Milestones of Insight: Exploring Metacognitive Growth Through Reflection in Preservice Teachers

Introduction

Learning to teach requires more than content knowledge; it involves critical self-reflection, adaptive decision-making, and the ability to navigate complex environments. Metacognition, the awareness and regulation of one's cognitive processes (Flavell, 1979), is central to this process, enabling preservice teachers to reflect, monitor, and plan effectively (Bransford et al., 2005). To foster metacognitive development, teacher preparation programs should embed structured practices such as reflective journaling, video analysis, and guided questioning (Hammerness et al., 2005; Yıldız & Akdağ, 2017). These practices also support the beliefs and identities shaped by prior experiences, emotions, and social contexts (Leung, 2021; Merseth et al., 2008; Sachs, 2005; Zembylas, 2004). Because identity formation requires intentional support (Beijaard & Meijer, 2017), preservice teachers without explicit guidance often engage in superficial reflection and lack tools for growth (Fauzi & Sa'diyah, 2019). Embedding purposeful and sustained metacognitive practices into coursework is therefore essential for cultivating habits that enhance teacher learning.

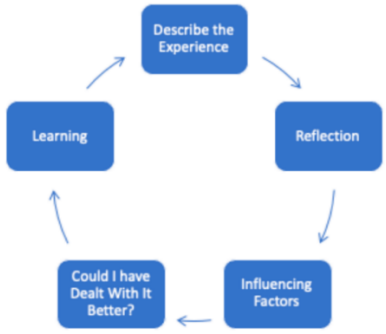
Metacognition supports learning transfer and is shaped by motivation; when preservice teachers are motivated and understand how to apply theory to practice, they are more likely to engage in meaningful, growth-oriented reflection (Chan et al., 2023; National Academies of Sciences, Engineering, and Medicine, 2018). Additionally, reflection helps them make sense of their teaching experiences, yet this process is often hindered by ingrained assumptions from their own schooling (Lortie, 2002). In School-Based Agricultural Education (SBAE), preservice teachers approach classroom events through a narrow lens, focusing on surface-level actions and struggling to identify deeper instructional or student-centered changes (Bowling et al., 2022; Sorensen et al., 2018). Moreover, written reflections often elicit low-level concerns like task completion rather than promoting critical analysis or forward-thinking (Lambert et al., 2014). These challenges highlight the importance of examining and supporting the metacognitive processes that underlie reflection to cultivate more adaptive, thoughtful practitioners.

While studied independently, a gap in literature exists exploring the sustained use of reflective journaling to identify the presence, support, and interaction of preservice teacher metacognition, learning transfer, and motivation. Benefits of the sustained use of reflective journaling can include fostering self-awareness, improvement of instructional decision-making, and assisting student teachers in connecting theory to practice (Dumlao & Pinatacan, 2019). It can also enhance motivation and resilience through the tracking of growth over time (Garza & Smith, 2015).

Conceptual Framework

Dewey (1933) highlighted the role of reflection in solving practical problems and Schön (1983) distinguished reflection-in-action and reflection-on-action as key to professional learning. Since novices often lack experience in real-time reflection-in-action (Kennedy, 1999), this study focuses on reflection-on-action—a retrospective process fostering deeper cognitive engagement (Bowling et al., 2022; Hammersley-Fletcher & Orsmond, 2005). Johns' (1994)) Model of Reflection offers a structured framework for guiding preservice teachers to describe their experiences, analyze their decisions, and derive insights.

Figure 1
Johns' Model of Reflection (1994)



Reflection should be intentionally embedded in teacher preparation to support adaptive practice and decision-making (Darling-Hammond, 2006; Mezirow, 1991). Structured reflection opportunities enhance metacognitive awareness, help novices navigate classroom challenges (Hammerness et al., 2005; Yost, 2006), and shape teacher beliefs, identity, and emotional development (Black, 2015; Smith, 2011). They also promote learning transfer by making their assumptions explicit (Bransford et al., 2005) and help preservice teachers reconcile emerging identities with mentor models during field experiences. Reflective journaling offers a promising strategy for surfacing these assumptions, supporting metacognitive regulation, and bridging the gap between coursework and practice (Dumlao & Pinatacan, 2019; Garza & Smith, 2015). This study explores how reflective journaling fosters metacognition in preservice teachers and supports their development as adaptive professionals.

Purpose and Research Questions

Our aim for this study was to explore the use of reflective journals to identify the presence, support, and interaction of preservice teacher metacognition, learning transfer, and motivation. The study was guided by the following central and sub-research questions:

Central Question:

1) What are the metacognitive, learning transfer, and motivational experiences of preservice teachers when using reflective journals?

Sub-Research Questions:

1) What influencing factors were present and supported in the metacognitive, learning transfer, and motivational experiences of preservice teachers?
2) What connections or interactions did students reflect on related to their metacognitive, learning transfer, and motivational experiences?

Methods

We used a basic qualitative design (Merriam & Tisdell, 2016) to examine how preservice teachers' metacognitive, motivational, and learning transfer experiences emerged through reflective journaling, guided by a constructivist lens that acknowledged the influence of program

structure and student context (Creswell & Poth, 2018). To mitigate insider bias, we used blinded artifact analysis, reflexive memoing, and peer debriefing. Reflection journals were designed to foster and document reflective practice. Prompts guided students to reflect on three different lecture topics (LTR1–LTR3), immediate, gut reactions to lab/on-site teachings (GR1–GR5), post-video viewing reflections (TR1–TR5), immersive teaching experiences with diverse learners (GR3, TR3), delayed reflections (DLR), and peer teaching observations (PR1, PR2). A panel of four teacher preparation faculty reviewed the journal for validity, ensuring alignment with best practices and research aims. We conducted document-based thematic analysis (Fereday & Muir-Cochrane, 2006), co-coded one journal for reliability, and synthesized themes collaboratively. Trustworthiness was supported through triangulation, intercoder agreement, peer review, reflexivity, and an audit trail (Lincoln & Guba, 1985). Rich descriptions enhanced transferability (Lincoln & Guba, 1985).

The consenting sample included all students (n = 13) enrolled in a senior-level agriscience teaching methods course at a large Midwestern university in Fall 2024. The course featured bi-weekly lectures, four micro-teachings (lab and on-site), and an immersive experience with diverse learners. Eight students were female (61.54%) and five were male (38.46%). Additionally, 11 were enrolled in SBAE courses during their secondary school careers (84.62%).

Results/Findings

The purpose of this study was to explore the use of reflective journals to identify the presence, support, and interaction of preservice teacher metacognition, learning transfer, and motivation during microteaching experiences. Two central themes emerged: (1) Milestones as Reflective Growth Events and (2) Constructing a Professional Identity Through Reflection.

Theme 1: Milestones as Reflective Growth Events

Preservice teacher development is non-linear and shaped by recursive interpretations of experience. Milestones emerged as reflective growth events, where students moved past surface-level reflection to metacognitive insight and learning transfer. These were often triggered by instructional challenges, emotional dissonance, or structured prompts. Three patterns emerged:

Comparison-based reflection served as a foundational tool for metacognitive development. Students compared early and later teaching attempts to clarify strategy effectiveness, shifting from reactive observation to reflective evaluation. For example, Emma moved from anxiety and perceived failure in her first lesson to increased confidence and classroom control in her second. After her first teaching, she wrote, “I felt like it went awful. I didn’t get to finish my lesson. I spent too much time talking and doing small activities … I was a nervous wreck”. After her second teaching, she reflected, “I feel like I did well in making my students on task. I felt more confident in my lesson”. These reflections marked key shifts in how students understood their role as adaptive decision-makers.

Layered reflection captured how deeper insight often emerged not immediately after an experience, but over time and across reflections. During a post-lesson reflection (GR1, TR1), Alice did not identify a student behavior issue (a student repeatedly clicking a pen). However, in a lecture-topic reflection (LTR1) near the end of the semester, Alice revisits the same moment, using it as a springboard for discussing management strategies:

> “This built my confidence in understanding where the “lines” are and how to manage them. Such as if a student is clicking a pen repeatedly, there are a few strategies I can implement – such as proximity … to correct the behavior.” (LTR1)

These recursive reflections showed that metacognitive awareness can deepen with distance, maturity, and repeated engagement, even without explicit prompts to revisit earlier lessons.

Emotion as reflection highlighted how affective responses—such as pride, anxiety, or self-doubt—served as metacognitive triggers. Emotional reflection was often catalyzed by the collision between expectations and classroom reality. Anne described this arc across two lessons:

> "I was super excited going into the lesson, but after the 1st class period I was feeling kind of defeated. I felt that I royally bombed … After the 2nd time teaching I felt better because I was able to anticipate the students' needs and change things." (TR4)

This "bounce back" moment could be viewed as a breakthrough, but other reflections revealed more subtle affective shifts. Emma's reflections, for example, demonstrate emotional complexity and ambivalence "This is the one I thought would go better, and I felt like it went worse." (GR5) and "I was kind of proud." (TR5). Here, pride is present but toned down. The emotional takeaway is not triumphant, but tentative, an authentic representation of early-stage teaching identity and affective self-appraisal. These emotional insights often led to more accurate perceptions and affirmed teaching motivations.

Theme 2: Constructing a Professional Identity Through Reflection

The transition from student to teacher is an iterative, reflective process. As journaling progressed, the preservice teachers began shifting from mimicking instructional language to articulating purpose-driven pedagogical reasoning. The two subthemes which emerged were *from imitation to intention* and *from performer to professional.*

The subtheme, *from imitation to intention,* captures how students transitioned from parroting terms like "engagement" or "motivation" to using pedagogical language purposefully. Initial reflections consisted of surface-level adoption of course concepts without applied understanding, to specific discussions of instructional methods and their impact on student learning. In response to an early lesson on student motivation, Anne wrote, "The teacher increased my motivation to learn the content. He was very engaging with things on his PowerPoint and guided notes. He was very engaging and really motivated me to want to learn about [redacted]." (PR2). In contrast, later reflections connect concepts to specific discussions of instructional methods and their impact on student learning, indicating growth in metacognitive awareness. Alice wrote:

> "The inquiry-based method that I utilized to teach, helped students develop their problem-solving strategies to answer questions…within their group. The relevant skills that the students developed [were] researching, group work, group collaboration, and public speaking." (TR5)

Still, prior schooling experiences sometimes constrained growth. For example, Todd often equated good teaching with lecture-based delivery, reverting to this model despite exposure to student-centered strategies. In contrast, Emma was able to reflect on her earlier schooling experience with more critical awareness. She wrote, "I learn[ed] to alter my beliefs to be more confident in myself and to be more understanding. To learn where the behaviors [are] coming from … A connection I made was to myself in high school and how teachers could have just asked and talked to me." (LTR2). Here, Emma draws a direct connection between her own experience as a student and her developing beliefs as a teacher, signaling an emerging professional identity that is not only informed by, but critically reexamines, her schooling past.

The subtheme, *from performer to professional,* reflects a shift from focusing on presentation delivery to real-time responsiveness. While early reflections prioritized teacher-centered delivery, later entries from students demonstrated increasing attention to student behavior and adjustments in pacing. Early reflections emphasized delivery and control, as Josh admitted, "I… looked quite nervous through the entirety of the lesson" (TR1). Although this

attention to delivery may be an early developmental step, it also underscores a missed opportunity for deeper analysis of instructional impact and student engagement.

As a contrast, Josh's later reflections illustrates professional identity growth: "[The students] seemed to be engaged … At times some were distracted but I used some management strategies … As the teacher, I seemed more comfortable" (TR4). This evolution highlights a shift from self-conscious performance to student-centered practice. Growth, however, was uneven; some students continued equating teaching with task completion, suggesting limited metacognitive self-assessment. Overall, structured reflection scaffolded preservice teachers' growth from imitators to intentional educators. Recurring journaling enabled them to process feedback, build adaptive mindsets, and internalize a more agentic teaching identity.

Conclusions/Discussion/Implications

This study explored how reflective journaling during microteaching supports preservice teachers' development of metacognition, learning transfer, and motivation, dimensions of teacher preparation often underemphasized despite their importance in shaping identity and long-term growth (Clark & Lampert, 1986; Darling-Hammond & Sykes, 1999; Feiman-Nemser, 2001; National Research Council, 2001). Two interrelated themes emerged: *milestones as reflective growth events* and *constructing a professional identity through reflection*.

Our central research question examined preservice teachers' metacognitive, motivational, and learning transfer experiences through reflective journals, which served as scaffolds for meaning-making, self-evaluation, and instructional planning. Some participants used reflection to develop insight and shift their identity from student to teacher (Sorensen et al., 2018), while others remained at a surface level, consistent with findings that written reflections often prompt narrow or low-level concerns (Bowling et al., 2022; Lambert et al., 2014). Two main factors shaped reflection quality: recurring engagement with teaching experiences (e.g., video review, repeated prompts) and the emotions tied to those experiences.

Emotion emerged as the most consistent catalyst for reflective depth. Positive feelings (e.g., pride, relief, excitement) reinforced motivation and confidence, while negative ones (e.g., anxiety, frustration, self-doubt) often triggered critical questioning and highlighted mismatched expectations. Without guidance, negative emotions risked discouraging preservice teachers or reinforcing unproductive beliefs. Teacher educators must therefore address both cognitive and emotional dimensions of reflection, helping preservice teachers channel emotions productively.

In practice, educators should model reflective processes and provide prompts that integrate thought and emotion. Structured opportunities, such as guided video review, recursive journaling, or peer discussion, can help preservice teachers process emotions constructively rather than allowing them to stall growth. Recognizing emotion as central to reflection can move preservice teachers beyond surface commentary toward sustained, adaptive reflection that strengthens motivation and identity.

This study highlights reflection's role in shaping teacher identity, particularly in agricultural education where early teaching models often emphasize demonstration and tradition. Reflective journaling enabled preservice teachers to integrate new pedagogies and reframe inherited beliefs, showing that identity develops through recursive, emotionally charged, and scaffolded reflection. Future research should extend this work longitudinally into student teaching and induction years, or comparatively across contexts, to clarify how structured reflection supports professional identity. Such inquiry would deepen understanding of how reflective practices can be leveraged not only within SBAE but across content areas with strong cultural and experiential legacies.

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