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Transformational Learning in Compressed Field Experiences: Building Teacher Self-Efficacy Through Intensive Summer STEM Camps

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Abstract

This qualitative study examines how compressed intensive field experiences facilitate transformational learning and self-efficacy development in pre-service teachers. Five educators (four pre-service, one alternatively certified) participated in a four-day intensive STEM summer camp for 3rd-5th grade students in rural Oklahoma, preceded by three weeks of professional development and collaborative lesson planning, and followed by a week of reflection activities. Using Mezirow's transformational learning theory and Bandura's self-efficacy framework, we analyzed interview transcripts, reflective essays, and after-action reports through thematic analysis. Three major themes emerged: (1) confronting weakness areas through deliberate choice, (2) first-day chaos to systematic improvement, and (3) confidence building through safe failure. Findings demonstrate that compressed field experiences, when structured with daily debriefing and psychological safety, can facilitate the rapid iteration between disorienting dilemmas, critical reflection, and acting-engagement necessary for perspective transformation. Participants showed evidence of all three core components of transformational learning within four days. Results suggest intensive summer programs designed to support risk-taking and rapid instructional iteration offer viable early authentic teaching experiences prior to traditional semester-long field placements for building pre-service teacher competencies. For alternatively and emergency certified teachers these experiences may facilitate professional development needed to mitigate rural teacher shortages.

Introduction

Oklahoma's recent ranking of 50th in the nation for educational quality (McCann, 2025) highlights an ongoing crisis within the state's educational system. Oklahoma education is geographically diverse as approximately 70% of school districts are classified as rural (Lazarev et al., 2017), educating just over half of the state's public-school children despite rural districts representing only 29% of schools nationally (Palmer et al., 2019). Rural poverty rates of 18.8% outpace 13% in urban communities (Flores, 2024), intensifying educational challenges with economic barriers to student success.

Teacher shortages compound the state's educational challenges. Emergency teacher certification allows individuals with bachelor's degrees in any field, who possess zero pedagogical training, to teach for one year. According to Brown (2025), in November, the Oklahoma State School Board expressed concern that currently 10% of the state's teachers are emergency certified. Increasing numbers of emergency certifications have been granted in recent years, with approximately 5,000 emergency certifications granted by November of 2025 alone, with more expected. Wallis (2022) reports three-year retention rates for emergency certified teachers of 19%. These retention challenges stem partly from insufficient pedagogical preparation, as emergency certified teachers enter classrooms without coursework in classroom management, lesson planning, or understanding diverse student needs—foundational competencies typically developed through traditional teacher preparation programs. Without greater emphasis on rural needs and pedagogical preparation, Oklahoma’s ranking of 50th nationwide in educational quality has little chance of improvement.

Educational Preparation Programs (EPP) require student teaching experiences for traditional teacher certification to provide an authentic teaching experience. The typical semester-long exposure between the pre-service teacher and the school environment builds the development of self-efficacy – belief in the effective execution of actions to attain specific performance (Bandura, 1997). Hands-on experiences that allow individuals to identify successes and challenges build the most powerful contributing source of self-efficacy, termed by Bandura (1986) as the mastery experience. Although EPPs differ in the type and duration of early field experiences offered — ranging from classroom observations to supervised practica — few provide candidates with authentic, independent teaching opportunities before the student teaching requirement (Matsko et al., 2022), creating a gap in understanding how early mastery experiences lead to the transformational learning processes outlined by Mezirow (1991). Mezirow's Transformative Learning Theory framework—emphasizing disorienting dilemmas, critical reflection, and acting-engagement—provides a lens for analyzing whether brief intense field experience can facilitate the identity shifts necessary for teaching self-efficacy in pre-service teachers.

This study examines a five-week intensive summer internship for four pre-service and one alternatively certified teacher in rural Oklahoma. Weeks 1-3 focused on professional development workshops, pedagogical training, and collaborative standards-aligned lesson planning. Week 4 featured participants assuming full teaching responsibilities for a four-day STEM camp for approximately 30 3rd-5th-grade students. Daily debriefing allowed for real-time reflection and next-day instructional and classroom management revisions. In week 5, structured reflection through individual essays, an after-action report, and video-recorded semi-structured interviews documented participant perceptions of the experience. Through thematic analysis, guided by Mezirow's (1991) transformational learning theory, this study explores whether scaffolded intensive field experiences lead to perspective transformation in teacher candidates, with particular attention to how compressed implementation periods facilitate professional identity development.

Literature Review

Teacher self-efficacy—belief in one's ability to teach effectively—is a key predictor of teachers staying in the profession even through challenges (Steiner & Lemke, 2023). Field experiences that offer authentic teaching opportunities build self-efficacy through Bandura's (1997) mastery experiences, particularly when teachers can practice, reflect, and refine their instruction within supportive environments (Yerdelen et al., 2024). Although semester-long student teaching placements remain the norm, emerging research suggests compressed intensive field experiences—such as summer STEM camps—can effectively build pre-service teacher self-efficacy and confidence (Sparks and Waring, 2023), especially when mentor and peer feedback recognize accomplishments and growth. These intensive experiences may be especially powerful when, as Sacramento et al. (2024) suggest, team members have regular contact time for structured reflection and modeling, accompanied by non-judgmental support — conditions that build the psychological safety necessary for teachers to take risks, make mistakes, and grow from failure.

Mezirow's (1991) transformational learning theory provides a framework for understanding how adults fundamentally reshape their perspectives and professional identities through challenging experiences. Originally developed through research with women returning to higher education, transformational learning involves perspective transformation—a shift in the meaning structures that shape how individuals interpret their experiences. While Mezirow's theory includes ten phases, Kyle and King (2024) conducted a systematic analysis of transformational learning literature and identified three components with greatest empirical centrality: disorienting dilemmas (experiences that challenge existing assumptions), critical reflection (structured examination of beliefs and values through content, process, and premise reflection), and acting-engagement (testing new understandings through revised practices). These three components form an iterative cycle where challenging experiences prompt reflection, which generates new perspectives that learners then enact and refine through practice.

While transformational learning traditionally occurs over extended periods, intensive field experiences may compress these phases when psychological safety enables learners to confront disorienting dilemmas without fear of judgment, engage in structured daily reflection with supportive mentors, and rapidly iterate between acting-engagement and reflection (Kyle & King, 2024). This compression proves particularly powerful when combined with Bandura's (1997) mastery experiences—as teachers witness immediate improvements from their reflective adjustments, their self-efficacy builds alongside perspective transformation. Kyle and King (2024) demonstrated that compressed, intentionally designed transformational learning experiences produce significant student success outcomes when structured around the three-component cycle.

Rural Oklahoma faces compounding challenges in STEM teacher preparation. Approximately 70% of the state's school districts are classified as rural, and those districts struggle most to staff secondary science and math positions with highly qualified teachers, with over half reporting emergency certification measures (Martinez-Keel, 2024; Lazarev et al., 2017). Furthermore, only four out of the 77 counties in Oklahoma offer STEM attractions or museums, which means rural school districts must travel more than 100 miles to provide their students a STEM experience or field trip, leaving much of rural Oklahoma a "STEM desert" where access becomes limited by transportation or poverty, similar to "food deserts" (Tessman et al., 2025). Rural STEM teachers are in short supply, but traditional semester-long student teaching experience models may not adequately address the urgent need for well-prepared educators (National Academy of Education, 2025). Alternative preparation pathways, including intensive summer experiences that combine professional development, hands-on teaching, and cohort-based support, offer potential solutions for building teaching capacity in under-resourced rural contexts, yet little research examines how transformational learning and self-efficacy development unfold within these compressed timeframes.

Research Design

This study uses a qualitative approach to examine the transformational learning experiences of four pre-service and one alternatively certified teacher during an intensive four-day STEM teaching experience within a five-week summer internship. Creswell (2014) describes qualitative

research as an inquiry process examining how individuals construct meaning from their lived experiences. The research design uses Mezirow's (1991) transformational learning theory as a framework, with particular attention to three components: disorienting dilemmas (full teaching responsibility for elementary students), critical reflection (daily debriefing), and acting-engagement (rapid instructional adjustments). Data were collected during the week following the STEM camp (the fifth week of the internship) through individual reflective essays, a collaborative after-action report, and semi-structured video-recorded interviews.

Context: The IDREAM Summer Internship

This study was conducted within the IDREAM (Innovation & Development, Resources, Education, Access) summer internship at East Central University (ECU) in Ada, Oklahoma. Funded by the U.S. Department of Education's Augustus F. Hawkins Centers of Excellence Program, IDREAM supports teacher preparation, recruitment, and retention in rural contexts. The five-week intensive experience (July-August 2025) provided structured preparation, implementation, and reflection opportunities for teacher candidates and a practicing alternatively certified teacher.

The program structure included three preparatory weeks featuring orientation, professional development workshops (STEM content, special student populations, pedagogy), collaborative lesson planning with IDREAM faculty, and materials preparation. Week four culminated in an intensive four-day STEM camp serving approximately 30 students entering grades 3-5 from rural Oklahoma communities near ECU. Daily instruction covered science, mathematics, technology, and engineering through hands-on activities, structured around morning and afternoon blocks with snacks, lunch, and recess. Each day concluded with faculty-facilitated debriefing sessions where participants engaged in critical reflection on successes and challenges, examining disorienting dilemmas through Socratic questioning and collaboratively adjusting lesson plans and classroom management strategies. Week five focused on structured reflection through individual essays, collaborative after-action reporting, and semi-structured interviews.

Participants

Five educators participated in the IDREAM summer internship (see Table 1), having self-selected through their application to an agreement to participate in the program. Four were pre-service teachers enrolled in East Central University's teacher preparation program, representing elementary education (2), early childhood education (1), and secondary history education (1). One participant was an alternatively certified middle school English teacher with three years of classroom experience, concurrently enrolled in ECU's graduate program. This cohort represented diverse backgrounds, including international student status, first-generation college attendance, multi-generational educators, indigenous heritage, and learning disabilities (dyslexia, dysgraphia, dyscalculia). The varied lived experiences and positionalities within this small cohort created opportunities for reciprocal learning and perspective-sharing that enriched the collective teaching experience and subsequent reflections.

Table 1

Participant Demographics

IDREAM Participants	Certification Pathway	Program Major	Year in Program	Grade Level Focus	Content Area	Additional Context
Sam Townsing	Pre-service	Elem. Ed	Senior (Block 3)	3rd grade	Math	International student (Australia); dyslexia & dysgraphia
Sean Carmichael	Pre-service	Secondary History Ed	Senior (Block 4)	Secondary	History	Third-generation educator; tongue-tie/speech impediment
Destiny Bowles	Pre-service	Elem. Ed	Senior (Block 3)	Elementary	Library Science aspiration	First-generation; mother at 21; chose science (weakness area)
Trinity McKown	Pre-service	Early Childhood Ed	Junior	Early Childhood	STEM	Dyslexia, dysgraphia, dyscalculia; Native American Studies minor
Yolanda Helm	Alternatively Certified	6th Grade English	3 years' experience	Middle School	English Lang. Arts	Mexican American/ Apache; chose STEM (non-content area)

Data Collection

Use of participant names and personally identifiable information was conducted under an amended Institutional Review Board (IRB) protocol. All participants provided written informed consent authorizing the disclosure of their identities and inclusion of their reflective writings in published scholarship. Data were collected during the fifth week of the summer internship through three sources. Because all five members of the IDREAM cohort participated, the dataset represents the complete program population rather than a sample, providing a bounded record of participant experiences. This aligns with Braun and Clarke's (2006) position that sample size in thematic analysis is determined by the research context and available participants.

First, participants collaboratively completed a structured after-action report through a facilitated Google Slides document designed and led by the IDREAM curriculum coordinator. Rather than

open-ended journaling, the after-action report was organized into distinct sections requiring each participant to contribute individual written responses within a shared collaborative format. Sections systematically addressed: (1) daily lesson documentation by content area, including lessons taught each day, specific descriptions of what went well, and candid identification of what could have been improved and why; (2) classroom management learning and evolution across the four days; (3) observations about 3rd-5th grade student learning, behavior, and developmental needs encountered during instruction; (4) reflections on building relationships with students; (5) self-assessment of teaching readiness for their own future classroom; (6) identification of two specific areas of personal growth as a teacher; (7) structured reflections on each professional development presentation attended during the three preparatory weeks; and (8) recommendations for future program design. This structured format ensured systematic documentation of all program components while preserving individual participant voice within a shared collaborative record. The after-action report served a dual purpose within the IDREAM program — functioning as a qualitative data source for this study and as a programmatic evaluation tool to document implementation fidelity and inform future program iterations. As part of this programmatic evaluation, participants completed a pre/post confidence and knowledge survey across eight indicators related to STEM content knowledge, pedagogical confidence, and teaching readiness, using a Likert-scale format. Responses indicated meaningful shifts in perceived confidence and preparedness across all indicators, but the small cohort size (n=5) precludes quantitative analysis; these survey data therefore fall outside the scope of this qualitative study but warrant examination in future research incorporating larger samples and validated instrumentation.

Second, individual reflective essays provided personalized narratives using a structured template organized around five thematic areas: (1) personal background and teaching motivation, (2) observations and interactions with 3rd-5th grade students and how those influenced future practice, (3) classroom management knowledge, evolution during camp, and implications for future teaching, (4) preparation and confidence development from pre-camp through the four days of instruction, including perceptions of teaching effectiveness, and (5) reflective conclusions identifying key takeaways and personal growth. Essays were completed individually during the final week of the internship, providing each participant an opportunity to document their experience in their own voice prior to the semi-structured interview. Third, semi-structured interviews lasting 30-45 minutes were conducted individually, face-to-face on campus, by the IDREAM coordinator and a research assistant using a standardized protocol; interviews were divided between the two interviewers, with the program facilitator and curriculum coordinator intentionally excluded from the interview process to reduce potential power dynamics between the researcher and participants. Interviews were video-recorded and transcribed using YuJa automated transcription software; transcripts were reviewed and corrected for accuracy prior to analysis, generating approximately 100 pages of transcript data.

The interview protocol explored ten thematic areas: (1) participant background and teaching motivation, (2) pre-camp expectations and confidence, (3) teaching experiences during camp, (4) lesson planning processes, (5) classroom management approaches and evolution, (6) learning and growth perceptions, (7) confidence development, (8) collaboration and team dynamics, (9)

rural STEM education context, and (10) implications for future teaching practice. The semi-structured format allowed interviewers to pursue emergent themes while maintaining consistency across participants. All three data sources were collected within one week of the camp's conclusion, capturing immediate reflections while experiences remained vivid.

Research Questions

This study addresses two research questions:

RQ1: How do participants experience perspective transformation during a compressed four-day intensive field experience, and what evidence of Mezirow's transformational learning phases emerges in their reflections?

RQ2: How do compressed intensive field experiences, supported by structured reflection and psychological safety, facilitate the development of essential teaching competencies in pre-service and alternatively certified teachers?

Data Analysis

Interview transcripts, reflective essays, and after-action report data were analyzed using Braun and Clarke's (2006) thematic analysis approach, with Mezirow's (1991) transformational learning theory serving as an interpretive lens. The analytic approach was abductive — codes emerged inductively from repeated engagement with participant data and were subsequently interpreted through Mezirow's framework, allowing themes to be grounded in participant experience while maintaining theoretical coherence with the study's conceptual foundation. Analysis proceeded iteratively through six phases: (1) familiarization through repeated reading and re-reading of all data sources, (2) systematic line-by-line initial coding generating over 100 codes, (3) organizing codes into potential themes across participants, (4) reviewing themes against the complete dataset to ensure internal coherence and external distinctiveness, (5) defining and naming themes with attention to their relationship to transformational learning theory, and (6) selecting representative quotes demonstrating theme presence across multiple participants.

Using all three data sources together strengthened the analysis by providing multiple windows into participant experiences. The after-action report documented collective responses in the immediate aftermath of camp; reflective essays captured individual perspectives developed independently; and interviews provided the opportunity to follow up on emerging patterns with each participant directly. When accounts were consistent across sources, themes were treated as well-established; where individual responses diverged, those differences were examined carefully to ensure findings represented the breadth of participant experience rather than only the most common responses.

The 12 initial themes were consolidated into three major themes through iterative review guided by Mezirow's framework and the study's focus on compressed intensive field experiences (see Tables 2 and 3). The three major themes — (1) Confronting Weakness Areas Through Deliberate Choice, (2) First-Day Chaos to Systematic Improvement, and (3) Confidence Building Through Safe Failure — capture the essential transformational learning process participants experienced. Each major theme contains 2-4 sub-themes representing individual variations across the four-day intensive period. The author's dual role as program facilitator and researcher introduced potential

influence during the coding process; to address this, analysis focused exclusively on participant-voiced data rather than researcher observations, and AI assistance (Claude, Anthropic) supported the organization and consolidation of coded data into thematic structures as an additional check on interpretive consistency. All interpretive decisions, theme definitions, and connections to transformational learning theory were made by the author.

Table 2 presents the 12 initial themes generated through systematic line-by-line coding, while Table 3 illustrates how iterative review guided by Mezirow's (1991) framework consolidated these into three major themes. Quote selection was based upon commonalities across participants and the ability to illustrate connections to transformational learning processes. Because the dataset represents the complete IDREAM cohort, all participant perspectives are reflected in the analysis, providing a comprehensive rather than selective account of the experience. This article focuses on these three major themes; additional patterns, particularly those related to diverse student needs and rural STEM contexts, warrant future exploration but are not addressed in this manuscript.

Table 2

Initial Thematic Coding: 12 Themes

Theme #	Theme Name	Key Descriptors
1	Choosing Weakness Areas: Deliberate Selection	Participants deliberately chose content areas/skills where least confident; science, STEM, and classroom management as targeted growth areas
2	First Day Chaos	Day 1 classroom management challenges; reality vs. expectations
3	Every Day We Became Better: Rapid Improvement	Daily visible improvement; "wildly different" Monday to Thursday
4	Downtime Management Realization	Lesson plans must account for every minute
5	Confidence Building: From Uncertainty to Competence	Pre-experience uncertainty → post-experience confidence
6	Safe Place to Fail	Psychological safety as essential condition; "it is okay to make a mistake"
7	Learning from Peers	Observing other interns; cohort as "greatest strength"
8	Classroom Management Evolution	Shift from "fun/friendly" to "strict then flexible"

Theme #	Theme Name	Key Descriptors
9	Lesson Planning Transformation	From theoretical understanding to practical application
10	Understanding Diverse Student Needs	Recognizing socioeconomic, cultural, and developmental differences; rural context awareness and STEM access gaps
11	Learning Disabilities as Teaching Assets	Personal struggles → empathy and differentiation understanding; commitment to protecting student dignity
12	Professional Identity Formation	"I am a teacher" identity shift; long-term career vision; connecting personal vulnerabilities to teaching strengths

Table 3

Thematic Alignment: From Initial to Major Themes

Major Theme	Initial Themes Consolidated	Connection to Transformational Learning
1. Confronting Weakness Areas Through Deliberate Choice	Theme 1: Choosing Weakness Areas Theme 11: Learning Disabilities as Teaching Assets Theme 12 (elements): Professional Identity Formation	Disorienting dilemma — deliberate selection of challenging content creates conditions necessary for perspective transformation
2. First-Day Chaos to Systematic Improvement	Theme 2: First Day Chaos Theme 3: Rapid Improvement Theme 4: Downtime Management Realization Theme 8: Classroom Management Evolution Theme 9: Lesson Planning Transformation	Acting-engagement — rapid iteration between challenge, reflection, and revised practice compresses the transformational learning cycle
3. Confidence Building Through Safe Failure	Theme 5: Confidence Building Theme 6: Safe Place to Fail Theme 7: Learning from Peers Theme 12 (elements): Professional Identity Formation	Critical reflection — psychological safety enables examination of assumptions and beliefs, facilitating self-efficacy development and professional identity shifts

Major Theme	Initial Themes Consolidated	Connection to Transformational Learning
Theme Not Fully Addressed in This Article	Theme 10: Understanding Diverse Student Needs	Rural context awareness, socioeconomic and developmental differences; warrants dedicated future exploration

Note. Table 2 presents all 12 initial themes generated through line-by-line coding. Table 3 illustrates the consolidation of initial themes into three major themes guided by Mezirow's (1991) transformational learning framework.

Results

The three major themes that emerged from thematic analysis capture the transformational learning process participants experienced during the four-day intensive STEM camp. Theme 1, Confronting Weakness Areas Through Deliberate Choice, reveals how participants intentionally selected teaching content outside their comfort zones. Theme 2, First-Day Chaos to Systematic Improvement, documents the rapid evolution from overwhelming challenges to confident, structured instruction during the compressed experience of just four days. Theme 3, Confidence Building Through Safe Failure, illustrates how psychological safety enabled participants to take risks, make mistakes, and develop self-efficacy through timely feedback and daily adjustments. Together, these themes demonstrate how compressed intensive field experiences can facilitate transformations in learning when structured around authentic teaching challenges, daily reflection, and supportive mentorship.

Theme 1: Confronting Weakness Areas Through Deliberate Choice

All five participants chose to teach content areas where they felt least confident, turning their perceived weaknesses into opportunities for growth. Destiny captured this perfectly when she explained her motivation for choosing science: "I like to say I love science; science does not love me. I really wanted this opportunity to learn how to teach science to young kids in a productive and proper manner." She elaborated on why she deliberately chose her weakness area: "I chose the area of lesson planning of science and engineering because that's not my strength and I feel like it'll really help me in the classroom to teach that to children in a manner where I feel like I know what I'm talking about." Rather than avoiding challenging content, Destiny embraced it.

Participants recognized that authentic teacher preparation requires confronting areas of struggle. Trinity, despite having dyslexia, dysgraphia, and dyscalculia, chose to teach STEM content: "I chose to be a teacher because I've always struggled in school, either that be bullying or my learning disabilities. So, I always had troubles in my reading and math classes, and so I just want to be that support that I got from some teachers that helped me get through my classes or the support that I didn't have." Sean explained his motivation for teaching math, a subject where he lacked confidence: "I love math and I really thought about when I was going to college going to be a math teacher. I just have never had the confidence to actually teach math myself."

Yolanda, already a practicing teacher, explained her hesitation and ultimate decision: “I was hesitant because I am not proficient in science and math and engineering. I’m an English teacher. And so, I was hesitant to apply. However, I was intrigued. I knew that it would push me out of my comfort zone and that I would learn and gain skills.” Sam’s motivation centered on helping students with foundational mathematics skills, drawing from his own experience tutoring peers who struggled. Rather than avoiding challenging content, participants saw it as essential to their development as well-rounded educators.

These early challenges forced participants to confront not just content weaknesses, but perceptions of their teaching readiness. Participants’ deliberate choice of challenging content created the disorienting dilemmas necessary for transformational learning to begin.

Theme 2: First-Day Chaos to Systematic Improvement

Participants felt overwhelmed on the first day of STEM camp. Yolanda, reflecting on the collective experience, recalled: “Our first day of camp, we had some trouble following our schedule, some classroom management issues but by day two, we were following the schedule. We were able to create expectations that improved the classroom management and so every day, we became better.” This shared struggle created the foundation for rapid growth.

The intensive experience facilitated and necessitated rapid improvement, enabled by daily debriefing and immediate opportunities to revise instruction. Participants made significant adjustments based on daily critical reflection sessions. The compressed four-day timeline forced participants to implement changes immediately rather than waiting weeks between teaching episodes.

By the final day, participants recognized and articulated their transformation. Sean captured the dramatic shift: “Monday versus Thursday classroom management was wildly different.” The compressed timeline, supported by daily critical reflection and immediate opportunities for active engagement, enabled participants to experience and internalize significant professional growth within just four days.

Theme 3: Confidence Building Through Safe Failure

The psychological safety created through daily faculty-facilitated debriefing sessions enabled participants to view failures as learning opportunities rather than judgments of their teaching abilities. The camp structure provided a non-evaluative environment where participants could take risks without fear of formal assessment affecting their grades or professional evaluations. Yolanda named this aspect of the experience: “This is a safe place to fail because in the doing, you’re going to make mistakes but you learn from the mistakes and every day, your knowledge grows and it builds.” Her framing captures the iterative cycle of mistake, reflection, and growth which is central to Mezirow’s (1991) acting-engagement component that embraces experience not as failure but as the process of professional development.

Marked gains in confidence were stated across multiple areas of teaching competence. Sean reflected on his growth: “I was very nervous before going into this about my student teaching. And

this has given me a lot of confidence that now that I have those skills in classroom management, and I understand now the lesson plan writing, the actual way it's applied directly instead of just a theoretical." His analysis between theory and applied knowledge points to how the collaborative structure allowed participants to experiment, fail, adjust, and ultimately internalize skills that coursework alone cannot replicate.

For Yolanda, confidence gains were specific rather than general: "I have grown as an educator from my time here. The biggest growth I have found has been my confidence in writing lesson plans. Before I came here, I did not have a lot of experience in that area, and it made me feel very insecure. But with the experience I have gained here, I now understand the purpose behind choosing a theme for a unit. And I feel confident that I can write a lesson plan." Her experience demonstrates that compressed intensive experiences can build self-efficacy in specific skill gaps even for practicing teachers, not only pre-service candidates.

The safety to fail extended beyond individual growth to encompass peer-supported risk-taking. Sam described the balance between independence and available support: "We had help. We had the IDREAM staff on hand if needed. But we tried our absolute best to not incorporate any of the staff in our lesson because we wanted to feel what it was to handle it ourselves." This tension — knowing support was available while choosing not to use it — reflects Bandura's (1997) mastery experience dynamic, where self-generated success provides the most powerful source of self-efficacy. Together, these participant accounts illustrate how psychological safety, structured reflection, and the freedom to fail without consequence created conditions for rapid and genuine professional identity development.

Discussion

This study examined whether a compressed four-day intensive field experience could facilitate transformational learning and self-efficacy development in pre-service and alternatively certified teachers. Through thematic analysis of participant reflections, three major themes emerged that illustrate how rapid professional growth can occur when condensed teaching experiences are structured around authentic challenges, daily critical reflection, and psychological safety. These findings have implications for teacher preparation in rural contexts where emergency certification and limited support systems create urgent needs for effective, efficient preparation pathways.

Transformational Learning in Compressed Timeframes

The three themes that emerged from participant narratives align closely with Kyle and King's (2024) framework, emphasizing disorienting dilemmas, critical reflection, and acting-engagement as the essential components of transformational learning. Participants' deliberate choice of challenging content created immediate disorienting dilemmas—experiences that challenged their existing perceptions about teaching readiness and content mastery. As Destiny noted, teaching science revealed "I came into this very uncertain about what to expect or how to act or what to teach or anything, really, and I found that as I wrote lesson plans and planned all of this out with my co-teachers and really worked with the kids, that I gained confidence and I gained my ability to be able to understand science and teach it to children in a confident manner." Her transformation from initial uncertainty to confident instruction exemplifies how disorienting

dilemmas, when paired with supportive structures, can enable perspective transformation. These dilemmas were not incidental but intentional, with participants actively seeking discomfort as a path to growth.

The compressed four-day timeline intensified the transformational learning cycle in ways that distinguish this experience from traditional semester-long placements. Participants moved through multiple iterations of the disorienting dilemma → critical reflection → acting-engagement cycle within a single week, rather than across months. Sean's description of "Monday versus Thursday classroom management was wildly different" illustrates perspective transformation occurring at an accelerated pace. Similarly, Yolanda reflected on the collective experience: "I know that our first day of camp, we had some bumpy roads but every day, we were able to fix." This compression was enabled by daily debriefing sessions that facilitated timely critical reflection and opportunities to revise instruction the very next day. Unlike traditional student teaching, where feedback may be delayed by weeks, participants could test new approaches within 24 hours, creating rapid feedback repetitions between reflection and action.

Kyle and King (2024) demonstrated that intentionally designed transformational learning experiences produce significant student outcomes when structured around their three-component framework. This study extends their work by showing the framework can operate effectively even in greatly compressed timeframes when three conditions are met: (1) authentic, challenging teaching experiences that create genuine disorienting dilemmas, (2) immediate, structured opportunities for critical reflection with supportive facilitation, and (3) rapid iteration between reflection and revised action. The four-day intensive experience created what might be termed "accelerated transformation"—not only surface-level change, but genuine perspective shifts occurring at compressed timescales due to intensity and structured support.

Self-Efficacy Development Through Compressed Mastery Experiences

Participants' descriptions of confidence growth align with Bandura's (1997) concept of mastery experiences as the most powerful source of self-efficacy. However, the compressed timeline created a unique pattern of mastery experience accumulation. Rather than single teaching episodes separated by weeks, participants experienced multiple teaching-reflection-revision cycles within days, providing rapid experience-based evidence regarding their teaching capabilities. Destiny's explicit statement about gaining confidence through the iterative process of planning with co-teachers and working with students demonstrates how compressed mastery experiences can accelerate self-efficacy development when structured to provide clear evidence of improvement.

Multiple participants shared confidence gains across different areas of teaching competence. Sean explained, "I was very nervous before going into this about my student teaching. And this has given me a lot of confidence that now that I have those skills in classroom management, and I understand now the lesson plan writing, the actual way it's applied directly instead of just a theoretical." His specific mention of transitioning from theoretical knowledge to practical application highlights how authentic teaching experiences, even when compressed, can build teaching self-efficacy more effectively than coursework alone. Similarly, Sean noted, "From this

internship program, I'm much more confident in teaching to the standards and with standardized testing. My confidence has improved a little with the assessing what they've learned outside of the standardized testing."

For Yolanda, an experienced teacher with three years in the classroom, confidence development focused specifically on lesson planning: "I have grown as an educator from my time here. The biggest growth I have found has been my confidence in writing lesson plans. Before I came here, I did not have a lot of experience in that area, and it made me feel very insecure. But with the experience I have gained here, I now understand the purpose behind choosing a theme for a unit. And I feel confident that I can write a lesson plan." Her experience suggests that compressed intensive experiences can address specific skill gaps even for practicing teachers, demonstrating targeted self-efficacy in pedagogy where traditional preparation may have been insufficient.

The relationship between psychological safety and self-efficacy development proved particularly significant. Yolanda explicitly articulated the importance of the learning environment: "This is a safe place to fail because in the doing, you're gonna make mistakes but you learn from the mistakes and every day, your knowledge grows and it builds." This framing of failure as learning opportunity, combined with the non-evaluative structure, appeared to enable participants' willingness to attempt ambitious teaching strategies. Sam described the environment as "a controlled environment to do so… We had help. We had the IDREAM staff on hand if needed. But we tried our absolute best to not incorporate any of the staff in our lesson because we wanted to feel what it was to handle it ourselves." This balance between support availability and authentic challenge-taking suggests a rich learning environment for self-efficacy development.

This finding has important implications for teacher preparation program design. The tension between formative learning experiences and summative evaluation requirements may be limiting the transformational potential of student teaching placements. While assessment of teaching competence is necessary, programs might consider structuring earlier field experiences explicitly as non-evaluated learning opportunities where psychological safety enables the experimentation necessary for genuine professional growth. The compressed intensive model demonstrates that noteworthy self-efficacy development can occur in brief, intentionally structured experiences when psychological safety is paramount.

Implications for Rural Teacher Preparation and Emergency Certification

These findings hold particular relevance for addressing Oklahoma's teacher preparation crisis, where 10% of teachers are emergency certified (Brown, 2025) and rural districts face compounding challenges in recruiting and retaining qualified educators. The compressed intensive model demonstrates that meaningful professional development and perspective transformation need not require semester-long commitments, making it potentially more accessible for alternatively or emergency certified teachers who are already working full-time or for rural districts seeking cost-effective professional development options.

Yolanda's participation as an alternatively certified, current teacher with three years of experience suggests the model has applicability beyond pre-service preparation. She described her

continued professional learning: “My skills in classroom management are pretty good. I’ve had three years of teaching under my belt. A lot of that was trial and error. However, I believe in being an ongoing learner. And so, while I’ve been at IDREAM STEM camp, I’ve been exposed to different types of procedures. Many of the professors gave us presentations where I learned new ways of managing a class. And so, I’m really excited that I will be able to add that to my classroom in the fall.” Her explicit mention of being excited to implement new strategies in her classroom suggests ongoing professional development value. Additionally, she noted specific pedagogical additions: “One way that this learning will impact my future teaching is I am going to be adding artwork. We had a presenter who taught us how to use art and images to engage the student at the beginning of class. And I will be adding that to my classroom this year.”

For emergency-certified teachers who enter classrooms without pedagogical training, summer intensive experiences combining teaching practice, critical reflection, and mentorship could provide accelerated professional development that traditional coursework cannot offer. The combination of hands-on teaching experience with immediate faculty feedback addresses the primary weakness of emergency certification pathways—lack of pedagogical preparation and supported practice before assuming full classroom responsibility.

The IDREAM program’s rural context is especially pertinent to these findings. Rural districts’ challenges in providing STEM experiences for students (Tessman et al., 2025) create reciprocal opportunities for teacher preparation programs. By situating intensive field experiences in rural communities serving students who lack access to STEM resources, programs can simultaneously address teacher preparation needs and educational equity gaps. Participants’ growth occurred while providing authentic educational value to an underserved population, creating mutually beneficial partnerships between universities and rural communities.

The Role of Cohort-Based Support in Compressed Experiences

While not an original focus of this study, participants’ frequent references to peer learning and collective problem-solving suggest cohort-based structures play an important role in compressed transformational experiences. Sam articulated the value of peer support: “My peers were the greatest strength that I had.” He shared specific ways peer collaboration facilitated his learning: “I learned after watching one of my peers do his lesson, he did direct instruction. Nothing wrong with that, except trying to keep all the children in order was difficult, much more difficult than I had anticipated. So, with mine, I had to modify my lesson plan to have math games with a rotation into what I wanted so I could rotate them and keep them busy. I could only do that successfully because I had an additional peer.” This description illustrates how observing peers’ struggles and successes informed his own pedagogical choices and provided practical support for real-life teaching.

Sean also recognized learning from peers: “I’ve learned a lot of new skills at the camp about classroom management. And I learned a lot of it from my fellow interns. For example, some of my fellow interns, they were more personal with the kids. They would joke and be more energetic with the kids. And the kids responded better to that when they started acting up as easier for my fellow interns to bring the class back down to that baseline level.” His observation that different

interpersonal approaches yielded different classroom management outcomes demonstrates the value of individualization and personal comfort levels in providing multiple models for effective teaching.

Yolanda described the collaborative functioning of the cohort: “Everyone here was so supportive and I learned from the other interns, I learned from Dr. Tessman and the other East Central University professors that presented classes for us and it just became an experience where we share the workload. We recognized the different skill sets within our own team and we allowed each other to do activities that would benefit from that expertise and so it just became a team and there was no jockeying for position, so to speak and the team became very cohesive, and we just functioned.” Her description emphasizes how recognizing and leveraging individual strengths created collaboration without competition that might have undermined the environment’s psychological safety.

Sean provided additional detail about the cohort composition and support structures: “These last five weeks have been crazy, it’s been crazy busy, but you work with both people that you’ve taken some classes with that are also in this education field, the education setting to try to become teachers as well as a practicing teacher that’s taking graduate classes. And we had Dr. Tessman helping us, kind of giving us some advice, just kind of having a class about teaching that you’re getting paid for while you’re taking it.” The mix of pre-service teachers at different preparation stages combined with an experienced teacher created opportunities for both horizontal peer learning and vertical mentorship within the cohort.

This finding aligns with Sacramento et al.’s (2024) research on psychological safety in teams and suggests that compressed intensive experiences gain additional transformational power when structured as a team rather than individual experiences. The cohort structure appeared to normalize struggle, create multiple models of problem-solving approaches, and create a safe space for exploring new content, pedagogy, and classroom management. For rural teachers who may face professional isolation in their schools, cohort-based professional development could address both pedagogical development and the social support structures that contribute to retention (Steiner & Lemke, 2023).

Limitations and Future Research

Several limitations affect the generalization of these findings. A small sample size (n=5) and single-site design limit transferability; however, the rich qualitative data provide detailed insights into the transformational process. Additionally, participants self-selected into the study through their application to and voluntary enrollment in the IDREAM program, which may limit the representativeness of findings to motivated candidates who actively sought this type of intensive teaching experience. The author’s dual role as curriculum coordinator and researcher introduces potential bias, though systematic coding procedures and focus on participant-voiced experiences rather than researcher observations were employed to maintain evidence-based findings. Participants may have shaped their reflections based on perceived researcher expectations, though triangulation across multiple data sources (interviews, essays, after-action reports) provides some confidence in the authenticity of the findings.

The four-day teaching experience was embedded within a five-week program that included three weeks of preparation and one week of structured reflection. This study cannot determine whether the intensive teaching experience alone would produce similar outcomes without the preparatory and reflective scaffolding. Future research should examine which program components are essential and which might be streamlined. Additionally, this study demonstrated immediate transformational experiences and self-efficacy growth, yet did not address the persistence of these changes through prolonged teaching careers. A longitudinal study following student teaching, first-year teaching, and retention duration might inform the lasting nature of the professional identity shifts from the experience. The pre/post confidence and knowledge survey administered as part of the IDREAM program evaluation warrants incorporation into future research designs with larger cohorts and validated instrumentation, providing a quantitative complement to the qualitative findings reported here.

Additional research should also examine whether the three-component transformational learning framework (disorienting dilemmas, critical reflection, acting-engagement) operates similarly across different compressed timeframes, facilitation structures, and participant populations. Questions remain regarding ideal duration (four days versus one week versus two weeks), group size for cohort-based learning, ratio of teaching time to reflection time, and appropriate balance between faculty facilitation and peer-led problem-solving. Investigation of these design parameters would support evidence-based development of compressed intensive models for broader implementation in teacher preparation programs.

Conclusion

This study demonstrates that compressed intensive field experiences can facilitate transformational learning and self-efficacy development when structured to provide authentic teaching challenges, daily critical reflection, and psychological safety for risk-taking and failure. The four-day STEM camp enabled participants to experience multiple iterations of the transformational learning cycle—confronting disorienting dilemmas, engaging in critical reflection, and revising practice through acting-engagement—at accelerated timescales that produced genuine perspective shifts regarding teaching capabilities and identities.

For rural Oklahoma contexts facing teacher shortages, emergency certification challenges, and limited resources for semester-long student teaching placements, compressed intensive models offer promising alternatives that are both pedagogically sound and practically feasible. The findings suggest that duration alone does not determine transformational potential; rather, the combination of authentic challenge, structured reflection, psychological safety, and rapid iteration between reflection and action creates conditions for accelerated professional growth.

As teacher preparation programs seek to address urgent workforce needs while maintaining quality preparation, compressed intensive experiences merit serious consideration as complement or alternative to traditional field experience models. The challenge for teacher education is not whether transformation can occur in compressed timeframes—this study suggests it can—but rather how to design and scale programs that consistently create the conditions under which such transformation flourishes.

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