will you select which units of instruction to implement TE?

Do some units

In my interactions with students?

In my teaching?

In my assessment

Anything I am looking forward to during the implementation?

Anything I think may be challenging or uncomfortable?

Anything else?

Reminders for next time: Check timeline and schedules. Determine when you can come get informed consent with students

Semi Structured Interview 2 (after cycle 1 completed)

Procedures:

Welcome them back to the interview

State date, time and location of interview and (pseudonym) of participant.

Thank them for filling out their journal.

Instructional and Assessment Practice:

You've finished one cycle of TE implementation. Tell me about it.

What did you notice during the first implementation cycle? In terms of:

    Preparation?

    How did you decide on the content to implement TE?

    How did the preparation and facilitation of TE compare with your previous practice?

    What did you notice in your planning to use TTES?

    Instruction?

    How did this compare with the actual facilitation?

What did you think was going to be challenging in the facilitation of TE? What was actually challenging?

    What was surprising?

    Was anything frustrating?

    Was anything enjoyable?

How is this different from what you were doing before?

Student Interactions

What did you notice about your interactions with the students?

What did you notice about your students during the TE lessons in this first unit? What did the students actually do?   Was this a change from your previous practice?

Assessment

What are you looking for from students to assess student transformation?

Were these criteria present in students participating in TE? Why do think so?

As you prepare for your next lesson implementation using TE, what do you want to remember from this time to improve your next facilitation?

What do you want to change/ adapt/ shift?

What would be helpful for your preparation?

What is challenging your preparation?

Are there any limiting factors that you anticipate to implementing TE in the next unit?

What questions do you have after completing one cycle of TE?

Perception of Student Transformation:

What is your definition of student transformation?

How do you see TE working with student transformation?

What did you notice in your students when they were using the TTES/UVC pedagogy?

Are these observations congruent with your understanding of student transformation? How so? If not, can you elaborate?

What are your thoughts about student transformation after facilitating one cycle of TE?

Anything Else?

***Reminders for next time: Check timelines, make sure dates haven't moved due to semester changes.

Have you scheduled the second Pre-test two weeks before the unit?

Semi Structured Interview 3 (after cycle 2 completed)

Instructional and Assessment Practice:

You've finished your second implementation cycle of TE, tell me about it:

How did you prepare for this cycle?

Tell me about facilitating this time. What worked? How did the changes you made from the first cycle make a difference in this implementation?

What was easier for you in the second cycle?

What was different?

Were there challenges? Could you describe them? Are they new challenges or continued from the first cycle? How would you anticipate addressing them if you were to implement another cycle of TE?

Tell me about the students and their experience in this implementation.

What have you noticed in your teaching after implementing TTES/UCV with students?

Has your teaching shifted from implementing TE in your course?

Has anything surprised you?

Was anything frustrating? Enjoyable?

How is this different from what you were doing before implementation?

Did TTES/UCV discussions bring changes to your teaching practice?

Do you think the TTES method helped you implement transformative teaching techniques into your courses? If so, how? If not, would you elaborate?

Are you seeing student transformation? If so, how? How are you assessing student transformation at this point? Are the students assessing their own transformative progress?

What observations can you share about TE Pedagogy regarding your assessment of student transformation?

Perception of Student Transformation

What do you notice about your students now that you are more familiar with TE implementation?

What are you seeing in your students through their participation in TE pedagogy (TTES/UCV discussions)?

What are your students saying about their learning?

How are they engaged in their learning, or are they?

Is this contributing to how you see them transforming?

Do you think these practices of implementing active use, expanded perception and experiential value encourage students to be involved in their own personal assessment of transformation?

How do you anticipate these experiences impacting the students' critical reflection at the end of your course?

How is their discipline knowledge growing?

We know that student transformation and the acquisition of discipline knowledge are different, yet connected by mastery of skills. Has TE helped students make this connection? How have you seen this happen, or not seen it happen over the two units you've taught this semester?

Do you think TTES/UCV contributes to student transformation? In what ways?

How does the level of transformation you are seeing in this class compare with previous classes?

What is your definition of student transformation after implementing two cycles of TE? How has this shifted from before you implemented TE?

If you had to describe this pedagogy to a colleague who was struggling with student transformation as a viable concept for their discipline, what would you tell them about TTES?

Anything else?

Reminders: Sincerely, Thank faculty member for participating in the research. Give gift card Get any follow up information you might need for member checking.

Appendix B: Proposed Journal Prompts

Initial Journal Response

Personal:

      Now that I know about TE, I want to…

      I think student transformation…

Pedagogical:

      In thinking about my content, planning, time, I think TE will make me….

During Cycle 1 Implementation

Day 2: Personal:

      I think…

      I need….

      I want to ask….

Pedagogical:

      My students are….

      My students need….

Day 3: Personal:

      I changed…..

      After three days of TE implementation I've noticed that I.....

Pedagogical:

      I noticed that my students….

      I want to remember for the next cycle…..

      I think student transformation…

Cycle 2 Implementation

Day 2: Personal:

    Today was….

    I think…

    I need…

    I want to ask….

Pedagogical:

    My teaching….

    The changes I made from last time…

    I'm planning to….

Day 3: Personal:

    I'm wondering…

    My students….

    I think student transformation…

Pedagogical:

    My teaching…

Final Journal Prompt

    Reflect over your implementation process. How has implementing TE made you consider:

        Your instruction and assessment practices of student transformation?

        Your own understanding of student transformation.

Appendix C: Dates of Scheduled Research Interactions with Participants

Pseudonym of Participant_____

_____Recruitment for Professional Development:

_____Three Day - Professional Development (9-11:30)

_____Informed Consent Given and Collected

_____Initial Interview (Transcription date_____)

_____First Journal Response sent

_____First planning session – Creation of timeline for interactions

_____Planning/Open Lab Session Scheduled

Cycle 1 Implementation

_____ Pretest Administration/Informed Consent for students (at least two

weeks prior to teaching cycle)

_____Cycle 1 Dates

_____Day 1 observation

_____Day 2 observation

_____Day 2 Journal Prompt sent

_____Day 2 Journal Response received

_____Day 3 observation(Posttests/collect surveys)

_____Day 3 Journal Prompt sent

_____Day 3 Journal Response received

_____Second Interview(Transcription date_____)

Cycle 2 Implementation

_____ Pretest Administration/Informed Consent for students (at least two weeks

prior to teaching cycle)

_____Cycle 1 Dates

_____Day 1 observation

_____Day 2 observation

_____Day 2 Journal Prompt sent

_____Day 2 Journal Response received

_____Day 3 observation (Posttests/collect surveys)

_____Day 3 Journal Prompt sent

_____Day 3 Journal Response received

_____Final Journal Prompt sent

_____Final Interview(Transcription date_____)

Appendix D: Adapted Transformative Experience Questionnaire

(Koskey et al., 2016)

Transformative Experience Measure

Instructions: Think about your <____*insert name of unit here*_____> course**.** For each question, circle the word that best matches the extent to which you agree or disagree. "Outside of school" refers to your everyday life and experience when you are not in class or working on school assignments, and does not include the required Clinical or practicum Experiences

[Responses will be on a 4 pt. Likert scale, Strongly Disagree to Strongly Agree]

> ****Blank in sentence is for participants to adapt TEQ to fit concept they are teaching.*

<div align="center">Motivated Use Items</div>

1. I talk about _____ during my class with other students or the teacher.
Disagree Strongly   **Disagree**   **Agree**   **Agree Strongly**

2. I talk about _____ outside of class.
Disagree Strongly   **Disagree**   **Agree**   **Agree Strongly**

3. I talk about _____ just for the fun of it.
Disagree Strongly   **Disagree**   **Agree**   **Agree Strongly**

4. I think about _____ during my class.
Disagree Strongly   **Disagree**   **Agree**   **Agree Strongly**

5. I look for examples of _____ when I watch videos or read books.
Disagree Strongly   **Disagree**   **Agree**   **Agree Strongly**

6. I think about _____ outside of class.
Disagree Strongly   **Disagree**   **Agree**   **Agree Strongly**

7. I use the knowledge I've learned about _____ during my class.
Disagree Strongly   **Disagree**   **Agree**   **Agree Strongly**

8. I use the knowledge I've learned about _____ outside of class.
Disagree Strongly   **Disagree**   **Agree**   **Agree Strongly**

9. I sought out opportunities to use my knowledge of _____ in my life outside of school.
Disagree Strongly   **Disagree**   **Agree**   **Agree Strongly**

<div align="center">Expansion of Perception Items</div>

10. When I learn about _____ during my class, I see things in term of
    _____.

    Disagree Strongly   **Disagree**   **Agree**   **Agree Strongly**

11. When I am working on a class assignment about _____, I can't help but think
    about their _____.
    Disagree Strongly   **Disagree**   **Agree**   **Agree Strongly**

12. If I see a really interesting situation with students, I can't help but think about
    their _____ now.
    Disagree Strongly   **Disagree**   **Agree**   **Agree Strongly**

13. I can't help but see students in terms of _____ now.
    Disagree Strongly   **Disagree**   **Agree**   **Agree Strongly**

14. I notice examples of _____ during my class.
    Disagree Strongly   **Disagree**   **Agree**   **Agree Strongly**

15. I notice examples of _____ outside of class.
    Disagree Strongly   **Disagree**   **Agree**   **Agree Strongly**

16. I look for examples of _____ outside of class.
    Disagree Strongly   **Disagree**   **Agree**   **Agree Strongly**

Experiential Value Items

17. The ideas of _____ are useful for me learn for my future studies or work.
    Disagree Strongly   **Disagree**   **Agree**   **Agree Strongly**

18. The ideas of _____ help me to better understand the world of students.
    Disagree Strongly   **Disagree**   **Agree**   **Agree Strongly**

19. Knowledge of _____ is useful in my current, everyday life outside of school.
    Disagree Strongly   **Disagree**   **Agree**   **Agree Strongly**

20. I find that the ideas of _____ make my current, out of school experience
    more meaningful and interesting.
    Disagree Strongly   **Disagree**   **Agree**   **Agree Strongly**

21. The ideas of _____ make students much more interesting.
    Disagree Strongly   **Disagree**   **Agree**   **Agree Strongly**

22. During my class, I think the stuff we are learning about _____ is interesting.
    Disagree Strongly   **Disagree**   **Agree**   **Agree Strongly**

23. I find it interesting in class when we talk about students in terms of _____.
    Disagree Strongly   **Disagree**   **Agree**   **Agree Strongly**

24. I'm interested when I hear things about _____ in my life outside of school.
    Disagree Strongly   **Disagree**   **Agree**   **Agree Strongly**

25. I find it exciting to think about _____ in my life outside of school.
    Disagree Strongly   **Disagree**   **Agree**   **Agree Strong**

Appendix E: Observational Protocol and Codes

Adapted from Pugh et al. (2010)

Event	Code
Highlight Experiential Value	TE-EV
Explain Why Useful/Relevant	U
Create Anticipation	A
Use Compelling Metaphors	M
Practice and Scaffold Re-Seeing	TE-RS
Provide Application Examples	AE
Practice Application	PA
Identify Re-Seeing Opportunities	IRS
Encourage Out-of-School Re-Seeing	ERS
Share Re-Seeing Experiences	SRS
Model Transformative Experience	TE-M
Express Personal Valuing of Content	VC
Express Interest in Things	IT
Share Transformative Experiences	STE
Transformative Experience Other	TE-O
Student Observations	TE-S
Opportunities for Re-Seeing Identified	S-OI
Re-Seeing Experiences Shared	S-ES
Expression of Interest in Content	S-IC
Expression of Interest in Things	S-IT
Student Observations Other	TE-SO

Transformative Experience Faculty Behaviors

Faculty Member Behaviors:

- Framing the content in terms of experiential worth
    - Does the faculty member talk about why this content is useful or applicable to everyday experience?
    - Does the faculty member do anything to get the students to anticipate acting on the ideas in their everyday lives?
    - Does the faculty member use any compelling metaphors to get the students interested in the content?
- Practicing and scaffolding re-seeing
    - Does the faculty member provide examples of how the ideas can be applied in everyday life?
    - Does the faculty member provide the students with opportunities to practice applying the ideas to everyday life (i.e., practice re-seeing particular animals, plants, events, issues)?
    - Does the faculty member help the students to identify parts of their everyday lives that can be re-seen? Identify specific objects, events, or issues that can be re-seen?
    - Does the faculty member encourage the students to do re-seeing outside of school?
    - Does the faculty member give the students an opportunity to share the re-seeing experiences they had?

○

Date: _____ **Faculty Member (Pseudonym)**_____

Course:

_____

TE Cycle _____ **Day 1   2   3** **Observer:**_____

TTES/UCV : Observation Record

EVENT CODE	CATEGORY CODE	START TIME	END TIME	DESCRIPTION
_____	_____	_____	_____	
_____	_____	_____	_____	

Appendix F: Pilot Study for TEQ Survey

First, the suggestion of a four-point Likert scale labeled as strongly disagree, disagree, agree and strongly agree was made based on the fit with the Rasch analysis. This is important to the current study as previous research used a six-point scale. Second, the data supports that the "TEQ assesses a uni-dimensional construct, indicating the scores can be used as a composite representing degree of transformative experience" (Koskey, et al., 2016). These suggestions, however, had yet to be tested for validity and reliability necessitating a pilot test on the new instrument at the time of Koskey et al.' (2016) analysis.

I conducted a pilot study using a revised TEQ survey in the fall of 2016 in a professional teacher education course studying diversity. Called the DiversityTEQ, the instrument integrated the suggestions from Koskey et al. (2016) that included the wording changes and a four point Likert scale. The survey was given to 23 students enrolled in a teacher education course after a unit on diversity and students volunteered to take the survey. All twenty-three students voluntarily participated.

The results of the DiversityTEQ (items 1-25) demonstrated a high reliability (Cronbach's Alpha = .935) based on Nunnally's (1978) rule of thumb for alpha to be at least .70 for the instrument to demonstrate internal consistency. Item five was the only item to indicate further investigation was warranted on a particular item. The item read "I think about diversity when I do things like watch videos or read books." Statistical analysis of the inter-item correlation matrix showed item five with low correlations (-.095-.255) in comparison to the other items. Item five showed a higher Cronbach's Alpha score on the item-total statistics (.938) and a corrected item-total correlation

lower (.287) than the range of the other items (.410-.770).

Item five is grouped with items measuring the quality of active use. In the individual analysis of the subconstruct, the inter-item correlations were inconsistent (-.095- .812) with no pattern among the correlations emerging. In the item-total statistics, item five was one of the lower correlations in the corrected item-total correlations (.412), but was not out of pattern with the other results. Chronbach's Alpha if item deleted (.799) for item five did not rise above the overall Cronbach's Alpha for items 1-9 (.801).

Analyzing the data by subconstruct and by construct gives recognition that the item may have merit in measuring the active use quality of a transformative experience and should not be eliminated based on the statistical results of the construct alone. When analyzed with items measuring the same subconstruct, item five was not found to change the internal consistency as Cronbach's alpha if item deleted (.799) did not exceed the Cronbach's alpha of the group (.801). Although the item did raise the Cronbach's alpha in the construct analysis, knowing it did not when analyzed in its own group warrants further discussion prior to removing the item from the instrument.

Item 5, as it was written in the instrument, was intended to measure active use by the level at which participants think about diversity when watching movies or reading books. These actions allow for students to explore the concept of diversity outside of the classroom in environments that are considered part of their everyday life, even if the storylines of the movies and books are fictitious. Going to movies and reading books for pleasure are two activities that would occur in a student's life outside

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of school and are included in the definition of active use defined through the literature (Pugh et al., 2009; Pugh & Girod, 2007; Pugh, 2011; Pugh et al., 2015). While these are voluntary activities, should participants encounter diversity while engaged in watching a movie or reading a book, it is not unreasonable to expect a student could make a connection to the content they learned in their coursework.

The potential for a poorly worded question exists. In its current form, item five reads: "I think about diversity when I do things like watch videos or read books." The intent of the item is to measure the part of active use that occurs when students are engaged in reading or viewing settings or situations that occur in movies or books that have a component of diversity. Within the nine items measuring active use in the instrument, no other question addresses the possibility of students voluntarily seeking content connections in media and books. Keeping the question in the survey represents an area of active use that would be lacking should the item be removed based on the overall statistical results.

Thinking about diversity as a forefront activity instead of connecting to the concept as a result of what they are seeing or reading may have occurred when participants read the words "I think about" in item five. Rewording the question to focus on the interpretation of the situation being viewed or read in light of the concept of diversity instead of the activity of the participant may have given results more succinct with the subconstruct of active use. Heddy and Sinatra (2013) used a similar item in their TEQ covering the concept of evolution. Based on their example, changing the wording to "I look for examples of diversity when I watch movies or read books" could provide stronger statistical results in future item analysis.

Without qualitative data, however, it is difficult to determine the direction participants' thinking was geared toward when reading and interpreting item 5. For future work, it will be helpful to ask a small sample of students to participate in a think-aloud protocol, similar to Koskey et al.'s (2016) review of the TEQ, as a means to discover participant thinking process when approaching this question.

Appendix G: Qualitative Data Collection - Conceptualization of Student

Transformation

	Definition of Student Transformation Data Collection 1	
Participant	Summary	Data

Untrained Category of Engagement

Rhys	Rhys's initial view of student transformation centered around student's understanding content. He witnessed student transformation as an illuminating moment of clarity when students would come to his office for additional instruction in understanding his discipline. Clarity happened when it he was directed the parameters for student thinking.	Interview: "I think just anytime that you can see a noticeable change in a student's understanding. I don't know if understanding is the right word…You might be working through a particular example with a student and they come into your office and they have no ideas of what they are doing with this problem and you just start talking to them and having them explore ideas and what if you think of it this way, or this way or this way. And then all of a sudden, they catch on where you might be leading them and you just see that all of a sudden the clouds part and they see what needs to be done…So I think anytime that you can notice, you go from a student who…might be completely mystified by something to even however small it is, they see a new way of thinking. Or they see a new approach, or they see something that makes a concept easier" (Interview 1, Lines 158-173).
Samuel	Transformation is a departure from what students have always known that changes	Interview:

into something more applicable in the general sense of society and community. Samuel's initial definition includes that transformation helps students understand their place in the community at large, then asks them to grow.

"For me, transformative learning involves a shift from a precept that we were given, that we didn't generate on our own into something that is more applicable that is understanding in society and community (Interview 1, Lines 172-175).

"I've gotten a few emails like, 'I really appreciate a lot of the assignments that you've done because you're not teaching me a book. You're teaching me to be a person'. I appreciate that. Does everyone get that? No. But I definitely hear it enough that it is resonating somewhere Interview 1, Lines 217-222).

Compliant Category of Engagement

Jamie

Jamie's initial interview shared her view of transformation as more of a moment, an a-ha or click that is different for everyone. The ideas that transformation could be fostered was implied in her teaching, but she could not say with certainty that students would recognize her efforts as such.

Interview:

"it's that a-ha…it's hard to define because it is also so individual for each person…we construct our own knowledge based on the experiences we have, so that it's going to be different for everyone, so what might be transformative for one person may mean nothing to another person…it's just that moment when everything clicks" (Interview 1, Lines 222-230).

"I'm very unlikely to see it… there might be like, I'll see little transformations… it's almost like a Big T and little t… I'll see little

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transformations, like where they get it, and it's like clicking and making sense, but the big T, like what they go out and do, I may not see it" (Interview 1, Lines 234-241)

"I'm trying to help them. And I hope they see what my intentions are. My intention is for them to go out and do great things for children that will keep influencing them. So I hope they see that that's the intention…I'm still in disequilibrium on that…I'll probably put the question out to other people because I'm curious to, and some of my more trusted students, like the ones' I've had in, I might put the question to them because now I'm curious about their perception of what it is that I am doing and how they see me and um, my role in it" (Interview 1, Lines 282-297).

Kristin

Kristin's initial concept of transformation included the thought that she could not observe transformation. Transformation might occur through her facilitative teaching style and opportunities she provided in class, but she could not plan lessons and see transformation as a result of her planning. She struggles with students' written reflections at the end of the semester being genuine cogitation instead of composing assumptions based on their perception of her expectations. Waiting until the end of the semester to gather students' written

Interview:

"transformation is being exposed to something new or either exposed to something in content, particularly in a way they never thought of before and thinking wow, this really makes a difference or this really changes my perception of…being exposed to content and making a change in their life exhibits a transformation for me…when we see a definitive change in a student's perception of something. " (Interview 1, lines 71-76)

"its not something I can direct" (Interview 1, lines 95-96).

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reflection does not resolve the dichotomy between genuineness in their self-assessment and speculation of what she wants from them, thus making any assessment of their transformation open to this scrutiny.

Engaged Category of Engagement

| Sharon | Sharon approached her initial definition of student transformation with an understanding of where the students would be in their program of study. Her definition included the possibility of levels of transformation and they might become aware of new ways of thinking in her class that did not foster a change in actions at the time of her class. She included the possibility that transformation happens in the bigger picture of their education and other classes are involved in the student transformative process. Her definition allows for exposure to her content be the beginning steps toward a student transformation. The action may come much later in the program. | Interview:

When they feel like it's changing their path from what they were doing before to what they are going to do now based on their experience that they had. Maybe new, the path could be the way they think about it. Maybe a decision they are going to make that might determine their career…those kinds of things. And it can go a wide range (Interview 1, Lines 93-100).

I would not say totally [teaching] for transformation because a lot of these students know the direction they want to go. What I'm trying to do is to make them a little more aware…and to think deeper… That's where I want my transformation. So its not like overall, but where they might need it…I feel like at this level its not the highest level of transformation, but more in the middle. That they are beginning to think about that sometimes it will come later. But at least I've opened their eyes to a new way of thinking. That's one of the things they usually say to me at the end is I look at things |

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differently now. Which could be transformative, but, I think its more than just my one class that is going to make the difference" (Interview 1, Lines 113-123)

| Mitch | Being in the engaged category, Mitch already had a definition of transformation that included changing the student's view of the world. His goal was for every concept, every vocabulary word to relate to real world examples. He peppered each lecture hoping the students would see the connection from his examples to real life. Even understanding the benefits of allowing student the opportunity to connect to the material out of class, the time constraints and the amount of content to cover in the introductory course made allowing time for the UCV journals a sacrifice of class time. Prior to implementing the UCV journals, Mitch used words like "hopeful" with some ambiguity in relating his observation of student transformation | Interview:

"I guess changing the way they look at the world" (Interview 1, Line 96).

"Our goal isn't to encourage everybody to be a lawyer. In fact most people will probably take the class and be discouraged about being a lawyer. But its to make them business people that are savvy about legal problems and that they know how, not to take out their own appendix, but how to eat right and uh, they understand the basics of, you know, this is a legal problem. I better get advice on (Interview 1, Lines 122-128).

Well my goal is to , again, it makes going through the material very slow, that every single concept, every single vocabulary word relate it to a real-world example" (Interview 1, Lines 137-138). |

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Definition of Student Transformation Data Collection 2		
Participant	Summary	Data

Untrained Category of Engagement

Rhys	Rhys' definition had already started shifted by the end of the first implementation. Transformation was the result of student's assignment of the value of a change because it was a better way of thinking. No longer was transformation a happenstance of moments of clarity, but a directed way of helping students realize changes need to be made.	Interview: "Having a student make a noticeable change, but not just for any change, a change for a reason. You know, I guess or a correct reason? They can get better because you told them "this is the way to do it" But having a student make that change, not because you told them to, but because they realize that's what it should be. That's maybe a better way of thinking or better way of doing things…not just a change out of the blue or because I told them something, but a change because they realized a change needed to be made or should be made" (Interview 2, Lines 674-685). Observation: Rhys' metaphor was "Composition is Key" to help orient students towards the impression that their writing can give regarding them. He shared that that a poor choice in composition on his part led to confusion in solving one of the homework problems. Current, everyday example taken from the class itself. By sharing the change he needed to make himself, the students were able to see how

important it was to be clear in your writing.

| Samuel | At the end of the first cycle of TE facilitation, Samuel's did not consider his definition of student transformation as changed. Students' questioning their basic assumptions makes them aware of new courses of actions available to them because they now see a need to question further. Through repeated little steps of asking questions, Samuel proposes that the cumulative effect would create a larger transformation in time. | Interview:

"My definition of transformation is…students gaining awareness from little interactions to where they can move it into implementation while the self to make a bigger move…So I think transformation is truthfully, when we take those little t's and we start asking questions to generate big T's. And I know people will probably say the end game is when they are actually different, but for me, it's just seeing the need for difference…If I can get people to see the need for difference, then when they get there, that's theirs. That's their story. As a teacher, I can't make that happen. But getting them to the point where they see it and they need to do something about it. I think that's about where I should be. (Interview 2, Lines 773-790)

Observation:

When working with one small group discussing family dynamics as a source of stress, Samuel was able to ask students how they were expanding their understanding now that they've realized the source.

A considerable discussion was shared about becoming your own autonomous person and the difficulties parents have in allowing that process. |

The value in recognizing the source of stress and the ways in which one can become autonomous without damaging relationships with parents became new awareness for this table of students.

Compliant Category of Engagement

Jamie

At the end of the first facilitation cycle of TE, Jamie did not mention transformation as a happenstance or a moment of clarity and understanding. Her definition shifted from a-ha moments to ones that change students in their way of thinking how they do things.

Interview:

"The whole idea of it changes them somehow. In this case, I'm hoping that its related to the classroom, but really, the bigger picture of [topic]…it doesn't have to be related to the classroom. But just somehow its changing them, it's changing their way of thinking how they do things…the biggest word that I can give is changing them in some way" (lines 816-821).

Using the UCV journals and scaffolding group discussions affirmed Jamie's initial definition that she could observe little t transformation. After facilitating one cycle, Jamie was surprised that weeks after the unit over creativity had ended, her students will still bringing examples of the metaphor to class to discuss. The lingering discussions and the affirmation that students were continuing to retain the material to discuss it in class were two ways Jamie saw student transformation

" Based on my definition of it changing them and making connections, it [student transformation] happened. The fact that they are still coming to me with stories about it is proof that that is happening and that they are still holding this metaphor in their head" (lines 827-830).

"I'm sure the writing is going to show they may use the word change or I thought about this differently…I think their journal is going to show a lot of that [little t transformation] and

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then continued discussion" (lines 838-841).

Observation:

After Cycle 1, Day 2, the class conversations were transitioning from a personal view of the metaphor of "Creativity is Risky" to finding creativity outside of their own personal endeavors and understanding that creativity is risky when it involves others. One student was astonished at this new, broader concept of finding creativity every day, even if it wasn't his own. The broadening of their perspective was evident in this statement: "I was viewing creativity as my own. Now I'm thinking what else in my day is creativity? I'm going to be looking throughout my day" Student (Cycle 1 Day 3)

| Kristin | Observing the students reflect on content in their everyday lives helped Kristin realize that she can observe transformation on much smaller scales when it is facilitated using discussions during class. Seeing the changes in student perspectives at the content level made it easier for her to recognize the shift in student thinking when it was related to her content. | "I still think student transformation involves a change in perspective. But what I see now is that change in perspective doesn't have to be like I said, on a large scale. It can be a small experience, change in experience or a small change in perspective" (lines 474-478). Its easier for me to see a transformation in relation to my content…its easier for me to see because it is directly related to my content. Whereas we may not…a student may undergo a transformation in leadership or civic duty, or something that we may never |

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actually know about. It may be an internal process. Where here, we're kind of facilitating a discussion because we are relating to our content. And I feel like we can see those little transformations. (Lines 492-500)

Observation:

During the reseeing process, Kristin constantly asked her students "How is this useful" or "how is this changing your perspective" as they shared out their examples of the content in everyday life. Even when the students couldn't answer, she continued to help them find a way to connect to the content. In one instance, a student couldn't see how the example was useful, Kristin asked her to "think of it as how you see the application to forensic science." The student was able to make the connection to the content with this framework.

With Kristin asking them directly to ascribe a value to their expanding perception, students were able to articulate why their everyday examples of the content were shaping their grasp of the content. One student suggested that types of evidence could be collected from teeth whitening strips leading her to value that even the smallest things can be used for evidence.

Engaged Category of Engagement

| Sharon | By the end of the first cycle, Sharon's definition of student transformation expanded to include not only a different view of the world, but how they are going to act in accordance with that view in the future. Seeing the direction towards transformation in a few of the students at this times of the study allowed her to start thinking of her own movement towards transformation. While her students were experiencing new ways of seeing the world, she was seeing new paths to help them which influenced her instructional practice. | Interview:

"to me, its when I feel like students are changing directions in the way they are thinking in a positive way. In an appropriate way, may not always be positive…What I've seen this cycle based on some of the reflections that I've read and the discussions we've had that students are rethinking how they view the world. So that's making them change that direction a little bit and a few of them are actually, which I think are moving into transformation, are thinking about plans they are going to do differently (Lines 934-942).

"its helping me help them be more intent on what they are seeing and learning instead of what they are just guessing, or assuming, or waiting until the end of the semester. So its just providing an avenue. An earlier avenue that…helps the students to see it [transformation] better. And now they actually have language of this…and its helping me too. And then that also guides my instructional practices" (lines 978-990).

"it's a new way of thinking for me and it just provides greater opportunities for my students. So I like it" (lines 1030-1031).

Observation:

Discussing students who came to his high school in the Katrina aftermath, one student commented on how he has shifted his own thinking now that |

he has the content knowledge regarding diversity including culture, and not merely a labeled representation of someone's skin color.

"I thought they were dumb – but now I see there was l lot more going on." Student in Sharon's class, (Cycle 1, Day 2)

When discussing a video over generational poverty, another student demonstrated the same expansion of perception when discovering that diversity was more than a student's race. The film explored the cultural aspect of poverty and how the generational cycle continues. Having come from the same locale where the film was produced, this student exclaimed "It had never occurred to me! I'm from that same area. It was eye-opening!"

Student comment: "I notice it more now. Lots of factors. It's not just gender, race and poverty. Before class I didn't see all the areas. It's everywhere."

Student comment: "Now I'm thinking teaching the subject is just a little part."

Mitch   After the first cycle, Mitch's definition expanded to include a student's understanding that their perception has changed when they are acquiring discipline skills. It moves

Interview:

"change…Change students in the way they perceive themselves as being involved in the subject as opposed to just memorizing trivia

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beyond comprehension and application of new skills. Transformation includes a personal understanding of what the change means to their own perspective from this point forward. This awareness of the student perspective was new to Mitch after implementing TE in the first cycle.

questions to play a game. They're seeing real application in the world to what they are doing…I think it's a way of getting them engaged that was missing before" (Lines 304-310).

Observation:

When discussing contracts with minors, a student shared she worked at a pizza restaurant where the majority of in-store customers are teenagers. Often the students have their parent call in their order and pay for it, but then when the teenagers arrive, they say it's the wrong order and don't accept it. The store has to re-do the order and make a new pizza because of the laws governing contracts with minors.

Definition of Student Transformation Data Collection 3		
Participant	Summary	Data

Untrained Category of Engagement

Rhys

Rhys definition at the end of the second cycle of implementation alludes to student recognition of a personal value to their a-ha moments. Transformation moves students beyond the moment of understanding. Transformation happens with the recognition that the clarity brings purpose and reason for changes in decisions and actions.

Interview:

"I'd say realizing that something you did made either a positive or a negative impact on…your life or your learning and making a change based on that realization…things aren't just happening. They're happening for a reason and you can control it sometimes. (Interview 3, Lines 598-601).

"I think the first definition I gave was just noticing, noticing the a-ha moment of when a student finally catches on with something…now…it kind of like that, but I feel like I've verbalized it much better…of not just seeing something click.. but something clicks, they [students] realize that it clicks and they realize that if they keep doing this, or hopefully if they keep going down the same path they are going down now, or maybe changing what needs to be changed, that can continue to happen" (Interview 3, Lines 604-610).

Observation:

Example of reseeing in a whole group discussion:

Student: I had more problems with textbooks than professors

Rhys: scaffold: if we have a gap in a proof in a textbook, how do we improve it? How far is too far for justification?

Student: it usually the algebra that I have trouble with.

Rhys: there has to be a balance as to what level the textbook is written at? What is expected of the learner. If you tried to justify everything, we'd have a textbook as big as this room.

Student 2: I think some of the justification is still left out.

Rhys: so in this class, what would be ok to just say this is true, and not have to have it proved?

Various Students: Associative property of addition.

S3: But I think that depends on the teacher, some require more justification than others.

Sometimes it is not clear. Clearly is an ambiguous statement.

Rhys: keep in mind when you are writing your proof. What can be assumed? Would the class know this? If not, then you need to give and explanation. It's a fine line to walk, sometimes.

Most of the time the appendix will tell you what the base knowledge is and what else the learner is supposed to know.

| Samuel | Samuel's definition of student transformation divided into two segments. Successful transformation would include a student beginning to question and ask why they have the assumptions and beliefs they currently hold. Full blown transformation compels them to make changes because of the answers to the questions they are asking of themselves. | Interview:

"I would say that a transformative experience would be, at its core…instruction that prompts a student to ask why they do what they do, or why they think what they think, or why they feel as the way they feel…getting them to ask why is the first step and if they never ask why they're never going to get there. So I think, that the heart of transformation is you have to ask, get them to ask a simple question of why. And once they ask why, the next follow up questions should be how, and when and then you get to all the other fun stuff. For me, successful transformation would be just getting that first questions going. Just getting the why Full blown transformative experience would run to gamut of all their questions and figure out who they are and make changes of themselves" (Interview 3, Lines 543-553)

Observation:

This is the first time more than three students have completed the journal. Six people raised their hands that they actually did the writing.

Give me some brave folks who will share their idea with me

Student shared they were raised in religious and conservative home where you were raised to see people of color a certain way, so any time a person of color comes by you clutch your wallet or keys closer, but once you are aware you are doing this you |

can begin to change. That changes how you see the world. I realized how I was raised and the influences had an impact on what I was doing and now I know it was wrong and I can make changes.

Samuel asked him, "What does it mean to be free from this for all of your life?"

 Student said, "I don't know. Less stress? "

Sam replied, "Racism is still racism. There is no reverse racism. If a person of color is reversing the racism, it's still racism. Do you trust white people? I've worked in cultures where they will not trust me because of my race. Native Americans, Blacks, they would not trust me because of the mistrust and we are at an impasse. It's really the importance of taking the autonomy and deciding do I want this?"

Compliant Category of Engagement

| Jamie | Implementing TE pedagogy transformed Jamie's definition of student transformation. She realized the process was not only working in the lives of her students, but also in herself. She referred back to the process she used to facilitate discussion and arrange her | Interview:

I look at it again as it doesn't have to be a big, huge change, like a life altering change because thankfully, we don't have many in our lives. The little changes …can still transform and it might be just a little bit of chipping away at it and then it |
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content to become a flexible path to navigate the student response.

The tone of her definition shifted as well. In the initial group, she was unsure if transformation would occur through her teaching, although the best of intentions were included. After two cycle of intentionally implementing TE pedagogy, Jamie's definition has confidence in the small changes in a student's way of thinking that lead to transformation.

eventually becomes something that's big. (Interview 3, Lines 1049-1054).

Absolutely. [in response to asking if her definition has shifted from where she was before] I mean, just the way that I think about things and how I approach things…we've talked about with the way the discussion and stuff, and so yeah, absolutely…it transformed me, so transformation, I mean, Its not just them, it's a two-way streak" (Interview 3, Lines 1060-1067).

"This really focuses on those little everyday things, helping student connecting back to what they're doing and what they're seeing and in this way, there is transformation just by making those connections (Interview 3, Lines 1083-1086).

Observation:

Student observations during UCV discussions: I went to work on Monday and saw my customers at home depot in a different way. I see a lot of people in the lumber department and it's their way of being expressive or finding pleasure in building something.

They're choosing to do it, they want to do it, and it fits all of the characteristics of play.

Another student talked about how "a lot of the things I do are considered

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play that before I would not have considered to be play.

This weekend we went trapping…we got two crawdads, which is great. This is kind of a new adventure for us, so we're still working out the kinks, the best bait, the best spots. But we really enjoyed it. I think that is considered it play."

| Kristin | Kristen's definition of student transformation shifted from the idea that transformation is a huge, life-changing event that she may not see during her time as the student's instructor to include small changes in perspectives in the student's content understanding resulting from their own discovery of the content's relatability. Not only could transformation be facilitated, she could direct it through the use of the UCV journals. By making the content relevant to the student's everyday life, Kristin found the active use of content to be a critical component to student transformation. | Interview:

I think that it still involves a change in perspective but it doesn't have to be a huge transformation. It can be a light-bulb moment, a minor change in perspective in relation to what is going on in their everyday lives. And I think that it does involve kind of a reflection. And I think that's part of what the journals did as well. It allowed them to reflect upon their own lives and apply that content to their own lives so we see transformation in their perspective as they're able to relate the content to their own lives and you see these light-bulb moments and these a-ha's kind of moments. (Interview 3, Lines 881-889) |
| | By the end of the second implementation, Sharon's view of transformation had switched from student's being aware of new ideas to applying the new awareness to their life and seeing the value to determine how to work with the new ways of thinking. Determining which | "I think making it relatable to their lives, relevant to their own lives, facilitates those little transformations…And I think that can be done with any group of students…I think it could be an effective technique with any group of students." (Interview 3, Lines 962-970) |

way, positive or negative to work with the new awareness will impact their decisions for their future.

"I always think about transformative learning and it's this HUGE life changing transformation when in fact it can be small moments that may add up to a big transformation or they may not. It's just a change in perspective, still involve reflection but they don't have to be these huge moments of transformation" (Interview 3, Lines 990-996)

"Makes it [TE] relevant to them and what you're going to see is not only are they engaged in learning, actively participating, they are excited to share. You're going to see your students have some… moments of clarity, and insight and transformation and it's going to help you as a teacher because if they are having these moments where they're relating content to their personal lives or they're able to see the content in their personal lives…what we're finding is that long term they're able to retain this knowledge or that's the hope" (Interview 3, Lines (1003-1012).

Observation:

One student shared they attended an academy for science and did crime scenes. She also watched crime shows (Criminal Minds). She wants to be the ones who capture the bad guys.

After sharing her story, Kristin asked her "are you looking for Forensic Science or law enforcement?" Suggested FBI agent who does profiling

Kristin asked her "What value do you have for this?" She replied "I like the truth."

Engaged Category of Engagement

Sharon | By the end of the second implementation, Sharon's view of transformation had switched from student's being aware of new ideas to applying the new awareness to their life and seeing the value to determine how to work with the new ways of thinking. Determining which way, positive or negative to work with the new awareness will impact their decisions for their future. | Interview:

"I feel that student transformation is when the student can take a situation or concept or topic, apply it to their life and see its value and what they might need to do to either work with it or against it, whatever direction they need to go. For instance, sexual misconduct, that working against it. They really don't want to fall into that patter. Whereas diversity, they want to embrace it so they're going to work with it. So…it kind of depends on the situation . But where I can tell…where I can out where they can articulate, what they're going to do different in the future. If I don't hear what's going to happen in the future then I don't know if its transformative. So I've got to have somehow they grasp the goals or the directions that they want to go now that they know this information. That's transformation. If they just kind of stop and say 'this is what I know, this is what I value, that's not far enough. We've got to move it a step further to – so now what?" (Interview 3, Lines 857-871).

It was happenstance before, but now its more intentional (Interview 3, Lines 887).

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Observation:

Sharon asked a student what value her experience had in light of the content of legal issues. Student was ready and eager to share, even though the legal vocabulary to describe what had happened was not yet in her everyday language. She left the group encouraging them to keep sharing re-seeing opportunities

Mitch   By the end of the second cycle of TE, Mitch's definition of student transformation had not changed as much as the affirmation of knowing that students are entering small transformations because of the implementation of the pedagogy.

Interview:

"Transformative would be change the way they think. They incorporate the classroom knowledge into their everyday experience…I don't think the definition as much changed. It gives me a lot more confidence that they're able to see it. Before I just hoped that with all the examples, I had one that's like, turns on the light for them, but now, having them look through the examples and sharing and now you really get the reflection that they really do get it...because that's the thing you're ultimately looking for…your validation comes from a lot of times just that one student per class that will come up and say 'hey, I saw this, and this, and this. Is this an example of this?' And it's just so reassuring to see that, but in because the classes are structured…everything is one direction from me to them, and then they write it down and repeat it in a test. But this more incorporates it into the class. It gives everybody a chance to have their moment to really see it. (Interview 3, Lines 513-533).

Observation:

Professor did not go through the groups, or seek out any additional re-seeing opportunities.

Three groups continued to have a "conversation" over the journals, but the overall class was quiet and did not continue the conversation. Very quickly the conversations turned to "getting to know you" questions. "Do you live on campus, what are you doing for thanksgiving break? Have you gone to court and observed for an hour yet.

The volume in the room became louder when the students shifted from reading their journals to visiting. Dome students were still writing their journals during the discussion.

Group in back right corner was completely disengaged from each other on phones, students not looking at each other or talking.

Groups that started talking about the journals were more engaged with each other. Lots of smiles. Total time to share was about 4 minutes before conversation changed topics.

Professor watched the groups from the podium. When students were talking about the at will employment UCV, the other students in their group would listen and frequently comment on what was shared.

Appendix H: Qualitative Data Collection - Assessment of Student Transformation

Participant	Summary	Data
RQ2: Assessment Data Collection 1		

Untrained Category of Engagement

Participant	Summary	Data
Rhys	Assessment of transformation, at the initial interview, was non-existent in Rhys' classes as he had never attempted to implement transformative practice prior to his involvement with this research project. He acknowledged that he can see when students have a moment of clarity in understanding when working with them during office hours or in class. He did not have a formal process for documenting transformation outside of his own recollection of activities and stories he had tried with groups of students and the success the students had with them. At the beginning of the research, students were not involved in assessing their own transformation.	Interview: "I can only assess it when I can see it.. you can tell by the expression on their face that something just happened and they understand it…it probably happens much more than I recognize it happening" (Interview 1, Lines 349-355) "I wouldn't say that they're involved. Because I don't, I haven't done any of those reflections or asked them to, you know, think back on anything from the class" (Interview 1, Lines 391-393).
Samuel	Initially, Samuel did not assess transformation of students.	"I don't. I don't think it's right to…how could I? That's a subjective thing and I don't know if I could quantify it…and I don't know that it's my business to do that. It's my business to assess whether or not they've engaged in the material and remembered the material. If they've had some transformative experience

for the better, then that's for them to gauge and for them to have" (Interview 1, Lines 407-417).

Compliant Category of Engagement

Jamie	Jamie relied on her formative assessment practices to help guide her understanding of a student's transformation. Although she had implemented a STLR project with an assessment rubric for the class, the reflective aspect of it did not take place until the end of the semester. At the initial interview, assessment of student transformation was integrated with her formative assessment practices.	Interview: "It helps me to see where they're going. I don't think that I've like consciously thought, Ok, I'm seeing if they're transforming, obviously, because I can't even define it or really know if I'm doing it. But, um, I do look at where they've come from" (Interview 1, Lines 492-495). I just think as far as formative assessment wise, just helping to give me a clearer picture of about the path we're moving on. So I think, I mean I can see where again, this is just going to help me get into their heads a little bit more and have a hopefully deeper understanding of their understanding" (Interview 1, Lines 795-800).
Kristin	Even though Kristin had developed a STLR rubric for assessing student transformation. Like Samuel, she held reservations about assessing student transformation. She indicated that transformative assessment would allow for more formative assessment instead of remaining focused on summative assessments. She	Interview: And so, how are they going to assess? And I think that's a hard thing to do because its on an individual basis. And how do you assess a transformation for a student without being the student themselves? I mean, that's a really hard thing. I don't know that I have an answer… and I still think it is hard because you have, you either

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expressed concern that the final reflection the students share with her as part of her STLR assignment still might not accurately reflect their transformation.

exposed, integrated or transformed. But there's not any room for a grey area…so I think it's a continuum, the scale, and not these definitive like, you're one or the other, or the other…I don't know how to fix that" (Interview 1, Lines 309-324).

" But if we introduce these formative, as-you-go-assessments, are you can you make connections outside of the classroom? As you learn new content, can you apply that to your connections? I think that there's a lot more to be said about these formative as-you-go assessments vs. just summative assessments" (Interview 1, Lines 552-556).

Engaged Category of Engagement

Sharon

Sharon already implemented several transformative reflections in her class prior to implementing TE. Her students participated in a clinical experience during the course and were asked to write about their experiences before starting the clinical and after they had finished. Her assessment of their reflection were based on the STLR criteria of exposure, integration and transformation, but like Kristin, she found it difficult to assess. She looked for student work in terms of limited, generic responses or did they provide thoughtful

Interview:

"They can check all the boxes and do everything and if their paper does not reflect a thoughtful change then its just exposure or integration…it depends on the level. Its so hard to figure that out as a professor. Why is it so hard...between integration and transformation? That's the hard one because you may have a math major that doesn't write much and then you have your English major who writes a lot. So in a sense we have to depend on the writing for, to understand what they are thinking. You know that, number one can be a problem. So I try really, really hard not to judge that…the key thing I'm looking for is what they just told me

	reflection. She admitted, however, that she intentionally did not use the quantity of the student's writing as a way to assess. Some people just write more.	very limited and general, like anybody can say that, or digging deeper. That's what I look for is that digging deeper thing and are they really trying to think about the deeper issues, not the shallow ones. (Interview 1, Lines 363-389).
Mitch	Mitch's initial assessment practices were based on self-report student written reflections. Mitch relied on student's grasp of new mindsets to gauge their transformation. This loose criteria, however, always left a degree skepticism in the assessment process.	"Well, usually I notice the big changes are 'this is not what I expected' not just that this, well, this caught me by surprise, but they understand what the differences are and why" (Interview 1, Lines 346-348)
		"Oh, I think it will have a big impact. I will certainly give me a lot more feedback about how the students are doing. I mean, I can only judge it so much by their reactions in class and even then it's never 100%. It's always kind of, you know, a guesstimate of about how many people are really involved. And most of them seem to understand, but then you've got some people who aren't really paying attention , that kind of stuff, and there's no way of knowing if they got it or not" (Interview 1, Lines 583-589).

Participant	Summary	Data

Untrained Category of Engagement

Rhys	After the first implementation of TE, Rhys started defining his transformative assessment practices. Rhys was engaging with the students in both small discussion groups and whole class sharing. At the midpoint of the research, he was looking for input from the students that went beyond the facts of the example that they shared and more towards the rationale for why they selected the example they shared with the class	Interview: "input beyond their original, their original 'this happened'…you try to expand it a little bit, and they might be kind of, unsure? Stand-offish as to "well, you know I said the piece I had prepared, you know, and this is what I wanted to say. And so maybe they didn't quite want to elaborate anymore or go any deeper. But when they do start [going deeper] that's where you kind of see that they are thinking about this more rather and just 'I saw this'… and the conversations I had with them, it always seemed like they were willing to keep discussing things. (Interview 2, Lines 437-447)
		"And maybe, I feel like I'm going to have the opportunity to have that a whole lot more in this coming cycle because its much more 'well, why are you saying that? Why is that true? So I hope I can make the students dig deeper with this upcoming one" (Interview 2, Lines 458-461)
Samuel	Still adhering to his initial stance that he should not assess a student's transformation, by the end of the first cycle of implementation Samuel was looking for ways to assess student growth over the	Interview: "because I know it's working. One of the, one of the really cool serendipitous things that has happened. So one of their quiz questions last chapter was… name a current belief that you have that

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semester. Samuel recognized that students having small transformations or little t's were going to build up to a Big T.

Becoming aware of the need to question was one indicator that transformation was happening in the students for Samuel.

The manner in which students questioned their core beliefs was one way that Samuel began to identify how he was observing student transformation. Students open to exploring their questions regarding their beliefs were seen to be seeking, while students closed to beliefs outside of the way they grew up were seen to be challenging and unopen to transformation.

maybe you shouldn't, and why. And so one guy came up to me afterwards and was talking to me about his issue with homosexuality. It talked about it before he wrote about it. And he wanted to have a discussion to make sure… he said I feel like I kind of agree with my parents about it, but I don't know if that's a good thing to have…that thought of, because he was a little bit more anti homosexuality. It would be nice to follow up. Since that quiz has already primed him, week 15, to see if he's made any more movement on it. That doesn't necessarily have to be there, but he may be someone who has really thought about this a lot. I've made these kinds of changes and blah, blah, blah, blah, blah. It'd be kind of cool. And you could, kind of maybe, catch that in the follow up in that moment. So I think having that assessment at the end for them, and I'm just looking at completion grades. Did you do it? You get points" (Interview 2, Lines 615-632)

"I think this builds awareness. An the awareness leads to the big T. If you don't have the little t's you're not going to get to the big T's. there was another student in the same class, answered "I don't think I have any beliefs that need to be challenged, because you are who you are, and those are core – and your core beliefs are what they are. And blah, blah, blah. And it was a half-page. They got 6 points. I gave them a little bit of reflective feedback and said,   well, if you know everything at 18, what's the point? What's the point of any of us. If you're already opposed to growth and to changing

those core values, everybody has core values that are different. You know. Women shouldn't be paid as much as men. That's a core value. Is it the right core value, though. So he's going to be more of, and I knew if from Day 1. And I could see it in him. This is the challenge kid. Maybe we'll get somewhere. Maybe we won't. Um, so you kind of see some of it play out. Um, but I think if you don't have the awareness from those kinds of interactions, and he's refusing the littler interactions where he can't do the big. Where (using hand motions to indicate other student) this guy is accepting the little interactions and its helping him see the big.

Compliant Category of Engagement

Jamie

Transformation is visible when students make connections from the content to their everyday life in her class and when they share with her the connections they are making in other courses. While she always had a few students making these connections, implementing TE has increased the number of students who are making those connections outside of her class and in their everyday lives.

She also acknowledges that she isn't going to know for certain if they were transformed, as students could

Interview:

"I think it's the lightbulbs. That's the part I assess. And I know that doesn't help me with grading and stuff like that, but for this, the transformation is hearing what they say when they start making connections to other areas" (Interview 2, Lines 667-670)

"When they start making those kind of connections. Then to me, then that little t transformation that show me they're going, they're being transformed a little bit at a time "(Interview 2, Lines 673-675)

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write something thinking its what she wants to hear. Only the student can decide on their own if they are transformed.

"Honestly, I'm not going to ever know 100% if they were transformed because I'm a realist. They could BS their way through they journals thinking 'this is what she wants to hear.' But I think I can recognize. I think I can recognize like – in my view they are transformed and only they can decide on their own if they are or not" (Interview 2, Lines 680-688)

Kristin

Kristin found that assessing transformation using the UCV journals gave her a glimpse into individual students. Through her own observations, her understanding of transformation is changing. Transformation doesn't have to be big shifts for students to have a lasting change in their perspective. Smaller, content related shifts may occur as well.

Interview:

" Its hard to assess walking around exactly how much students have grown, and so I think that's where the UCV journals come into play. But there are particular students that see this, um. The one we talked about with the Crest White Strips or whatever was really struggling with the concept, but by the next time seemed to have a better grasp on it. So seeing that shift and I know there are a few particular students where I've see a definite or a dynamic shift and so I look at those. But hard to assess unless I'm tracking, which I am no… on paper as I walk around to see, to see what kind of changes I am noticing. Interview 2, Lines 335 – 346)

"And with STLR we're looking for a huge change. A dynamic shift. A big perspective change in their lives. But I think through this process, we talk about those transformative experiences - the "little T's" that a student can have a transformation and it doesn't have to be on such a large scale, and it can also be content related. Not necessarily a huge, internal transformation, but a change in their perspective in regard to the content that you're teaching and how

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its applicable and useful and where they're seeing it. These little T's…I think that was something different. That I always thought about transformation had to be this big thing, but it doesn't necessarily. Interview 2, Lines 377-386)

Engaged Category of Engagement

Sharon	Sharon's transformative assessment practice still looked for change in student thinking at the end of the first cycles of TE. She recognized that while looking for student change, she was already using the formative assessment that UCV journals foster to make instructional decisions to help students who's answers continued to reflect limited, general knowledge and reflection	Interview: "I'm looking for change…I like it when they say 'this is the way I was, and this is the way I am or where I hope to be'…At this level, we're going to see [a recognition of change] Goals. They are creating some self goals to um, now that I know this, this is what I need to do differently. And maybe what I need to do is how are you going to facilitate these things that you got out of this diversity unit (Interview 2, Lines 602-613)

| Mitch | After the first cycle, Mitch noticed that students were assessing each other through the TE process of meeting in small groups. He was no longer the only one assessing how students were comprehending the content and applying it to their own lives. His observations of the group work affirmed his formative assessment practice in gauging how the students were understand the content. Mitch chose not to interact with the individual groups as his presence changed the dynamic of the group. He felt his presence would change how the students were discussing and helping each other apply the content. | Interview:

Uh, I noticed the interaction they were really listening to each other…And you know, at least from everything I saw, all the comments were positive and even some of them, I could tell from the reactions had strayed off the path or had a reaction that really didn't fit, uh, the other students were all talking and they could figure out why it didn't work…They kind of collectively taught it in their groups of uh, reviewing it…I think it helps all of them because then everybody gets an assessment of "I really do understand it because I can correct somebody else's mistake. That shows I really do understand it" (Interview 2, Lines 173-188)

What are you looking for from students to assess their transformation?

"I'm not sure. I really didn't think about individually figuring out assessment because from my watching it seems like all of them kind of got it. Maybe that's just the luck of those that attempted didn't show up on a day that they knew they were going to be having to interact with the students in the group. Uh, uh.. I think it worked. I just don't have an individual measure" (Interview 2, Lines 228-235) |

RQ2: Assessment Data Collection 3		
Participant	Summary	Data

Untrained Category of Engagement

Rhys	Rhys' assessment of transformation shifted to the recognition that when student were voluntarily going above and beyond the work that was assigned to them they were engaged in a transformative experience.	Interview: He's definitely gone above and beyond anything he's ever had to do for this assignment" (Interview3, Lines 392-393Lines)
	He also recognized that assessment of transformation was difficult when you did not know the starting point of the student.	Seeing these little examples like, that student is working on things and discussing what I wanted them to be, you know, searching for with where justify things…so I can definitely see glimmers of transformation like that and I hope it continues" (Interview 3, Lines 398-400)
		I feel like one problem with how I can see if this change is occurring is not knowing where the students are coming from. What's the baseline? Where is everyone starting. I feel, you know, if it was a freshman class, you're sort of thinking that everyone is probably sort of roughly at the same level. Its sort of a clean slate. Then hopefully, you can see that they are making this change. But maybe coming into it at maybe a junior level class where some people have had this exact class before. Some people have had a year or two of higher mathematics before coming in here. It makes it difficult to gauge the extent to which any, maybe transformation is occurring…its very

hard to gauge whether or not what I'm doing is making as big as an impact as I would like" (Interview 3, Lines 460-468)

Samuel	By the end of the second implementation, Samuel has a direct and articulated criteria for assessing student transformation. Having a working definition of his assessment practice, Samuel was able to declare students were exhibiting these behaviors much earlier in the semester than he was used to experiencing in his classes.	Interview: The assessment comes in understanding things that student who has written, 'I've never thought of that before.' So I think anytime you have a moment where you should have a persona say 'I've never really thought of that before,' you've entered into the world of transformation. They won't be the same after that consideration and so hearing those comments or seeing someone who will come up to you and say and one of the students has 'I didn't think of it that way, I've always seen it this way.' The minute you see a change in direction in thought, I think you're in the beginnings of, ok, this should be a transformation (Interview 3, Lines 191-199) I think being more intentional with the approach and giving an expectation then you'll see it more…so I will intend to continue to focus on it and making sure it is a part of the room and not just something that happened by chance…the point I was going to make is usually I don't see this now. Its mid-semester to late semester we're looking at well beyond the halfway point usually into the last third of the class…I'm seeing it in week five. Which is a little ahead of the curve of expectation" (Interview 3, Lines172-187)

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Jamie	Jamie added discussion as an additional way she assessed transformation. Her hesitancy to answer how she assessed transformation was caught between the concrete scores that summative assessments and formal tests generate and the observations used to make formative assessments. The connections the students shared to her content in other classes and in their daily life made her confident, however, that transformation was occurring in her students.	Interview: I don't really know how to answer that question. Yeah, I mean I guess it's – well, it's the light bulb moment, it's the discussions, there's not really anything formal that is doing that because it's not like we take tests and things like that in there (Interview 3, Lines 758-761) I don't have any, like, if you're going to do the, like, assessment, like, eighty percent of them –can do it. I mean, I don't have anything like that, but they're doing it and I have a lot of examples of where they've done that" (Interview 3, Lines 935-939)
Kristin	Students don't recognize their own transformations intuitively	Interview: "I think its' kind of hard to gauge when a student has a transformation. As a teacher I think that's a hard thing to gauge. Um, but I see definite changes. Sometimes it's like the light-bulb came on. 'Oh! That makes sense!' or 'oh! That's what I want to do!' or 'I see this example' or "that's why I decided I want to be a forensic scientist.' So I see these, I guess you call them "little t's" but you see these light bulbs come on. These little transformations in regard to whether it's the UCV journal that kind of helped them have that transformation, or if its new content

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knowledge they've acquired. And I'm like, "Wait! This is fantastic! I see this in my everyday life and I want to do this with my future. So I definitely see transformation that way. And in one way I can tell is students come out after class. "Well, this is what I want to do with my life and what do I need to do to do that?" or " when you talked about this in lecture today, I decided that's what I want to be. How do I do that?" (Interview 3, Lines 577-592)

Now, UCV journals, because they're focused on this kind of transformation, clearly as I'm facilitating discussion and I'm talking with my students saying, 'you know, look at this transformation. Look at this change. Look at their change in perspective (Interview 3, Lines 604-607)

You don't necessarily see that as transformation because its out of context.

(Interview 3, Lines 613-614)

I think students recognize when they have a change in perspective. Or a change in whether its like we talked about in the first metaphor, things in their lives that relate to forensic science and what value changes that has for them. And Profiling my future, and what helped me…I think when they realize when there is a change in perspective. I don't think they would necessarily think they are assessing it, um, but I think they

recognize those moments are happening for themselves and maybe, not consciously, not a conscious thought, but just, does that make sense? (Interview 3, Lines 619-626)

It helped me to have them write down, not only have a written expression of what is the use, what is the value, what is the change, um, but also having those discussions with them and have the explain, so I have kind of two different types of documentation, I don't want to say documentation, that I can combine together to get a real, better grasp of if they are having a transformation, or a little light-bulb or what exactly is going on. So being able to combine a verbal discussion with them with the actual UCV journal is really beneficial (Interview 3, Lines 671-680)

Engaged Category of Engagement

| Sharon | Sharon's assessment practices remained consistent over the two cycles of implementation. She consistently looked for student awareness of changes in their thoughts and how this awareness would impact their future decisions in their career. | Interview:

what I'm seeing is just answers…because I ask a question and they're giving their answer in the journal and I just see it – well, some of it you see…I hate to use the word regurgitating information. 'This is… what I witnessed, this is how it changed me,' you know, I'm not seeing a whole lot there. But then I see people elaborating on why they feel like – what they – you know, how they were being changed and, uh, and why it's important for them to change. You know, if that's the |

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case, if that's what they did, or be aware or, you know, like for the future they need to be aware that these things could happen, like, for instance on sexual misconduct, you know, they're much more sensitive now of they shouldn't be in a room with the door closed with a student, they shouldn't drive them in their car, they shouldn't give out their phone numbers, and this is why, you know, let me make an excellent 'articulate the why' and I think that's the big difference.

(Interview 3, Lines 615-629)

Mitch	Mitch found the UCV journal assignments to help bring more clarity for students in understanding the content. Students had to understand the concept in order to find an example to bring back and share which allowed him to observe feedback for student understanding that prior to implementing TE was unavailable to him.	Interview: To me, always the best sign is, you know, when they mention, "Hey, I saw this in the real world," but now you understand because, actually, it was there the whole time and you just didn't notice it until…now" (Interview 3, Lines 277-279) I guess now, you know we use the expression of the light bulb over their head, but you really can see when it hits. When there's that spark from understanding it's just like, 'so that's why they've done this!' It's like, bingo. Now you've got it, you can take the ideas and apply it and that's the biggest step" (Interview 3, Lines 339-343) "it also gave them an opportunity to feel like they could share without judgment…You could tell them in the discussions that, you know, one of them would have a different example, but it's probably one that

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everybody else experiences and you can just see them, it's like, "Oh, yeah," and instantly now they went from "I think I know one example of this" to "Now I know five or six examples of it" (Interview 3, Lines 364-868)

I'd describe it like a transformative experience of training wheels because it makes it easy to do because you're letting the students do it. And then you've just got to sit back and acknowledge, "Okay, he's got it, here's a student over here that obviously is lost," but again, if I just tell the student, "Oh, you're lost," I'm not sure that would help. On the other hand when they talk to the other students, their peers, it's like, "Oh, no, this is how it works." They relate to each other without that confrontation. It really, it just – it works in a way that I can't do it because of my role. If I do it, they view it as it comes with a big judgment attached, whereas when their peers do it amongst themselves and share it more organic, like "We did it" (Interview 3, Lines 540-552)

Yes, because for me it provides kind of feedback that really the tests never tell you. But the tests will only really tell you so much about do they really understand or is it an automated response. When I see this word I know to spit out this phrase. But when they do this then you detect they really do understand, it's not just memorization. But to find an example of something in the real world you've got to really understand what you're looking for. And, then,

when they share it with their friends and they get positive feedback that only kind of feeds full process about, "Ah, I do get it" (Interview 3, Lines 564-572)

Observation:

Although Mitch did not scaffold or visit any of the student groups, he collected the UCV assignment and then started using certain student examples in his lectures. (Cycle 2, day 3)

Appendix I: Qualitative Data Collection – Implementation of Transformative Experience

	Implementation Data Collection 1	
Participant	Summary	Data

Untrained Category of Engagement

| Rhys | Although the university maintains access and support for professors to implement transformative assignments and practices in their classes, Rhys had yet to engage in the training. From talks in collegium, Rhys was struggling with the dichotomy of transformative practice and his discipline of math. | Interview:

Regarding transformative practices: "but its just so difficult in a math class because either we have to follow the content that we need to get through and we don't have the time to investigate and discuss. We have to cover these sections on these particular day. And so they're just not geared to that…I'd say that sort of the biggest drawback is that we have those things we have to cover and the scale of incorporating transformative things just does not match up the time frame that we have, or even the material that we cover…Math is right or wrong…its usually not open to interpretation so we don't go into what one person feels about a subject vs. another person…It just so objective to incorporate other viewpoints. (Interview 1, Lines 410-427). |
| Samuel | Although Samuel connected to the idea of deeper engagement with content for his students, he struggled with how to balance the time for student discussion with his perception of having to cover all of the content in a survey class. | Interview:

"So the prospect of it does create anxiety, or initially it did, but as I thought about it more, I thought "how many of those students actually retain any of that anyway?" (Interview 1, Lines 551-553). |

"It obviously changes the scope of what you're traditionally going to do and how much you're going to cover and how much you'll going to be willing to consider um, changing things and uh, I think maybe that's what it does and the students get more out of it, then I think that'll be a good thing. Rather than sit through a semester and really not retain anything or maybe have four people retain something, sit through a semester and have 60% of people retain two concepts deeply. That's better than where you were.

And so I think it will change it because the practice will be slower. And for survey courses that tends to be a problem or a bug-a-boo but I don't think it has to be. I think, I think there's information that you can cover faster or even change it to say "what I need you to do is cover these videos, because there are a lot of educational videos out there now. Assign homework over video base, and then write a reflection on the video. And then we come to talk in class more" (Interview 1, Lines 520-537).

"…this might be a way to get deeper into the material, and leave out some things, but that might inspire them to read on their own. So I honestly think maybe it could encourage retention and understanding more than that, 'we've got to get through the book kind of approach'

um, and so, it created a little anxiety and I still think it's a small part of the obligation that I approach the topics, but to also understand that I don't have to cover the topic quite as in

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depth as the chapter did. You can just mention the topic.

And it doesn't have to have a – that chapter doesn't have to have a full day of lecture on it. It doesn't need to have it. Um, so to take more ownership of what I am actually pushing through. So, once I got to that point, I didn't have the anxiety anymore. And I was like, "Oh, ok" (Interview 1, Lines 589-604).

Compliant Category of Engagement

| Jamie | Jamie started planning for TE implementation knowing the process aligned with her current style of teaching, yet articulated apprehension in trying a new strategy. Student-led discussion groups were already a stable pedagogy practice in her class, so adapting her teaching to the process of TE was daunting to "get it right" for the research while knowing it was changing her already comfortable and confident style of applying theory to practice in a student-led classroom. | Interview:

"it goes back to their background knowledge, so I try through discussions, KWLs, things like that, let them partner, talk, share out, try to figure out what they already know about something and then go from there. Again, that kind of puts thing on the fly, because it's like 'Ok! I've figured out what they know' " (Interview 1, Lines 334-338).

"I have lots of class discussions, but then, also I mean just having them where they, kinda like the theorists, without repeating myself, where we talk about the theory but then give examples, and I'll share some, and then them too of, ok, this is the theory, we need to know that, but what does it look like? So, whether it's like showing them videos of what it might look like or again lots of discussion or their creating things of what it looked like. So it's… trying to make that explicit connection between the theory and practice, |

because they want to do practice, practice, practice but it's like, we teach this, but why? If you can't explain why, then you shouldn't be teaching it. Just trying to get them to make those connections through different things" (Interview 1, Lines 368-382).

"just that the whole thing is new and so it's going to be…it's going to put me into disequilibrium trying to get it all figured out. And I hate to say it, make sure I'm doing it right. (Interview 1, Lines 822-824).

| Kristin | Initially, Kristin was both excited and apprehensive to implement TE. She looked forward to the examples the students would bring, but also acknowledged the change in structure and time commitment could be challenging to the students and in covering all the course content required of a survey course. She also recognized the critical component was the student discussions in small groups and her scaffolding of the re-seeing process. Allowing herself the time to create a class environment with freshmen students who would actively engage in the process proposed a potential challenge. | Interview: For them, it's that internalizing that, that, that application of the content outside and like, oh, this really is applicable in real life or oh, I see it here and I see it here for the students. Um, Because I'm thinking and I'm generating ideas. (Interview 1, Lines 393-399) |
| | Kristin also recognized the need to model for the students what to do and how to step | "Because I like the idea of scaffolding and building, I don't know if scaffolding is the right word, but building the lesson off of what they bring to class. Kind of gearing it towards well, here just, doing the lecture, but maybe doing the lecture that I prepared, but being like, you pulled this example let's see how it relates here" (Interview 1, Lines 401-408). |

through the UCV journals. Picking her own stories of personal transformative experiences was a key piece in having the students begin to look for examples in their everyday lives.

"It's ALREADY impacted my planning! So I, clearly I have to make time for the UCV journals, and time for the discussion. The discussion is going to be probably one of the most critical components as students talk with each other and do some peer collaboration. Um, and then facilitating that discussion, re-directing and facilitating that discussion, adding to the discussion for different groups. So you've got to build in the time, um, and I think its going to affect, I don't want to say its going to affect the content, because I'll still teach the same content. But it may change the way that its presented" (Interview 1, Lines 475-482).

"It's a little challenge because the expectation is -- this is the intro course and we have to address all of these different things because this is where they are deciding do if I want to be in toxicology, a forensic chemist, a fingerprint analyst. What is it that I want to do? And that can also affect what their second major is. They have to double major. And so if they want to be a crime scene processor, they wouldn't choose criminal justice. If you want to be a DNA analyst, you would choose biology. So it can really affect their entire career, and so it's hard because we have to address all of this content in a certain amount of time. And sometimes the best teaching you can't put a time limit on. Does that make sense? Like if you're going to do discussions, and group work and student-centered learning, you can't say well, "you have 10 minutes to get this done" because they

may be in a really deep discussion and really focused on something and having some critical reflection. And how do you put a timeframe on that? So, I think that's where it's hard. I have to cover this content, but I want to make this um, more student centered, I want this to be your course" (Interview 1, Lines 515-531).

"This is the only part that I'm a little bit, and I don't know why I am anxious about it, but I am anxious about it because it is a new, um tool, for me to use in class and I haven't done it before. Um, but what I anticipate is modeling it for them first. And showing them the use, the change and the value, and then having them go out and find those real life applications and that may facilitate a transformation (phone buzzing) when they go out and they say a little t, (Makes hand gestures of a small, letter t) a little transformative experience…A little t! A Transformative Experience. Right. And they go out and they say, "Wow! This is really applicable. I really do, can use this!" (Interview 1, Lines 447-459).

Engaged Category of Engagement

| Sharon | Although worried about implementing TE correctly, Sharon didn't anticipate TE changing her teaching practice. She already had students writing reflection on a blog and intended for them to use the same format for their UCV journals. She worried the structure of TE might limit her creativity as a teacher, but felt the directed and intentional practice of | "Its just remembering to do it. That's about it. Which I think its not going to be that bad because I already do the blogging. Cause that's what we were going to do, we were going to do it on the blog…So the good thing is I have something in place. I'm just going to have to be a little bit more directed or intentional. Intentional. That's the word I want. More intentional about what I am doing" (Interview 1, Lines 499-503). |

connecting content to everyday life would benefit her students.

She hoped TE would help her see more students in the integration and transformative categories on the STLR Rubric used for the STLR assignment for her class.

"I'm hoping that I might see a better uh, see, that I might see more of that transformative or that integration, that it might be more clear to me. Or, and it might, it might provide students with a better foundation on how to write. Cause I don't want to feed them the questions. I don't even want them to see the transformative rubric…Because some people will just write to the rubric. So I actually don't let them see it. Cause I feel like my questions are clear enough to know…You know cause I want it to come from their, because this is not content like a grade. You can't put a grade on transformative"

(Interview 1, Lines 601-607, 621-624).

Mitch

Already comfortable with teaching with transformative assignments through STLR, Mitch's initial view of TE seemed in line with his current practices. He was very used to including examples from his everyday life and travels in his lectures, so switching the sequence to let the examples come before the content was not unsettling for him.

He looked forward to the examples that students would bring and hoped to have participation from the students as he worried without a grade attached they would not do the journals. Although his class was predominately lecture due to the number of students enrolled in the course and the

Interview:

"The class started out as probably 100% lecture about vocabulary. That's the way most starting (class name) start up. This word means this, this word means this. And then they slowly work in examples and then they add in other things like, I like to add in a lot of little video clip and that stuff. (Interview 1, Lines 289-293).

"My goal is to, again, it makes going through the material very slow, that every single concept, every single vocabulary word relate it to a real-world example. Especially in the first couple of weeks examples have to be very, very common because they may not have had any exposure

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amount of content to cover, he was comfortable when students would share their own examples of the content or ask questions. He updated his slides after every class to include new examples shared by the students.

Mitch knew his course was a survey course for his department, so having enough time to implement TE while covering the breadth of content was a concern for him. He was not used to facilitating small groups, even though whole group discussion was encouraged during his class.

to anything other than [Television shows]. And maybe something that is at the top of the news. And so it's got to be usually a [non subject] related example saying this is how it's going to work in this kind of case. And relate those example to something they can visualize. Cause otherwise it's just a string of vocabulary words that is pretty much meaningless" (Interview 1, Lines 137-150).

"I guess they [the students] have some input. But in this it is so directed because of the way the course is driven that we don't get to...you know, in other classes I have, specialized because we have narrower focus with more depth so I can let the student choose more exercises and do we want to work in teams, do we want to do individual, do we want to do a paper? Do we want to do a presentation? Do you, you know, and certainly get their input on the involvement. Here, its, uh, because of the quantity of the students and the quantity of the subject it's been, yeah, challenging" (Interview 1, Lines 437 – 448).

	RQ2: Implementation Data Collection 2	
Participant	Summary	Data

Untrained Category of Engagement

Rhys	Rhys needed a starting point from the student perspective to be able to gauge if transformation was happening. Without knowing the point where the students entered the skills he was teaching, it made it difficult for him to know how much of a change had occurred.	"I don't have any sense of gauging improvement. I don't know what students came in since I didn't do the pre-test or anything like that…I don't know the student who kind of came in with one mindset and may be leaving with another" (Interview 2, Lines 9-13).
	His biggest change in his own teaching was his realization that he could specifically target something he wanted to change in students.	"I think it was just sitting down to specifically target something that I wasn't happy about. Something that I wanted them to try to learn. I had never done that before. I'd never thought, 'this is something I want to see change in the students, so let's try to come up with some way to…realize this needs to change.
	He found the most challenging part of the planning process was thinking about the examples he was asking the students to bring back to class. He worried about the students finding examples in their everyday world. When the students brought their examples to class, he found they were similar examples to the examples he had shown them or the students had conducted an internet search to meet the criteria. This was somewhat disappointing to him as he wanted them to go and look for examples in their own lives, not mimic the ones he shared.	Because in the past it'd always been, if I got fed-up with it on the homework I'd stand up in class and make some kind of comment about it without actually letting them get their hands dirty and play around with anything for themselves. And so I really think its just sort of the, me, realize that if I make this motivated, this actual effort in doing this, I can elicit more, at least hopefully more of a response in them rather than just flying by the seat of my pants" (Interview 2, Lines 116-127).

"It really took a lot of thought in the planning stages of 'is this something that I think would be too difficult for the students to try to find,' or do I think it would not be that hard? I |

Rhys thoroughly enjoyed the conversation and discussion with the students during the small groups. The activity helped build the community in the class and developed a rapport where students began meeting outside of class and helping each other with the content.

Beyond the frustration of some students not completing the journal assignment, Rhys found the students to be actively engaged in the small and whole group discussions. He enjoyed talking and interacting with the students

Rhys struggled to remember to bring out the change and value during the facilitation of the small groups with students. The metaphor 'Composition is Key" lended itself toward several humorous student examples, but digging deeper into the change and value was not as evident. Although enjoyable, without those discussions, the activity was not as impactful for the students.

think that was my biggest worry. Is could they find these examples?" (Interview 2, Lines 262-265). "So that's one thing I want to keep in mind is make sure the example that I give is maybe...relatable enough that they would be able to take that and realize that this is something that I might see going on. So I think that's one thing: realize that if I can have a hard time, not finding an example, but a good example, they might have a hard time finding any example" (Interview 2, Lines 559-563). "The challenging thing is just figuring out, well, what is the most useful, maybe the most impactful example be? That's the most challenging thing for me right now" (Interview 3, Lines575-576).

"You could search for those, but its not a matter of typing something into a search bar. I wanted you to go out and find this in your daily life rather than having a list presented to you and then you finding that" (Interview 2, Lines282-284). I'm just disappointed though. That wasn't the spirit of what I wanted them to do (Interview 2, Lines 203-204).

"I definitely felt that when I assigned the first journal I was worried about 'how do I make this a clear, a clear assignment to the students?' What I want them to do. This, this and this. And I feel like with the first journal, I didn't do a very good job. And the second one, I might have been a little bit better. But I definitely want to remember the sort of, like we were saying earlier, it's not just the use, it's the value and the change. I was to be sure that I set them up to try to

start thinking about and answering those questions. So I want to try to start thinking about and answering those questions" (Interview 2, lines 476-483).

| Samuel | Samuel struggled with the balance of content to cover and facilitation time for student discussions. He felt pressure to make it to every group to scaffold the student examples. This pressure made him feel the discussions were not genuine and felt forced. | Interview:

It's just the first time I've obviously noticed it. Really can't have a good answer on it. All I can say is I see it now. (Interview 3, Lines 257-258) |
| | He became aware for the first time that his own delivery style impacted student engagement. In an effort to cover content he felt behind due to the research, he blazed through a section of science content that was completely lecture based. He noticed the decline in student interest and engagement when his method of conveying the material changed. This new awareness led to thinking of ways he could restructure the time and weekly quiz assignments to allow for student discussion and still cover the concepts required of the course. Targeted is a good descriptive word for how Samuel saw his obligation to cover content as in-depth as the textbook during his lectures. | "probably the most challenging concept was trying to do the group work, talking about the journals being that you have 30 kids and hitting

Every group, yeah,

So many. And you want to be engaged, and a good conversation. And oh, this is going somewhere, and then you're like "oh, shit!" I've been here too long, and I've got to go to the next group and then I cut out. That is probably one of the more complicated things where I think the covering the journals in a broader system is too time consuming. Where I think it maybe, from my level of comfort and effort, to say "do I have a couple of volunteers who would like to talk about their journal" (Interview 2, Lines 270-280).

"I prepared the same information you know, but my approach was different. My approach became more stand and deliver instead of stand a cooperate with the material |

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and gain it that way… so it was different still. But then I look back at other chapters and I think, what I do more there anyway. So I'm wondering if I kind of check out at certain points, or certain topics, and decide, uh, don't care and I'm going to give you material instead of find interesting things in it and really bring it to life, the way I do with this chapter, or that chapter, or whatever…so, it made me aware that I might need to challenge myself because even if we're talking about scientific application of (de-id: name of discipline) it can still be colorful, it can still be variable. It doesn't have to be rigid and horrible. Um, just because that's the way hard science is teaching it, it doesn't have to be that way, over here. And, uh, maybe looking at the types of preparation are the same, but, conveying that changed. The way it was conveyed was different… and it's because …this next chapter is like, oh! We've got to get through this. So I pulled away from it a little bit and said, "Let me just give you facts and we'll run through this." But one of the things you see in the classroom were student activity was decreased. A more glazed over look appeared. Now, that happens in science anyway to a degree. Right? So, again I don't know if its content or if its delivery. My guess is maybe a little bit of both, but delivery is part of it. Um, and so it has questioned the importance of having a delivery and not getting so hell-bent on benchmarks…So, yeah. Uh, that was nice to see it back to back kind of like that where it allowed me to

see the change I made" (Interview 2, Lines 218 – 247).

"And I don't know if that's normal or if that's situational, but either way it tells me that I've got to do something else. We've got to do something to make it a little bit better here. Yeah, it definitely makes me think. Even, just trying to be a part of the research makes you consider, well, wait a minute, why was that different than that? …so yeah. I think it was beneficial regardless. Um, just to make me aware of what I was doing through those two sections" (Interview 2, Lines 260-267).

Compliant Category of Engagement

Jamie

Jamie was uncomfortable and frustrated through the planning process. She had to look at her content in more focused ways that was unfamiliar to her. Her usual strategies for lesson planning did not work for her when implementing TE the first time. The use of a metaphor was challenging for her.

The metaphor was crucial for students to make connections to their everyday life.

Surprised at the students' thorough engagement in the UCV discussions. The personal nature of the stories

Interview:

"So I'm a very linear person. So I don't work in metaphors in my brain. So that part of it was a challenge to me because I mean, I'm just going to be honest. I'm like ok this is like really? A metaphor? Seriously? They're not going to get it. They're not. I mean. But as I got into it, it made sense. I just don't think that way. And there's some people, I have friends like this…who are very non-linear…I'm moving my hands around like crazy…And I'm just not like that. But then you saw my planning for it, when I started planning and it was like a web, crazy all over the place and I look at it and I was like "this is not how I work!" but it is how I work! Cause that's how I worked for it. I don't know if the looseness of having a metaphor took

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some students shared was also unexpected and led her to observer that TE built and even stronger, student centered community in her classroom then before.

 The student-led engagement enabled her to not have to lead or talk in a discussion for 10-15 minutes.

me out of my very linear mode or not, but that affected me a great deal and just the planning you know because I thought about what I thought creativity and risky meant, but I left it up to them to kind of construct that on their own. They were constructing that idea. And as a class we constructed and their definition was, I don't know, different, but it was different, I can't even remember what I thought of on my own before it. But we constructed it as a class and I think having that metaphor and having to dive into each of those, defining each part of it"

 (Interview 2, Lines 302-323).

"I've taught this class, I've adjuncted this class since 2010, and I've consistently taught this class, I mean it's a little different here, but its basically the same class, and so I was pretty much on auto pilot with it, so this forced me, like, to really rethink it--how I looked at the class. I had to, I did more planning than I thought. I always joke with the students on the PowerPoint. They'll say can we make a power point? And I'm like, "No." Because what most people do is they put the words and they say the words and I can read a PowerPoint. So they, you know, there's this like running thing that Dr. Jamie doesn't do power points….So putting it together, I had to really do it in such a way that it wasn't a typical PowerPoint"

 (Interview 2, Lines 124-135).

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"I think they get it and so that is the difference in the way that I taught before and this way to teach is, for me, again, forced us to look at it and probably part of it was where I thought I was weaving this information in this semester but it wasn't very explicit. It was like, Oh, they'll get it. But this kind of forced it to be explicit. Not in a bad teaching way, but like, we were forced…they looked at it and they made those connections I had hoped they would before but now I know they made those connections. So that was a difference between the two. The original, you know how I taught before was "oh, how I hope they get this, whereas this I know that they get it. Like if I were to be, you know, if I were to assess did they get the information, before I wouldn't have any data to back it up. Now I can say Yes! They did this, this and this. So that, that was a major strength to this" (Interview 2, Lines 252-264).

"…we had to define what each part of the metaphor meant. And that all connected back to the content. So it was the metaphor itself helped them to make strong connections back to the content" (Interview 2, Lines 295-298).

"but there were times where I felt like there were 10-15 minutes where I didn't say a word. They were doing it and they were leading it. That was very enjoyable and very gratifying because that's how I wish all the classes went and this class, I mean, its

just working that they're doing it that way. So that was enjoyable to not talk…Hard from someone who talks a lot to say. I'm glad I didn't talk. (Interview 2, Lines 567-573).

"…the personal thing they talked about and open up and admit that something was risky and that's a personal thing and it surprised me that they were talking about that. Pretty relatively early in the semester. I work really hard to build community but it surprised me that how much more community that this built. That surprised me. (Interview 2, Lines 514-519).

Observation:

Jamie called over the weekend and asked to meet at a coffee shop to consult. She was upset and extremely worried that she did not know what she was doing and had missed something extremely important in the professional development session. She came prepared with her thoughts mapped out in a web and wanted to talk through the example she had selected as her own transformative experience. She had already thought of all the pieces, she needed some help getting them to fit together.

On Cycle 1 Day 1, Jamie shared a Power Point with the students to help guide her example of her own TE. The Power Point, however, was not one that flowed in a linear fashion. It had the metaphor, a quote about

creativity, and a video of her example. The content was also included but Jamie flipped back and forth through the slides as the discussion with the students warranted the use of them. She did not follow a set pattern, instead allowed the students to direct the flow of the information they needed to understand the differences of creativity in adults and children

Kristin	Despite her initial apprehension of trying a new teaching technique, Kristin was "pleasantly surprised" at how well her students bought in to the process. She claims modeling for the students from her own transformative experiences and facilitating during the small group and large group discussion as important processes that helped the students become excited to find examples of the content in their everyday life.	Interview: "… we developed the UCV journals and I explained it to my students and that took a little preparation because I had to work on my examples and stuff. So how can I demonstrate use, value and change in my experiences? Where am I seeing this in my everyday life and how is that applicable and useful to me. So kind of developing those examples and going in confident in my examples. So. And like I said, any new instructional technique or this particular tool I wasn't familiar with so there was a little bit of anxiety about using it in the classroom" (Interview 2, Lines 64-72).
	The students began to change their level of direct interaction with her as they participated in collecting and sharing their own personal experiences. It opened up dialogue in the course whereas lecture was the dominant instructional method. Kristin realized the impact of utilizing student perspectives in her class had been missing and she enjoyed the interaction with the students and seeing their application of the content into their everyday lives.	"Definitely, I think important was modeling for them. So finding a good clear example of what the expectation is and modeling for the students. This is application. This is my use. This is how it changed me. This is the value I see in it. Because I think that it helps them when I scaffold it, when I give them a model to follow. So finding a good clear example for them Um, I think was really important" (Interview 2, Lines 398-403).

"facilitating. So when they brought back their UCV journals, kind of facilitating discussion and re-directing and trying to figure out exactly what – what they should pull from this particular content and this application and how that's a value and or useful for them and value for them" (Interview 2, Lines 403-407).

"…prepping for it is one thing and actually using it in class is something different. And like I said, I was pleasantly surprised what this tool, this, this UCV journals in particular were able to facilitate in the classroom. It opened up for discussion, it opened up dialogue with, between me and my students and not only assess their understanding of material and the content and how it applies, um, but also look at some like, is this transformative? So looking at these use, value, the change and the change in perspectives and the values that there's some transformation occurring at a small scale within my students… Um, and as a facilitator, a lot of times they have they had the right idea and they were on the right track, and they just needed a little bit of um, help or guidance or redirection.

" (Interview 2, Lines 77-90).

"it opened up a dialogue where before this particular course had been structured…but opening up a dialogue between the students and

myself" (Interview 2, Lines 190-194).

"Was there anything that was surprising? …the students being motivated. And the students really buying into this process. And the students really excited. I didn't anticipate. I knew they would do it because the expectation was that you complete this assignment, but coming in and not just when I was there, but having conversations within their groups where I wasn't just standing next to them, but really discussing these examples with their groups. Um, and getting feedback from each other, and not just myself. So yes, when I'm standing there and I'm facilitating it, you're going to be participating, but actually I could hear other groups and they were actually doing the assignment and they were excited about the assignment and so that was a little surprising" (Interview 2, Lines 176-186).

Observation: In the student groups, one student brought an example of "Bodies Talk" but was unable to share the connection to the content. Kristin helped her through the re-seeing process by asking her how knowing this information changed her view of the content. How was this information valuable to her in understanding forensics? With Kristin's facilitative questions, the student was able to articulate the connection and was willing to share her new understanding with the entire class during the whole group discussion without any hesitation. (Cycle 1, Day 2).

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Engaged Category of Engagement

Sharon | Already comfortable with student led discussions, Sharon found using the metaphor and vocabulary of UCV the most challenging parts to implement in the first cycle. She felt these two challenges contributed to her feeling that the first cycle did not flow as much as it could have. She was very familiar with her content which she attributed to making TE implementation harder for her as she already had a specific way of teaching the content and worried she would not do TE correctly. | Interview:

"I think it made it a little harder because I had to uh, I'm not saying narrow it down, but I had to rethink how I'd been teaching it forever. Because I had my way of doing it, and all of a sudden I had to throw in this, these new strategies and so it was just a different approach, so I was more worried, as you well know, I was more worried about making sure I checked boxes. Did I talk about Use, Change Value? Did I?" (Interview 2, Lines 208-213).

Using UCV vocabulary was new to Sharon, but she found that the more she used the vocabulary in class, the students began to incorporate the same vocabulary into their discussions and writings.

"I really enjoyed my vocabulary. And that was one of the things that was successful with the facilitation was that I had my vocabulary and we began to see the students use the vocabulary"   (Interview 2, Lines 347-349).

She was concerned that the examples the students shared in their UCV journals were frequently the same examples she had given them in class. She wanted to see the examples from their everyday lives, not repeats of what was discussed in class.

"I feel like people really moving in to transformation so quickly. Even on the change, on the, you know, from use to change. They're like "oh my gosh! I go to the school everyday and I never even thought about why these students behave the way they do" (Interview 2, Lines 362-366)

Even with the examples mimicking her own, the first implementation surprised her in how students were moving into the beginning stages of

a lot of them even though they didn't look beyond still had major, even in my muddling, they still transformed, had the beginnings of transformation" (Interview 3, Lines 442-444).

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transformation this early in the semester. The main difference in teaching with TE was the intent-ness in which she directed students to look for use, change and value. Although she had taught with stories before, she had not had the same intention that TE pedagogy connotes. She found the re-seeing process to be smooth as scaffolding is already a common practice in her class. She found the re-seeing process helped students to see the value, even when they struggled to find it in their journals.

"Well, it's the intentness of directing them to really think of this topic in these three ways: use change and value.

(Interview 2, Lines 452-453).

"And it may be that they do a journal and they do the use, and they do the change and they're going, I don't see this part yet. And that's ok, because they are going to go through a process where either you or other students then can go "oh! But what about such and such?" (Interview 2, Lines 698-702).

Mitch

Mitch describes the biggest change to his teaching practice was the order in which TE presents information to the students. He changed his lectures to include his examples before sharing content. Allowing the students the time to discuss the examples they brought to class gave him a clear visual of student understanding of the content. He found the students would help each other to understand the content while sharing their examples. They relaxed during the small group discussion because they were realizing they really did understand the concepts being taught.

Interview:

"Oh, I guess, find something that gets the students involved instead of passive viewers…

The process is a lot more than watching television. But they're kind of used to that process of watching TV, watching movies, watching video games and sometimes you just sit and there's no real challenge to you….I think this helps get them engaged as opposed to mindlessly following the words on the power point and that kind of thing" (Interview 2, Lines 252-261).

" It's more organizing what I already had. It's really more shuffling the order that I cover the subject, not so much that I'm changing anything" (Interview 2, Lines 38-41).

Mitch was genuinely surprised at the level of participation and engagement of the students. His greatest worry was what to do when few students came to class prepared. He was shocked that many students participated. He was able to see for the first time through the journals that the students truly understood the content rather than assuming through their head nodding and expressions that they were comprehending.

"Usually I do the definitions of the concepts and talk about a specific example and in doing this I started with an example that led to questions and then covered the concept…It made me have to pose a lot of mental questions that I'm sure the students were running into. What do we do in this instance? How do we make it work into this? How do we apply the concepts into this new situation? It really made you conscious of the kind of background questioning you've got to do to understand the concept…I think it's making them, for lack of a better term, inquisitive. Its making them wonder about things and start to piece it together as opposed to a student who's kind of passively receiving bits of information and trying to memorize them. " (Interview 2, Lines, 55-76).

"The students seemed to really become more engaged because you can see them kind of, when I posed the example instead of them just nodding along saying 'I agree' instead you can see the puzzle on their faces of 'how do we fix this now that we've changed something?' or ' how does it apply to this example?' And you kind of see the puzzlement in the students' faces" (Interview 2, Lines 80-86). Do you think those moments where you saw that [puzzlement] on their faces helped them go look for examples in their everyday life?

Oh, yes…cause it made them realize they understood the subject well enough to see an instance where the general rule doesn't apply anymore.

And that was kind of an eye opening experience where the stuff from class actually applies in the real world and I see examples that won't fit or questions the original assumption" (Interview 2, Lines 90-100).

" I guess the biggest challenge I worried about was kind of student apathy of maybe they'll participate, maybe they'll just be physically there. Not really participate. Cause I wondered what we would really do if like three students showed up and they're the only ones that did it….and, uh, you know, do we have the rest of them just kind of stare at them, or do we still break them into groups and pretend that everybody did it? But everybody did it. Which was pretty shocking" (Interview 2, Lines 117-127).

"I think it works real well for our subject" (Interview 2, Line 290).

Participant	Summary	Data

Untrained Category of Engagement

Rhys

Rhys noticed changes in his own practices because he'd never done anything like this before. Prior to implementing TE, he'd never thought about directing a change with the students from the beginning prior to instruction. Before it was happenstance to share personal experiences with content and not intentional. He spent much of the preparation time finding the right examples to share that would best help the students to become better in their careers.

Interview:

I feel like they didn't take this as seriously" (interview 3, Line 12).

"I feel like the more of these [UCV journals] I had them do, the less active and less serious they took it…I was thinking about making it work more, sort of having a bigger penalty for not participating, but would definitely help things a little bit. And that's just, the only negative thing that I can say. I – I really wanted this thing to be the most impactful to them.". (Interview 3, Lines 17-18)

He enjoyed the interaction in the students and the classroom community building that occurred as a result of the UCV journals. He liked that the wall between students and professor opened into a more conversational space.

While he does see engagement with the students, there were areas that were extremely frustrating to him. He felt the implementation of TE was not as successful as he would have liked it to be as student participation waned greatly in the second cycle of implementation. He gave several suggestions for

"I didn't explicitly list the assignment as well as I should have. And we talked about making something to project up that they could read if they wanted. And every day when I went to assign it, I thought, 'oh ****! I didn't do that!' I…knew I was going to do it. So that would hopefully make it clear to them rather than me just saying it. And I got up there and I thought, 'I did not do it again!' Well, I'm not going to try and fumble through writing something down now. So that was probably my biggest regret that I didn't change…how I assigned those journals or how I presented what I wanted out of them. I know I wanted to, and should have written myself down a note,

the declining student participation in completing the journals: timing of the semester was known for the first round of exams in most classes, the lack of an assigned grade for the assignment, and the students not comfortable enough in the class to talk in a whole group setting.

He also shared his frustration at his forgetting to including the need for students to look for the change and value sections of the UCV assignment in a slide for the students. Not articulating what the students were to do contributed to the casual nature of the student responses.

He discussed the types of stories he used as examples may have contributed to the declining student participation. The second cycle had stories were much more personal to him and easier to make the connection to the content. However, because the stories told in Cycle 1 tended to be of a more casual nature depicting mistakes from written communications that were annoying to him and not a serious as the examples he shared in Cycle 2. This may have set a tone with the students that they did not have to take the assignment seriously.

When looking for student transformation, Rhys needed a way to gauge their growth. Not knowing their starting point led to uncertainty in knowing if a

do this before class" (Interview 3, Lines 100-112).

"Oh I liked, well, I liked so, first getting more personal contact with the students, you know, and letting them know more about me and learning more about them. Listening to them explain their journals and stuff like that. That was really nice because we're there for the students. We want to – we're not just there to regurgitate information that is in the text book. We want to get to know them, and we want to help them learn the material and I felt this was a great way to do it. That was really enjoyable. And also the whole goal behind this was to hopefully strengthen something they were weak at, so I'm hoping that that's happening and like you noticed in class, someone brought the point of where we need to justify, and how far do we need to go? So, it does seem to be making a difference which is , you know, great. It is what we want." (Interview 3, Lines 298-309).

"I think it's just the difference between directly trying to make a change in something versus indirectly doing it. I set out. I wanted to make them realize that they need to word their sentences correctly and use punctuation. That composition matters. I wanted them to realize that they need to justify what they say, so I set out, I designed these cycles to address those problems to hopefully, spark some change in them. Whereas, before this, whenever it would pop up I would, you know -just doing it on purpose rather than doing it because something happened. Proactive versus, what's the opposite of proactive? Uh, non-proactive? (Interview 3, Lines 313-321).

transformation was occurring, making it difficult to know how to assess the change and growth in the students.

"Absolutely. Without this I would not have known where to start to do…I'd never, I'd never seen anything like this before. I'd never tried anything like this before. Um, and without coming in and getting in the training and talking with you about this, I wouldn't have changed anything and I'd still be doing what I always used to do. So, yeah. It's definitely changed how I've done things and how I've thought about things" (Interview 3, Lines 335-341).

"I would say it's not even comparable. In previous classes, I didn't do anything. I mean, If I was up there trying to explain why something is good or something is bad, it might, you know, one or two people might catch on. But the people who probably needed it, weren't the ones who were listening anyway. But now, I feel like, everyone got – throughout the entire time-everyone got involved, maybe to a lesser extent as time went on, but everyone got involved. I feel like, at least at some level, it definitely made a difference in all of them, somehow. I think it's just the awareness of "oh!' ok. And maybe not even now. Maybe like you were saying, maybe a semester down the road or a year down the road they might realize, oh, this is what we were doing then. And this is, we were doing stuff for a reason. Uh, so yeah, I'd say it's not even comparable. Because I did nothing, so there was no change that could have been made. And now, I would say everyone, at least I hope everyone has had some change" (Interview 3, Lines 579-595).

| Samuel | Although student participation was limited in the second cycle due to absence and a lack of engagement in the UCV journal, Samuel's awareness of his shifts in teaching with an intentional focus on helping students grow was a marked difference from the earlier interviews. Even though there was still a considerable amount of content to cover, restructuring some of the assignments and adapting the UCV journal process to fit his teaching style and comfort levels interacting with students allowed him to have the flexibility and awareness to cover material in different ways. He experienced the highest scores on the first cycle of testing in the three years he had taught the course. Student comments indicating their own transformation were occurring earlier than ever before in a semester, making him aware that his intentional efforts to ask students for their own experiences with content have an impact on students recognizing their own transformation. | Interview:

"The difference between now and prior to…is seeing the real impact instruction can have on them" (Interview 3, Lines 255-256).

"Some would say 8 out of 30 is failing, because it's not half. And that's fine. It's understandable. It's a numbers thing. What I look at it is, well, those 8, have then become more formative citadels for the effort - promotion where more of those remaining 22 might come on board later. Outside of classes of whatever because they're going to be a little bit more resilient because they've received an intention effort vs a sidebar effort that was more happenstance. It will be a little bit more concrete so that they'll then develop and encourage others to be the same way for you. So I think its successful even if its two people who latch on. It didn't cost the other 28 anything. They still have the same education, but the two people are going to be way more than they ever thought they were going to be. That's good" (Interview 3, Lines 280-290).

"…but I do think if, as an instructor, the effort of transformation is more intentional, in my approach to teaching, then the effort of transformation will be more recognizable by the student on their own" (Interview 3, Lines 407-411).

"But I really believe that if the instructor is more intentional then their [the students'] ability to assess themselves will be more intentional…they will be more aware of the transformations that they've |

made or considerations they've made that they're changing" (Interview 3, Lines 415-419).

"She was in a group, my first group. Which nothing was intentional. I'm still trying to figure out what the hell I'm doing. And its magic. Whereas now, its focused. And so, it is intentional. And so when I see that, I see the dots and I've connected them and I know and I can see students and I'm like, Ok. I'm going to get along with that student. That student and I are going to connect. I know that. Um, cause you just see certain people are going to be probably a little bit more aware, but when Its focused, you're getting other people too. People you wouldn't normally key in on and make connections. So I think, ah, making it focused has made a huge difference and I like that I'm intentional about it now" (Interview 3, Lines 519-529).

Compliant Category of Engagement

Jamie

In the second cycle, Jamie was able to focus more on the students as her comfort levels in implementing TE were much greater. She trusted the pedagogy more once she knew how deeply engaged the students would be because of the process. She observed that TE changed the depth of the students' discussion beyond the class lecture and textbook information. The additional step of asking students to find examples of content in their everyday lives helped her class continue finding examples

Interview:

"I had to really think about the, um, the stories where the stories on the first one came to me pretty quickly, but this one I had to think about. And then once I got something then I was like, "Okay." (Interview 3, Lines 33-35).

" And, so, just the discussion itself worked. I feel like the story worked out well. Um, and the little PowerPoint that I used to guide it, I think that worked very well because I was able to, as they were talking, if I thought – if they said

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even after the unit instruction was completed.   Jamie noted that she watched them grapple with the content in new ways through the re-seeing process and planned for the use of a fluid Power Point to help them instead of covering each and every slide in a particular order. She was able to spend more time in the re-seeing process with the students and noticed them beginning to help each other assess their own grasp of the content. This helped the student discussions become more focused on the change and value portions and less focused on the use. They were able to see how their experiences were more directly tied to the content and did not feel a need to share every detail of their observations as they did in the first cycle of TE implementation.

Her challenge this time was not in planning the student interaction, but in deciding which one of her own stories would best help the students see how the content changed her own perspective and gained value for knowing the information.

something, or I thought of something, like – so the PowerPoint had a lot of content on it…And, so, like, it starts with the story to get us going, but then there was a lot of content. So it really was flexible in the way that we didn't just go through the slides. And this is to me how PowerPoint should probably work. I hate PowerPoint. I use PowerPoint to guide, like, one of my other classes, but I just hate PowerPoint. But using it like this, it worked"(Interview 3, Lines 58-68).

"Actually doing it was easier and the – the discussion part, that was, I mean, a lot easier, like, I trusted it more, where the first time I was, like, okay is this really going to work? And I honestly, it was where I'd been planning for, like, a week and a half and upset about it, like, I looked up on Sunday I was, like, oh, yeah, we're - we need to do this. So, you know, Sunday I pulled my little PowerPoint together and have it ready, you know, to go just – I wanted to be prepared, but it just – it – I trusted the process more because that was more comfortable " (Interview 3, Lines, 245-251).

" I think the students were more comfortable with it too. I think because they knew what to expect. Um, because our class is very much discussion-based, but there – it was – this is a little bit different than what we normally do. It's not, like, a completely different thing, but just, it's a little bit different than normal. (Interview 3, Lines 285-286).

" And they jumped right into that…the second time around… I mean, honestly…

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I can give you a one-liner about what I saw and then I'm going to spend five minutes telling you about [the change and the value]. (Interview 3, Lines 305, 314-3-15).

"that may end up being the thing that I don't know if you've seen that in other places, but

there are some, um, those two deep thinkers it's not just this – it's in class, they make those connections and it helped their fellow students to see stuff in a different way than when I think I am helping them make those connections" (Interview 3, Lines 419-425).

| Kristin | By the end of the second implementation, Kristin was very comfortable with the facilitation of TE and looking for ways to adapt the pedagogy into other courses. She felt TE led students to small scale transformations because it made content more relatable and more personal. | Interview:

There was not a lot of opportunity because it was lecture based. There were questions and things like that, but not a lot of opportunity for discussion or anything outside of the lecture itself. There were no opportunities for me to get to know my students, there were, it's really interesting for me, I like to know why are you doing forensics. What brought you to this field, um and without this TE, um, that wasn't a possibility within the classroom itself. That wasn't a focus of the classroom itself. Now with TE, not only am I learning about my students, but I am learning what they already know about forensics. What are they seeing in their lives in regards to forensics. What path do they want to take? Why are they interested in this? So all of these things that are individual to them

and allow me to get to know them on a more personal level if that makes sense versus just a lecture. And we talk about |

the banking system of education and lecture based is a banking system of education and hopefully with the TE pedagogy we move away from that banking system of education and we move to where they are really retaining the material because its becoming more personal, more relatable to them based on their experiences" (Interview 3, Lines 377-392).

They had a real interest in the material itself. And they wanted - genuinely wanted to be in class. I think it's because of the way the class was constructed in addition to this new TE awesomeness (Interview 3, Lines 457-459)

Engaged Category of Engagement

Sharon

By the second implementation, Sharon's comfort with the TE pedagogy allowed her to rethink how she approached content. She had to consider the vocabulary and how she wanted to incorporate the metaphor for this unit. As an experienced, tenured professor, Sharon had taught this content many times. In preparing for TE, she observed that she makes assumptions and adheres to patterns in her teaching because they are easier or familiar. TE made her rethink her content in terms of what she needed to teach to get the message across to the students instead of what she had always done. The implementation preparation was much smoother the second time and was a

Observation:

"I felt much more confident fixing it, even though the content was completely different from the first cycle. Uh, in my preparation it required me to, uh, think more closely about my objective, what vocabulary I wanted to incorporate, uh, kind of how I wanted to approach the topic from a real world situation, you know, thinking about my metaphor. So, it caused me to think a lot about the different components of the course instead of just thinking, "Okay, it's time to teach the legal unit" (Interview 3, Lines 13-20).

"Well, I think one of the things that I've learned through this process is, I assume, maybe – after you teach something for a really long time you start making

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catalyst for her changing her teaching methods.

This process of rethinking helped her see how the students were experiencing the content and what she could change in her instruction to help them finish her course knowing they had truly grasped the information.

Once Sharon had determined the metaphor, the remainder of TE planning was smooth. She felt determining the metaphor was easier with a partner or a team than by herself. Once the metaphor was found, she knew what she was going to teach and how it needed to be put together for instruction. She was already thinking about how to incorporate metaphors more in this course and in her other courses. As she read the end of course reflections, she found The metaphors for both units were mentioned throughout the students' writings in class and was often used in small and whole group class discussions.

Sharon changed how she implemented the journal for the second cycle. In the first unit, she asked the students to do a journal for use, a second journal for change and a final journal for the value. This unit, she had them do each journal entry with all three components of use, change, and value. She felt the first way gave deeper explanations from the students as to how they were seeing the

assumptions or you skip over things, or you know, you, um, you have patterns that you just want to stick with because it's easier that way" (Interview 3, Lines 27-31).

"Because I would approach it from a different

perspective and, so, I had to just kind of rethink it, and it didn't hurt to do that, that was a good thing.

Why do you think it was a good thing?

Because it reminded me of what I needed to teach. You know, instead of just assuming and just going with what I'm used to going with, I had to rethink things. And – I'm trying to get the word I want to say – it just made me, um, contemplate what it is – what message I wanted to get – and one of the things I had told you about that I've been wanting to incorporate was more on sexual misconduct by teachers, and so I thought this was a great springboard for that situation" (Interview 3, Lines 38-50).

"So, comparing to the first and second one, uh, I felt like I just had more confidence in being able to do it and then, also, I was able to save myself a lot of time because once I knew what I was doing I could just pop the content and things that I knew into it.

So, did the preparation this time take as long?

No, that's what I mean, it was a lot – it saved a lot of time. I was busy worrying that I was doing it wrong the first time and then the second time I was like, "Okay, now I know what to do right," and

content in their everyday lives, but she did receive much more varied answers this cycle even with the shorter responses.

so that's – it was just a lot faster once I got the metaphor" (Interview 3, Lines 95-106).

Her greatest frustration was the limited time during the re-seeing process combined with the increased interest level of students left her feeling as if she missed some of the student journal examples.

"I mean I've always given the stories...I've just, uh, but I didn't give them time to do this, like the three question journals. That's where, I guess, that's the biggest change. You're reading those stories, that's probably – that was a definite change, that was something I wouldn't have done. And giving them time to talk about it in an organized manner. I think that's the secret right there. It wasn't just haphazardly discussing it here or there, but it was a systematic organized manner of looking at situations and then the students talking in their small group, me going to their small group, but you know, the thing is, you go to this little small group or the table and you get four students sitting there, but you're only hearing one story. There's three other stories there, too. But I got to read those in the little journal thing and that's why I said if I felt like there was an issue that I needed to be worried about I could contact the student" (Interview 3, Lines 479-500).

"I had a plan to execute that I knew was going to work and it worked!...I think that's the biggest thing. Kind of like having the lesson planned and following it…I mean, its just a formula and the thing is even though it might be a formula and you know, with all – with baking…you might add a little more sugar, or a little more something, you know to make it work better and that I think the transformative [experience] approach allows you to do those kinds of things, too." (Interview 3, Lines 509-519).

| Mitch | Mitch found the second cycle of TE implementation much easier than the first one. He continued to be surprised that everyone got involved-even the quiet students who never say a word in class. He thoroughly enjoyed watching the students interact. These observations gave him the confirmation that students were understanding the content that previously was only an assumption that could be made based on their body language. | Interview:

"Well, the second time I had, I knew what to implement, so it went almost instantaneous much easier and then I knew what we were trying to do and so it was effortless" (Interview 3, Lines 11-13). "The same process, its just a lot easier the second time. It wasn't new" (Interview 3, Lines 51-52). |
| | In both cycles, Mitch did not facilitate in the small group session to scaffold the re-seeing process. He felt the dynamic of the groups would change if he was present and he participated in the conversation. He did lead a whole group discussion once the small groups were finished and was able to scaffold the re-seeing process in the examples that were shared with the whole group. He collected the written examples from the students and returned them the next class period. He observed that the student responses on the second TE Cycle were much shorter and more content specific. | "It was good to see the students, all the kids, engaged. That was a big…thing you worry about. Seeing that they really, really did understand it enough to see an example of what was in the real world…And the second time I think they were a lot more relaxed because the first time they really didn't know if they were doing what was expected and so they kind of felt on the spot of 'I did this, but I don't know if it's what it's supposed to look like. But the second time you could just tell they were at ease with it. They felt comfortable"(Interview 3, Lines 76-83).

"Enjoyable?

Oh, yes. Seeing the students interact because it's really the conformation that it's getting through to them. Because they all sit there every day and nod and smile. But they're programmed to behave that way so you really don't know if they really understand it or they're just acknowledging, "I'm saying what's expected so we can go on to the next thing so I can go home" (Interview 3, Lines 114-121). |

"yes I wanted to join, but I was afraid that my joining would make them a little more uncomfortable. It's one thing sharing among peers, but the minute I show up it's not sharing among peers, it's everybody performing for the professor and that changes the dynamic a lot. I figured they would be a lot more at ease if I were there, but not monitoring" (Interview 3, Lines 131-136).

"Well, it [TE] got them engaged and it got them to, you know, be conscious of how the things from class applies in the outside world. In an awful lot of classes there's not even a pretense of how this works in the real world, or you just need to know it. And, you know, I'll say all this stuff and then I'll give you a test and you'll repeat all the stuff and then we go on to the next class. No sense of anything applied, anything, you know. But this forces them to think, you know, this really does affect them. This isn't just some vague concept that's important, but it actually has meaning" (Interview 3, Lines 199-209).

"Well, the second round they were a lot shorter and more specific because I think the first time they really didn't know quite what to say. And, so, they just, you know, wrote until they couldn't think of anything else to say. The second time they get done they really did focus on the content" (Interview 3, Lines 262-270).