Journal of Agricultural Education, 66(4), Article 3
https://doi.org/10.5032/jae.v66i4.3197

"Failure is Scary": An Exploratory Case Study of How Preservice Teachers Identify and Process Failures

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Abstract

Failure learning remains an unexplored and even avoided topic within teacher education, particularly in School-Based Agricultural Education (SBAE), despite recognized benefits from failure. To effectively incorporate failure learning, we must revisit the preservice teacher experience, showing how they approach and handle failure so we may better inform teacher preparation programs and their educators. Our qualitative exploratory case study did this as we explored how preservice teachers identify and process failure in an SBAE teacher preparation program at the University of Nebraska-Lincoln. This research study seeks to bridge the theoretical and practical gaps in preparing preservice teachers to effectively recognize, reflect on, reconcile with, and grow from failure by engaging with 47 SBAE preservice teachers. We collected data through observations, text-based interviews, and reflection prompts.

Introduction

The journey from personal growth to professional preparedness, especially in teaching, is overwhelmed with challenges and setbacks. Understanding failure's role in this progression is crucial for developing effective educators. Yet, the taboo attached to failure in education by in-service teachers often leads to habits of avoiding and hiding failures rather than analyzing and reflecting upon them, missing opportunities for learning (El-Hars et al., 2023). We contend this stigma undermines growth potential and reinforces the fear of failure, stifling the resilience and risk-taking that teaching demands. Though we observe this relationship with failure among in-service teachers, we wonder if these habits develop before teachers enter their classrooms, a thought similar to Danyluk et al. (2021), who suggest preservice teachers are not prepared with the necessary skills and experiences to effectively recognize, react, and reconcile with their failures. Alone, this problem raises many issues; however, when we consider the impact of "failing to learn from failure" (Cannon & Edmondson, 2005, p. 305), we see an even more significant issue in its ripple effect as several failure learning scholars note that experiences with failure develop individuals' capacity for resilience, an important characteristic linked to teachers' intention to stay in their career (Arnup & Bowles, 2016; St. Maurice, 2001; Wang et al., 2023). As a result, we endorse an exploration of how preservice teachers process and conceptualize failure, citing the positive aspects of failure: its value in motivation, constructive nature, cascading effects, and nurturing potential, all of which emphasize the need to situate failure learning as a key element of the learning process within teacher education (Tawfik et al., 2015).

Early in our investigation of failure, we encountered a challenge navigating the myriad meanings and operationalizations of terms associated with the phenomenon. Recognizing this, we felt it crucial to

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clearly define and operationalize the terms we would use to study failure. By doing so, we aim to effectively address our research problem and subsequent challenges (Table 1).

Table 1

Terms operationalizing failure learning

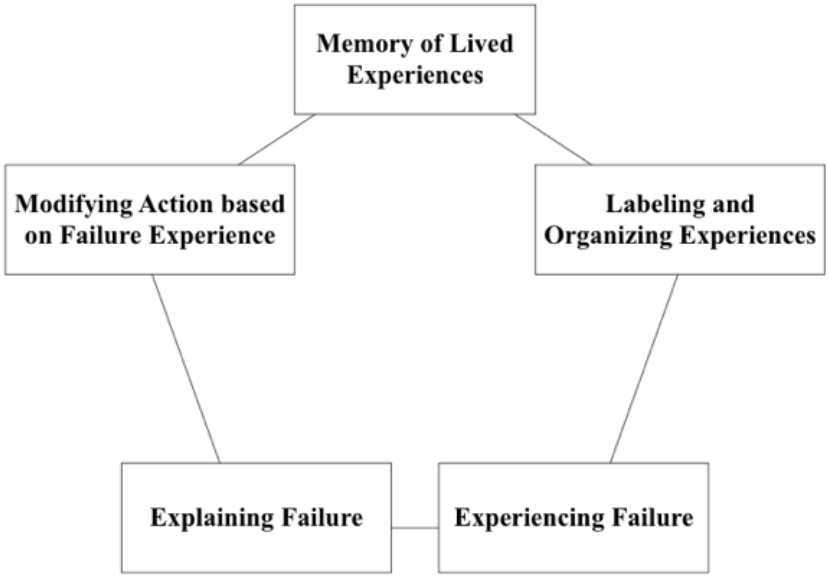
Term	Definition
Failure	A phenomenon that occurs when an individual does not meet a goal defined by themselves and/or others (Simpson et al., 2023).
Failure learning	Encouraging learners to use their failure experiences as tools to inform and improve future action (Cannon & Edmondson, 2005).
Failure pedagogical mindset	"…is (a) a set of beliefs through which educators make sense of failure within their professional work environments and situations (i.e., failure mindset) and (b) how educators perceive their instructional practices and responses to failure moments as effective or not effective" (Simpson et al., 2023, p. 3).
Fixed mindset	An orientation possessed by individuals who "believe that intelligence and capacity for specific abilities are unchangeable traits" (Henry et al., 2019, p. 3).
Growth mindset	An orientation possessed by individuals who believe that intelligence and "abilities can grow over time and through effort" (Henry et al., 2019, p. 3).
Mindset	The term formally associated with the Implicit Theory of Intelligence (Dweck, 1988). "Success is less a result of one's abilities than of one's beliefs about one's abilities and the work put forth in improving those abilities" (Dweck, 1999, as cited in Henry et al., 2019, p. 3).

Paradigm and Assumptions

Our time as classroom school-based (SBAE) teachers informs our teaching philosophies, identifying failure as a necessary and beneficial component of both preservice and in-service teaching experiences. However, as we learned about the failure pedagogical mindset, we realized gaps and shortcomings in our own implementation and practice: missed opportunities to contemplate and address failures to achieve personal and professional learning and development. We turned to Schank's (1999) Failure-Driven Memory Theory (Figure 1), which emphasizes learning is rooted in experience, especially when involving failure. Moreover, individuals learn by recalling past failures, labeling them, reflecting on what went wrong, and modifying their behavior based on those insights. In doing so, the scripts individuals rely on to guide action and behavior alter from what was previously established. Our study operationalized this by tasking preservice teachers with failure-focused reflection to help them rework their assumptions, grow from their failures, and improve their teaching practices.

Figure 1

Failure-Driven Memory Theory



Purpose and Research Questions

This qualitative exploratory case study explored how preservice teachers in an SBAE teacher preparation program at the University of Nebraska-Lincoln (UNL) identified and processed failure. Considering the problem created when failure is avoided, the purpose of this study was to explore how preservice teachers perceive failure. Our central research question was: how do preservice teachers identify and process failure? Our secondary research questions were:

1. What are preservice teachers' current perceptions of failure?
2. How well do preservice teachers reconcile with failure?
3. What are the outcomes of failure learning when applied through reflection?

Literature Review

We grapple with our research problem by examining failure learning in the context of teacher education because preservice teachers often find themselves unprepared for intentional cause-and-effect reflection on their failures (Danyluk et al., 2021). Preservice teachers must be able to work through failure because this ability develops teachers' capacity for resilience, a quality linked to teachers' commitment to the profession and a reduced rate of teacher attrition (Arnup & Bowles, 2016; Carver-Thomas & Darling-Hammond, 2017; St. Maurice, 2001; Thieman et al., 2014; Wang et al., 2023). Recognizing the challenges preservice teachers experience when faced with failure, we reviewed the literature in terms of how preservice teachers misconceive and avoid failure, the role of mindsets in processing and learning from failure, and the purpose of reflection in failure learning.

Recognizing Failure

To turn the tide on how preservice teachers perceive failure, we must adopt an approach that demystifies and destigmatizes failure, reframing it in the learning process as a moment to learn, adapt, and grow. This reformation begins with recognizing failure for what it is: the result of not meeting a goal set by

individuals or others (Simpson et al., 2023). We chose this definition intentionally to help preservice teachers anchor their understanding of failure to a central goal: to facilitate student learning. Since failure evokes subjective emotional experiences (Carlson & Fishbach, 2024), recognizing failure can be complex and inconsistent without a shared understanding of failure, like this definition.

Before preservice teachers can reflect and reconcile with their shortcomings in and outside the classroom, they must first learn to recognize their errors or, at the very least, acknowledge failures are possible. As Back et al. (2007) and El-Hars et al. (2023) observe, recognizing failure is the first step in the learning process, and because individuals realize failure occurred, they are likely to use the experience as a learning opportunity. We acknowledge, however, recognizing failure is easier said than done. For recognition to occur, individuals must be "ready," a condition we describe as possessing a mindset focused on the future and improvement (Stroud Stasel & Evans, 2023).

Building upon the foundational ideas of fixed and growth mindsets (Dweck, 1999; Henry et al., 2019), we introduce the concept of a *failure pedagogical mindset*. This term encompasses educators' beliefs about failure within the professional environment and influences their perceptions of instructional practices in response to failure moments (Simpson et al., 2023). Unlike fixed and growth mindsets, which are more generalized concepts, a failure pedagogical mindset focuses on instructional perspectives, highlighting how educators' attitudes toward failure shape their practices and influence learning environments. This mindset reframes failure as a powerful teaching tool capable of facilitating personal and professional growth (Rissanen et al., 2019).

Failure Avoidance in Teacher Preparation

"Failing to learn from failure," or more precisely, the reluctance to engage with failure, obstructs the learning process (Cannon & Edmondson, 2005, p. 305). When individuals dismiss failure outright, they obstruct learning, thereby missing out on valuable learning opportunities that could be created from understanding and reflecting on failure (Rohrkemper & Corno, 1988; Wang et al., 2023). Instead of recognizing failure as a chance for growth, there is a tendency to avoid situations where failure is possible, inadvertently rejecting failure.

Despite the robust research communicating the benefits of failure, many still view it as forbidden and are reluctant to embrace it (El-Hars et al., 2023). Even within teacher education, where teacher educators aim to support the learning process and prepare preservice teachers, teacher preparation programs rarely discuss failure, let alone provide opportunities to experience or demonstrate the phenomenon (Rohrkemper & Corno, 1988; Schmidt & Knowles, 1995; Sudzina & Knowles, 1993). Likewise, in-service teachers often censor discussions on failure, avoiding it at all costs (El-Hars et al., 2023).

Within SBAE and across other education content areas, we observed a significant gap in failure learning literature (i.e., failure learning was absent in the several literature searches we conducted within the Journal of Agricultural Education and Google Scholar databases). Few results from our combing of the literature yielded studies examining failure learning. However, terms such as "challenge," "error," "mistake," and "setback" were used in tangentially related articles. We viewed the use of these various synonyms and similar terms for failure to avoid directly addressing or confronting the concept of failure itself, another example of sidestepping the issue. We posit, then, our avoidance of failure may have created gaps in its literature.

Reflecting on Failure

Key findings in failure learning literature conceive reflection as a beneficial and necessary step to bolster growth amid failure (DiMenichi & Richmond, 2015; Ellis et al., 2014; Laksov & McGrath, 2020; Pinsky & Irby, 1997; Stroud Stasel & Evans, 2023; Wang et al., 2023), yet reflection is seldom practiced

(Epler et al., 2013; Knowles & Hoefler, 1989; Peeters & Robinson, 2015; Rohrkemper & Corno, 1988; Schmidt & Knowles, 1995; Sudzina & Knowles, 1993). We took an interest in Ellis et al.'s (2014) concept of systematic reflection, which observes how learners examine their behavior and decide how their actions may have led to their success or failure. This three-step procedure (self-explanation, data verification, and feedback) begins with (1) learners completing a personal introspection of their experience, then (2) challenges the learner to consider alternative perspectives through counter-factual thinking so that (3) the learner uses their accounts and additional data to generate reasons for why they experienced a particular outcome. Ellis et al. (2014) also prescribe a list of questions and prompts during systematic reflection, such as "How did you contribute to the performance observed in the experience," "Consider a different approach that could have been taken," "What has been learned from the experience," and "How will you act/behave in the future," amongst many others (p. 68). Likewise, Pinsky and Irby (1997) contended that structured, failure-focused reflection encourages and prepares teachers to learn from their failures. Through these analyses and reflections, teachers participate in experiential learning, building a bank of negative knowledge, which is knowledge gained through failure experiences to help avoid future failures (Gartmeier et al., 2008). This bank constructs the foundation for acquiring and improving teachers' abilities and develops their capacity for resilience (DiMenichi & Richard, 2015).

Learning from Failure

Reconciling with failure involves taking the experiences and lessons learned from failures and applying them to move forward toward personal and professional growth. Pang (2023) recognized the importance of reconciling and working through failure and proposed her time-stage failure model. The three stages included in this model provide insight into the psychological processes individuals undergo when they experience failure by focusing on needs: initial emotional distress and a sense of threat to needs, reflection on failure and development of recovery (i.e., coping) strategies, and then eventual exhaustion of psychological resources coupled with a belief of inevitable continued failure. Pang's (2023) model notes the significance of reflection, stating, "…individuals may need to identify such negative events rapidly and reflect upon their behavior to recover and grow from these experiences as quickly as possible…" (p. 179). Reconciling and processing failure within failure learning then appears to call upon systematic reflection to look back to move forward. When preservice teachers reconcile with their failures, they develop strategies and insights to navigate failures more adeptly from their reflections. In doing so, they learn to cope with their failures as they process their shortcomings and learn from them.

The ability to engage in reflective practices capable of transforming failures into springboards for growth underpins failure learning (Tawfik et al., 2015). This learning process begins with recognizing failure through self-awareness, which involves understanding one's emotions and reactions amid setbacks. Intentional approaches to failure support recognition, including the adoption of failure pedagogical mindsets and goals of intelligent failure, which reframe failures as opportunities. The process also involves a cautious and patient reaction to failure, followed by systematic reflection that enables learners to dissect their failures critically and constructively (Cannon & Edmondson, 2005). When reconciling with these experiences, preservice teachers apply what they have learned toward their growth and development. Embracing these elements and the process of failure learning dramatically reshapes the landscape of teacher preparation programs. It moves beyond merely acknowledging failure by positioning it as a vital instructional component in preservice teacher development and early teaching experiences (Stroud Stasel & Evans, 2023).

Ultimately, we land on the need to reevaluate failure within the context of teacher preparation programs by normalizing its occurrence and existence. Despite its potential for growth, failure remains a marginalized and underexplored phenomenon in teacher preparation programs, mainly because many misconceive failure as a deficit (Chick et al., 2023), leaving preservice teachers unprepared to navigate

setbacks in the classroom. Our study addressed this gap by examining how preservice teachers process failure and use it as a learning tool.

Methods

Case Study Research Design

Researchers utilize case study designs to analyze and describe a specific unit or "bounded system," referred to as a case (Merriam, 1998, p. 19). These cases may be activities, processes, programs, groups, or individuals if the researcher clearly defines the case and if bounds are set for who or what the case includes (Creswell & Creswell, 2023). We aligned with Merriam's (1998) approach because it is rooted in constructivism and provides guidelines for case study research design by emphasizing the subjective understanding of reality from personal experiences. Merriam's (1998) constructivist paradigm and perspective aligned with our approach to teaching and learning design in that individuals acquire knowledge through the subjective reality of their lived experiences. The epistemology Merriam (1998) frames case study research design also supports the investigation of Schank's (1999) Failure-driven Memory Theory, our study's theoretical framework, because both emphasize the importance of context and using lived experiences in the learning process. We also chose to follow this case study approach because we focused on a specific group; provided rich, thick descriptions of our examination; and sought to develop practical and comprehensive results for our readers; which describe Merriam's (1988) three defining characteristics of case study research (i.e., particularistic, descriptive, and heuristic).

Participant Selection

Our population of interest is SBAE preservice teachers, so our study's sample included current preservice teachers enrolled in an SBAE teacher preparation program at UNL We chose this population and sample because we believed these individuals contributed "information-rich" insights on identifying and processing failure during their teacher preparation program (Patton, 2015, p. 53). In this case, the "information-rich" insights we sought included the moments preservice teachers identified as failures, the feelings and emotions preservice teachers experienced from failing, and what preservice teachers determined were the next steps forward after experiencing failure.

We used purposeful sampling to select our participants because of their "unique experience and competence" while enrolled in an SBAE teacher preparation program (Chein, 1981; Merriam & Tisdell, 2016). The next layer of our sampling procedure utilized convenience sampling because participants were readily available to us as members of UNL's SBAE teacher preparation team. Further, we believed these participants were likely to contribute because of the connections and relationships we established with them. These relationships developed from our interactions with the participants during the Teaching and Learning Design course we co-taught and the Methods of Instruction course we engaged in, which was required for participants to be eligible for this study.

Sample

Our sample consisted of 47 preservice teachers enrolled in two courses within an SBAE teacher preparation program at UNL (Table 2). These preservice teachers were uniquely positioned to contribute to our study since the courses they enrolled in provided multiple opportunities to facilitate learning experiences, reflect on their work, and then make a second attempt at facilitating. Through their facilitations and reflections, we observed their interaction with failures and how they worked through failure over a semester. Our positionality allowed us to gain eyewitness accounts of our preservice teachers' experiences with failure: their emotions and perspectives before, during, and after moments of failure. Though our sample accounted for 77% of UNL's SBAE teacher preparation program, we did not attempt to generalize

our data and findings; instead, the characteristics of our sample and findings may support further studies and intervention replications to enhance failure learning in teacher education across the country.

Table 2

Sample Demographics

Characteristic	Descriptor	*f*	%
Gender	Male	12	25%
	Female	35	75%
Grade	Freshman	15	32%
	Sophomore	14	30%
	Junior	17	36%
	Senior	1	2%
Path to Program	Traditional	33	70%
	Transfer	10	21%
	Major Change	4	9%
Home State	Nebraska	43	92%
	Wyoming	2	4%
	Colorado	1	2%
	South Dakota	1	2%
Major	Agricultural Education	45	96%
	Agricultural Education and Biology	2	4%

Note: The sample reflects 89% of the SBAE teacher preparation program's total enrollment at UNL

Study Settings

Our study investigated how preservice teachers identified and processed failure over a semester in two courses within UNL's SBAE teacher preparation program. We included students from both courses to capture perspectives from preservice teachers at different stages in their teacher preparation program and to understand how they experience and process failure over time. The first course, Teaching and Learning Design, included most participants (n = 35), mainly freshmen and sophomores. I primarily acted as a researcher, observing participants rather than teaching, while Dr. Becky Haddad led most of the instruction. The course met twice weekly, with lectures on one day and 2-minute lab teaching experiences on the other. These short, segmented lessons focused on specific instructional components (e.g., relevance, pacing, assessment), followed by participant reflections submitted through Canvas. The second course, Methods of Instruction, enrolled fewer participants (n = 12), with five enrolled in both courses. Designed for juniors preparing for student teaching, this course offered extended teaching experiences. Another faculty member led the course, which allowed me to engage solely as a researcher. Participants completed the same text-based interviews but only submitted one reflection due to course structure. Teaching sessions lasted between 28 and 31 minutes with real students during a mock school day. These experiences contrasted with the first course, enabling us to observe how failure and reflection differed across settings.

Data Collection

We collected data through observations, beginning and end-of-study text-based interviews, and reflection prompt submissions, following Merriam's (1998) prescribed usage of observation, interviews, and document analysis as key data collection techniques in case study research. These data were gathered during two courses, Teaching and Learning Design and Methods of Instruction, and compiled at six collection points. Participants completed the same text-based interview questions at the beginning and end of the study, which we analyzed and coded to develop themes capturing how they identified and processed failure. To triangulate these findings, we also analyzed one reflection prompt submission from each course

to help us better understand what preservice teachers considered failures and how they perceived their control in growing from those experiences.

Observations

Our observations aimed to see and hear how the preservice teachers identified and discussed failure during small and large group discussions and before and after teaching facilitations. Based on this purpose, we decided it was best for us to take the roles of "observers as participants," which Gold (1958, p. 221) described as researchers who make their observations known to the participants by first informing and then joining them; however, data collection remains the priority. To achieve this, I, a graduate student, joined our participants during small and large group activities, ensuring they were aware of my role while I captured notes.

Text-based Interviews

Before and after both courses, we conducted text-based interviews using both courses' learning management systems, Canvas. We asked participants a series of questions to identify how they perceived failure at the beginning and end of the semester, directly supporting our study's purpose by examining how preservice teachers conceptualize, process, and reconcile with failure:

1. Define failure.
2. What does failure mean to you?
3. How do you view failure relative to your next challenge or task?

Additionally, we asked students in the Methods of Instruction course a fourth question because of their proximity to graduation and entering the field of teaching:

4. How do you view failure relative to your personal and professional growth (i.e., teaching career)?

We conducted these interviews using Canvas because we did not think it was realistic or feasible to carry out in-person interviews with all 47 participants in our sample. Moreover, this data collection method was intended to capture preservice teachers' current perceptions of failure instead of recalling past experiences, which aligns with standard interview practices (Siedman, 2019).

Reflection Prompts

A key component of our study was providing the participants with multiple opportunities to facilitate learning experiences (i.e., teach lessons) and then reflect on their "work." Specifically, we asked preservice teachers to reflect on their failures to facilitate student learning, encouraging them to consider when and where they did not provide effective instruction. We established six unique learning facilitations between both courses, and three of these learning facilitations required a second attempt for the participants to reteach their lessons. We designed these "second chances" for students to reflect on their practices systematically (Ellis et al., 2014).

Once participants received their recordings and student data (Appendix A), they completed a series of reflection prompts. We instructed each participant to watch their recording and review their student data before completing their reflection prompts. Similar to the student data collection, our reflection prompts (Appendix B) also evolved throughout the study as a function of learning to implement failure learning designs for systemic reflections ourselves as educators. After careful reflection, our participants received a second opportunity to reteach three lessons. Participants completed a second series of reflection prompts (Appendix C) using their additional recordings and student data for each of these additional attempts. We

posit that because of the naturalistic design of our research study, we engaged in case study research that benefited our students as they reflected on their failures and ourselves, as our observations and findings led us to transform our practices throughout our study.

Credibility and Trustworthiness

To ensure the credibility and trustworthiness of our study, we employed triangulation, peer examination, and acknowledgment of researcher bias (Creswell & Miller, 2000; Lincoln et al., 2011). We achieved triangulation by collecting multiple forms of data, including observations, text-based interviews, and reflection prompts, following Creswell and Creswell's (2023) guidance for establishing validity and Merriam's (1998) recommendation for qualitative case study research. We continuously compared all data forms to ensure consistency, analyzing them using the same methods (Glaser, 1965). Peer examination strengthened our methods as we maintained an open dialogue throughout data collection and analysis. Dr. Haddad and I did this by debriefing in person after each Teaching and Learning Design lab facilitation, comparing notes and insights, and independently analyzing reflection prompts before sharing and discussing our findings via email. Recognizing the inevitability of researcher bias (Merriam, 1998), we embraced reflexivity, acknowledging how our constructivist worldviews and experiences as former SBAE teachers influenced our observations and analyses. This reflexivity and strategies like member checking and triangulation ensured rigorous and trustworthy findings (Creswell & Creswell, 2023). Through these efforts, we maintained a balanced perspective, validated our findings, and enhanced the accuracy and credibility of our research (Creswell & Poth, 2024).

Data Analysis

We used Glaser's (1965) method of constant comparative analysis (CCA) to explore our data and uncover how preservice teachers identify and process failure. To do so, we systematically analyzed multiple forms of data collected at several points in time to tell a complex model of how preservice teachers identify and process failure (Merriam, 1998). Further, Merriam (1998) suggested analyzing data collected from case study designs with their collection, a requirement accomplished through CCA. CCA can be used commonly to compare each data point with others to ensure the data is considered holistically, avoiding the risk of dismissing any due to thematic bias (O'Connor et al., 2008). Considering this, we chose to follow three of the four steps of CCA ((1) open coding, (2) axial coding, and (3) selective coding) to establish a rich, thick description of our study. Had we intended to develop a theory from our data, we would have included the fourth step of CCA, which entails writing the theory. Since our study was exploratory and naturalistic, developing theory was premature at this research stage (Fram, 2013).

Open Coding

We began by reviewing our data sets and identifying relevant text, or incidents as described by Glaser (1965), from the four data sets. We collected a large amount of data; therefore, this stage was critical for selecting relevant data aligned with our study's purpose and research questions. Then, we assigned codes to each relevant text we identified.

Axial Coding

In true CCA fashion, we began to code and then compared each code to existing codes to develop axial codes throughout our data collection (Scott & Medaugh, 2017). We refined and expanded the axial codes based on the content and properties we observed, such as emotional responses to failure, labels and attribution of failure, and considerations about growing from failure while integrating new and established codes (Hallberg, 2006). Examples of axial codes, their corresponding open codes, and their relevant text examples in our data analysis are presented in Appendix D.

Selective Coding

Selective coding further reduced the number of axial codes for each data set. These selective codes identified the relationships between axial codes, which enabled us to develop themes across all data sets. We developed a codebook (Appendix E) to organize and define each step of our CCA, which involved listing each axial code and examples of relevant text for these codes, grouping all axial codes by their selective codes, and then defining each selective code. This stage of our data analysis was critical to gain the entire picture without making the theme development "an overwhelming task" (Glaser, 1965, p. 441). Examples of these selective codes, our definitions for the selective codes, and their corresponding axial codes are presented in Table 3.

Table 3

Selective codes

Selective Code	Definition	Axial Code(s)
A personal flaw	The perception that failure is a reflection of the participants own inadequacies.	Unmet goals Disappointing expectations Feeling/sign of inadequacy
A constructive opportunity	Failure is an opportunity to identify areas of improvement, it's a chance to learn and grow but requires a growth mindset.	Opportunity to learn Opportunity to grow Growth mindset
Failure is a learning process	Failure is a valuable experience because of its role in facilitating reflection, growth, and learning, leading to growth and development.	Impactful because of reflection Encourages growth Facilitates learning
Difficult to process	Failure is challenging for individuals to handle and results in feelings of frustration and/or blame.	Disrupts plans Disappointing expectations Undesired feeling

Note: Fourteen selective codes emerged from our data set during the third stage of our data analysis.

Theme Development

We concluded our data analysis by synthesizing the broad connections between each selective code. Like Glaser's (1965) approach of using memos to describe his categories (selective codes), we leaned heavily on our definitions for each selective code, a process entirely influenced by preservice teacher thoughts and reflections identified in the relevant text examples. We discovered just how essential it was to identify and communicate the categorical relationships in this step, as three themes emerged from this process: *Avoiding Failure Because of Pressure*, *Navigating the Inevitable*, and *Growing from Reflecting on Failure*. Together, these themes illustrated how preservice teachers experienced, processed, and reconciled with failure, aligning with our research questions and providing insight into how preservice teachers participate in failure learning.

Discussion of Findings

Our three themes represented the approaches our preservice teachers took while identifying and processing failure in their experiences. While Pang (2023) proposed a general continuum for understanding how individuals emotionally respond and process failure over time, our findings showed a subjective interaction between preservice teachers and failure, as each participant described unique and contrasting perceptions. Beginning with a dislike and avoidance of failure and progressing to the point where failure is openly embraced and welcomed, the responses to failure we observed provide an interesting perspective on

the varying degrees to which preservice teachers of all class ranks react to and approach failure. These findings illuminated several degrees of nuance while preservice teachers experience failure.

Preservice teachers' perceptions often hinged on a sense of ownership over their experiences. Some regarded failure as both a positive and negative outcome, interpreting it as a direct result of their effort and investment. For instance, one reflected failure served as "A measure of how much I was willing to give to the task," indicating an introspective evaluation of their commitment. Similarly, another noted failure "…means I have to try again and work harder," emphasizing an active willingness to take responsibility for failure and persevere. These examples demonstrated a general trend among preservice teachers to take ownership of their mistakes and shortcomings by concluding their work and effort played crucial roles in their failure and success.

Avoiding Failure Because of Pressure

The *Avoiding Failure Because of Pressure* theme found participants avoiding failure because of the emotional pressures associated with failing. One preservice teacher stated, "Failing is scary because it makes you feel inadequate, which hurts," others associated failure with not accomplishing goals set by themselves and others: "...most likely disappointing myself and my family." Emotions such as these raised concerns about the pressure preservice teachers face due to their and others' expectations. Similarly, these emotionally charged experiences resembled the "Experiencing Failure" component of Failure-Driven Memory Theory (Schank, 1999), as they created powerful memory anchors tied to unmet expectations and emotional reactions.

Preservice teachers noted great feelings of inadequacy because of their shortcomings. They identified failure as a personal flaw and a reflection of who they are and their abilities, as they shared how failure means "Disappointing yourself or others." Other preservice teachers believed failure was harmful and should be avoided at all costs. These preservice teachers were shaken by it, and if experienced, its destructive nature warranted quitting and giving up, "I don't view failure as an option," because failure "…means defeat." It was evident among some preservice teachers failure was not merely destructive but also paralyzing. Expressions of contempt, "I hate failure…the feeling of disappointment in myself;" fear, "Failure is scary;" and insecurity, "I cannot fail otherwise I get thrown off and cannot fully function;" highlighted the discouragement preservice teachers felt when facing failure. These experiences hindered their personal and professional actions, acting as roadblocks by preventing risk-taking and future attempts. We observed several examples of this during early learning facilitations, where preservice teachers often stuck to their planned script and read from their slides, refusing to deviate even when their students disengaged.

Preservice teachers shared their challenges and difficulties related to coping with failure in this theme. They made known "Failure isn't always a comfortable experience," resulting in feelings of frustration and blame. For many, failure was an unexpected shock, leaving them feeling upset: "If I set a goal and don't achieve it, I feel angry with myself." However, one of our most notable findings was the absence of denial among our preservice teachers, despite past research concluding otherwise (Rong & Choi, 2019). Regardless of the theme, all preservice teachers acknowledged failure, although their perspectives on failure varied significantly. In this theme, preservice teachers expressed their dislike for failure, stating, "Failure is something that gives me anxiety," they also feared it, saying, "Failure scares me." While they recognized that failure is a part of the learning process, they resisted because it disrupted their plans, as one stated, "I hope to avoid failure in my future tasks." We considered this tension the space between when failure is experienced and before it is explained in Schank's (1999) theory. These preservice teachers felt disrupted as a direct result of their cognitive scripts being challenged, a necessary, albeit uncomfortable, step before they could reflect and modify their actions.

Another striking result of our study was the extent to which the preservice teachers compared themselves. Despite most of our preservice teachers being relatively new to teaching, many were extremely critical of their teaching abilities. For example, although the goal we assigned to all preservice teachers was to facilitate learning, many identified minor setbacks like technology issues, "I forgot to add animations to my slides," and not knowing all their peers' names as failures. We observed preservice teachers become visibly flustered, assessing themselves harshly, even when we perceived their learning facilitation had gone well. Overall, preservice teachers were critical of themselves because they believed failure was measured by their inability to meet standards of success, "I am very hard on myself…not achieving a small goal is a failure."

As we read about the internal conflicts of our preservice teachers, emotions of guilt, fear, and inadequacy surfaced. Our exploration of their described personal flaws became more complex as these emotions and subsequent reactions were shaped by each preservice teacher's standards and their perceptions of how they perceived to be judged by others. Expressions such as "I sometimes become worried about not succeeding" and "It's like this scary thing hanging over my shoulder" caught our attention, as many linked their failures to disappointing others, illuminating the intense emotion and pressure preservice teachers experience in the face of failure. We observed perspectives on failure as a non-option, with preservice teachers avoiding it at all costs. When we asked our preservice teachers to describe failure in relation to their next challenge or task during both the before and end-of-semester text-based interviews, we received responses like "...the end of the world" – further evidence suggesting the pressure preservice teachers felt concerning failure. Although the failure literature supports these examples of failure avoidance as natural (Rong & Choi, 2019), such avoidance could lead to reluctance, a lack of risk-taking, and ultimately hinder growth. On the other hand, perhaps the strength of these emotional reactions is beneficial. As we look at our theoretical framework, these moments of failure may possibly serve as meaningful learning opportunities to guide future preservice teacher behavior.

Navigating the Inevitable

While some experienced pressure and negative emotions from failure, our *Navigating the Inevitable* theme found other preservice teachers with more neutral perspectives. These individuals identified and described failure as an inevitable aspect of life, learning, and teaching. Failure was referred to as "A part of life" and was likely to happen repeatedly, suggesting it is not worth the emotion and energy to avoid and resist. This broader acceptance of failure aligned with Failure-Driven Memory Theory (Schank, 1999) in that preservice teachers recognized failure as a part of their lived experience, a required condition for learning to occur after experiencing failure.

Our preservice teachers identified failure as a natural and necessary part of life, admitting, "Failure is likely going to come close to happening several times." Rather than resisting failure, the preservice teachers in this theme understood they would experience failure and preferred to face it head-on. As one preservice teacher in the Teaching and Learning Design course explained, "Failure in some things is unavoidable," and added, "It is something that just has to be worked through." Drawing upon the observation notes I took while positioned among the preservice teachers during this same class, I noted during the fourth week of class in the context of a lesson on the learning process, Dr. Haddad asked the class, "How do people learn?" In response, many students chimed in with "failure" and "failing." They included failure as one component in their "learning process" diagrams they were assigned to illustrate for a small group assignment. Here, these examples suggested participants actively labeled failure as something of instructional value, much like one of the earlier components of Failure-Driven Memory Theory (Schank, 1999), where learners organize their critical experiences as meaningful, thus storing them for later use. In sum, these observations demonstrated the presence and role of failure in these preservice teachers' conceptualizations of learning; however, they stopped short of mentioning failure and its positive side effects.

We also found preservice teachers described failure as inevitable, particularly in the context of teaching and learning. Although they had limited teaching experience, their self-awareness looked toward the future, as one foreshadowed life beyond their teacher preparation program, stating, "I know I will fail plenty of times as a first-year teacher." This reflection, along with others like, "I know I am going to fail," revealed this theme's preservice teachers accepted failure as a normal and routine element of teaching and learning: "I perceive failure as a normal aspect of the learning journey."

Reactions like the above embodied the *Navigating the Inevitable* theme as preservice teachers navigated failure as a predictable and expected presence. These individuals identified failure as a constant in their future classrooms, acknowledging teaching failures will happen. Additionally, these preservice teachers branded failure as a component of their learning process and advocated for normalizing and accepting failure. They responded more positively than the previous theme but did not embrace failure. These comments stressed that, while anticipated, failure must be navigated purposefully and thoughtfully to be considered a constructive experience. In terms of our theoretical framework, these advanced perspectives marked a potential turning point for preservice teachers as they already did the work of processing and explaining their failures and left the door open to potential reflection and modification.

Growing from Reflecting on Failure

Many preservice teachers celebrated failure as an opportunity for growth and learning. In the *Growing from Reflecting on Failure* theme, our participants embraced failure as a necessary tool for improvement and professional development. We observed preservice teachers take failure a step further, as some stayed after class and requested additional feedback and insight on their mistakes to grow.

The perspectives and reflections in this theme contrasted those in the *Avoiding Failure Because of Pressure* theme, with preservice teachers viewing failure as a constructive learning opportunity as the most notable difference. They referred to failure as a beneficial and motivating experience, which identifies areas of improvement, "I have to look at failure for where to improve." Our preservice teachers reflected on these moments to remind themselves of their growth and development, which increased their desire for success. For many, failure was an indicator during these reflections, or "A sign that you're succeeding as it shows I'm making progress and learning from my past experiences and mistakes." This finding drew stark differences from the *Avoiding Failure Because of Pressure* theme since we saw the identity of failure turn from a harmful barrier to growth into a motivating experience. Further, not only were these failure experiences motivating, but they also encouraged learning. Preservice teachers described failure as "An opportunity to learn" and "I can learn from failure or make it a teaching experience for others." A preservice teacher in the Methods of Instruction class even testified of the impact failure made on their learning, stating, "I have learned from my mistakes due to failure and am grateful for the growth mindset I have." These reflections indicated preservice teachers moved beyond simply experiencing failure; they actively engaged in explanation, reflection, and memory construction based on the failures they experienced, following what Schank (1999) theorized. Additionally, the latter segment of this quote marked yet another key finding for our study, one in which we concluded preservice teachers in this theme identified and processed failure constructively because they approached their mistakes and setbacks with a growth mindset orientation.

Preservice teachers appreciated their failures and valued the experiences because failure facilitated reflection, motivated growth, and encouraged learning. Importantly, these reflections and subsequent actions emerged from the classroom environments we created, conditions that granted room for our students to take risks and make mistakes. This was evidenced at the end of the semester, when a preservice teacher in the Methods of Instruction class reframed failure as a learning experience through reflection and expressed their desire to continue, "A great way to [remember failure is a learning experience] in teaching is to reflect on my work regularly." Returning to the motivational aspect of failure, preservice teachers in

this theme were determined to grow and improve, as evidenced by the steps for correcting the identified failures. Of the many unique failures identified ($N = 29$) by the Teaching and Learning Design preservice teachers, nearly all ($n = 25$) named actionable steps toward improvement. These responses suggested our preservice teachers reached the pinnacle of Failure-Driven Memory Theory (Schank, 1999), modifying action based on failure experiences, as they used their reflections to identify and enact steps toward improvement. This finding also supported another compelling case for failure's role in motivating learning, where one preservice teacher declared, "Failure is my fire…" Important to note, though, is this preservice teacher later shared, "My next challenge or task consumes my life because I want to best prepare myself," shedding some light on the extent to which preservice teachers will go because of failure. Realizing moments of failure are subjective experiences (Fwu et al., 2018), this comment provided insight into how the same experiences with failure and their reflections can invoke different failure processing. Lastly, preservice teachers recognized failure as a mainstay in the learning process, encouraging learning: "Through failure, I can learn about how to improve…I can take my learnings and be more prepared for the next task/challenge." These findings exemplified the preservice teachers' identification of failure as a process leading to personal growth and development.

We observed these preservice teachers anticipate failure's role in their future careers and maintain realistic perspectives on the challenges of teaching. One preservice teacher predicted, "The first couple of years are going to take grit," adding, "Success is often shaped by one's resilience and ability to navigate and overcome failures positively and constructively." This connection between grit and resilience highlighted the necessity of embracing failure in teaching. Another preservice teacher echoed, "Embracing failure as an opportunity to build resilience will help me navigate the inevitable ups and downs of teaching." They viewed failure as a vital tool for growth, with one participant stating, "Failure is a necessary tool that allows for me to learn from my mistakes," while another reflected, "I see failure as a necessary building block to find my roadmap as a teacher." These reflections revealed how a growth mindset and reflection work together to turn failure into a stepping stone for improvement. One preservice teacher epitomized this, "I believe failure is okay to happen in the classroom…if a lesson fails and doesn't go the way I want it to, I will go and change it to better fit my students and classroom."

Our students described failure as an expected and integral part of teaching. Preservice teachers acknowledged failure is bound to happen in their teaching career, with one articulating, "As a teacher, I am always going to be failing at something…I'm never going to know everything and that's okay." Their acceptance of failure indicated teacher development is a dynamic and evolving journey where continuous learning is crucial (Garner & Kaplan, 2019), much like advancing from failure experiences, as posited in Failure-Driven Memory Theory (Schank, 1999). Another preservice teacher added, "I am going to fail as a teacher, and that will be okay…I will use failure as a learning opportunity for my [teaching] career," reflecting the expectation of failure being part of the growth process in teaching. Additionally, they saw failure as a required component of their development, distinct from being merely necessary. Preservice teachers viewed it as a beneficial element for learning. As one explained, "We must fail in order to learn," advising preservice teachers to experience and reflect on failure to develop and grow from failure experiences. Another preservice teacher noted, "Failure may set me back in a unit plan but it should not define the rest of the school year," emphasizing experiencing failure is required for resilience in teaching.

These perspectives demonstrated the importance of approaching failure with failure-learning mindsets and reflecting on experiences to foster resilience and long-term growth. Our preservice teachers consistently engaged in reflective practices, leveraging their experiences with failure to improve their teaching practices. As one student stated, "Instead of viewing failure as a setback, I choose to see it as an opportunity to learn, adapt, and improve." Others supported this thinking, adding, "Failure can be used to maximize the potential in my future endeavors," and "When you fail, you can gain insights into what doesn't work." Through reflection, they redefined failure as a constructive opportunity necessary and required to learn and improve in teaching. This reflective approach aligned with the systematic reflection

we embedded within their coursework, which enabled them to critically analyze their failures, extract valuable lessons, and apply them to future experiences, thereby improving their pedagogical skills. In doing so, we saw these preservice teachers move fluidly through all components of Failure-Driven Memory Theory (Schank, 1999) as they experienced, labeled, explained, modified, and built upon their memories to transform their failures into learning.

Conclusions

Our study revealed the complex ways preservice teachers perceive, reconcile with, and grow from failure, thereby addressing our research questions. We found preservice teachers described failure in varied and complex ways; some avoided it due to pressure and fear, while others accepted it as inevitable and embraced it as essential for growth. These perceptions fluctuated and were often shaped by external pressures, personal characteristics (e.g., resilience), and their willingness to engage in reflection. In terms of reconciliation, those who embraced failure for growth often did so through meaning-making and intentional reflection. Moreover, consistent and supported reflection appeared to make a difference in the outcomes of failure learning. These findings align with Schank's (1999) Failure-Driven Memory Theory, which posited learning from failure begins with lived experiences and emotions, shifts to labeling and meaning-making, and culminates in modifying actions and behaviors. Notably, the approaches to failure we observed, represented by our three themes, emphasize the need for intentional, failure-focused reflection in teacher preparation programs. These observations and findings also demonstrated how Failure-Driven Memory Theory was a powerful lens for understanding and developing failure learning in our teacher preparation program. Furthermore, these findings suggest the potential for growth through failure lies not merely in experiencing and embracing failure but in how we, as teacher educators, guide preservice teachers to reflect on and learn from their experiences.

Implications for Research

Having examined how preservice teachers identified and processed failure, future research must investigate how they reconcile and grow from failure over time. Our study focused on failure in specific learning contexts within a single semester, but the long-term integration of failure and its reflection in teacher education remains unexplored. Understanding how current teachers have reconciled past failures could discern the lasting impact of failure learning. Additionally, our findings highlighted the relationship between failure and resilience, as preservice teachers associated reflection with developing grit and the ability to navigate challenges. Future studies should explore whether failure influences teachers' desire to remain in the process and their capacity to manage the pressures of teaching. Finally, the role of support networks in failure learning warrants further exploration. While we examined classroom-based failures with limited feedback, we know preservice teachers often engage with broader support systems, including cooperating teachers, peers, advisors, and university supervisors, during their teacher preparation program. Investigating how these support networks shape their ability to process and grow from failure could further inform teacher preparation programs and their educators.

Implications for Teacher Education

Although many teacher educators may claim to incorporate and reflect on failure in their instruction or even personal practice, research suggests these practices are often superficial or inconsistent (Epler et al., 2013; Knowles & Hoefler, 1989; Peeters & Robinson, 2015; Rohrkemper & Corno, 1988; Schmidt & Knowles, 1995; Sudzina & Knowles, 1993). We also found ourselves guilty as we reflected on our research and findings. Consequently, our findings stress the need for a pedagogical realignment to embed failure learning and reflection as a core component in teacher education. We conclude with three specific recommendations for doing so.

First, we, teacher educators, must model transparency by sharing our experiences and framing failure as a valuable part of the learning process. By demonstrating how failure leads to reflection and growth, we can encourage preservice teachers to consider perspectives aligned with constructivist beliefs, viewing failure as a natural and essential component of teaching and learning (Short et al., 2001). However, we recognize not all may share this worldview, which raises important questions for future research regarding how varying belief systems may approach, process, and reflect upon failure. Second, preservice teachers must feel supported in taking risks and accept failure as a potential outcome. Our findings suggest environments fostering psychological safety (i.e., fault-tolerant environments) (Wang et al., 2023) through flexible grading, opportunities for reassessment, and supportive feedback can reduce the stigma around failure and promote risk-taking as a means of growth. Lastly, reflection is central to transforming failure into growth. Hence, purposeful reflection prompts should move beyond recounting "what happened" to critically analyzing "how" and "why" teaching and learning occurred. Our study showed consistent, structured, and intentional reflection deepened preservice teachers' knowledge and equipped them with tools to solve future problems. By embedding these reflection practices early into teacher preparation programs, we can ensure preservice teachers are better prepared for the challenges and adventures awaiting them in their future classrooms.

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Appendix A

Student Data Collection

Student Data Version 1

1. What was your classmate's topic?
2. What do you remember?

Student Data Version 2

1. What was your peer's topic?
2. What was your peer's key point?

Student Data Version 3

1. What did you learn?

Student Data Version 4

1. Did you learn something?
2. What did you learn about your peer's topic?

Student Data Version 5

1. How much did you learn from this teacher's lesson(s)? (1 = None, 5 = A lot)
2. What did this teacher do that helped you learn?
3. What didn't this teacher do that made learning difficult?

Appendix B

First Attempt Reflection Prompts

First Attempt Reflection Prompt Version 1

1. Failure occurs when an individual does not meet a goal defined by themself and/or by others. Failure does not occur on an "all or nothing" basis; rather, failure occurs in moments. Therefore, an entire experience cannot always be determined as a complete failure. Based on this definition of failure, do you believe you experienced a moment of failure (i.e., did you fail to meet the set goal)? Note that the goal the instructors set for your facilitation was to facilitate a 2-minute learning experience that [assignment-specific goal].

2. Identify one of your failure moments from your facilitation, providing a 2-3 sentence description of what occurred and why you consider it a failure.

3. Based on the failure moment you described, do you believe there are opportunities to improve or do something differently? If yes, what will you do differently in the future (e.g., future facilitations)? If not, why not?

First Attempt Reflection Prompt Version 2

1. Failure occurs when an individual does not meet a goal defined by themself and/or by others. Failure does not occur on an "all or nothing" basis; rather, failure occurs in moments. Therefore, an entire experience cannot always be determined as a complete failure. Based on this definition of failure, do you believe you experienced a moment of failure (i.e., did you fail to meet the set goal)? Note that the goal the instructors set for your facilitation was to facilitate a 2-minute learning experience that [assignment-specific goal].

2. Identify one of your failure moments from your facilitation, providing a 2-3 sentence description of what occurred and why you consider it a failure.

3. Based on the failure moment you described, do you believe there are opportunities to improve or do something differently? If yes, what will you do differently in the future (e.g., future facilitations)? Where are opportunities to address this failure (e.g., classroom teaching, workshops, presentations)?

First Attempt Reflection Prompt Version 3

1. Failure occurs when an individual does not meet a goal defined by themself and/or by others. Failure does not occur on an "all or nothing" basis; rather, failure occurs in moments. Therefore, an entire experience cannot always be determined as a complete failure. Based on this definition of failure, do you believe you experienced a moment of failure (i.e., did you fail to meet the set goal, which was to facilitate student learning)?

2. Identify one of your failure moments from your facilitation, providing a 2-3 sentence description of what occurred and why you consider it a failure.

3. Based on the failure moment you described, do you believe there are opportunities to improve or do something differently? If yes, what will you do differently in the future (e.g., future facilitations)? If not, why not?

First Attempt Reflection Prompt Version 4

1. Failure occurs when an individual does not meet a goal defined by themself and/or by others. Failure does not occur on an "all or nothing" basis; rather, failure occurs in moments. Therefore, an entire experience cannot always be determined as a complete failure. Based on this definition of failure, do you believe you experienced a moment of failure (i.e., did you fail to meet the set goal, which was to facilitate student learning)?

2. Identify one of your failure moments from your facilitation, providing a 2-3 sentence description of what occurred and why you consider it a failure.

3. Based on the failure moment you described, do you believe there are opportunities to improve or do something differently? If yes, what will you do differently in the future (e.g., future facilitations)? Where are opportunities to address this failure (e.g., classroom teaching, workshops, presentations)?

Appendix C

Second Attempt Reflection Prompt

Second Attempt Reflection Prompt

1. Identify the failure moment that you described after your first attempt. How did you change your facilitation to account for that failure moment?

2. Did your change have the intended effect? If so, how? If not, why not?

Appendix D

Table 4

Axial codes

Axial Code	Open Code(s)	Relevant Text Example(s)
Unmet goals	Unmet goals	"Failure is the incapability to accomplish a goal or task."
	Unmet tasks	"Failure is not being able to accomplish a specific task…"
Giving up	Quitting	"Failure is when you make the conscious choice to stop making an attempt."
	Giving up	"I feel like failure can only happen if I stop trying and I give up."
Natural process	Inevitable failure	"…failure is always there."
	Natural	"Failure is a part of life."
	Unavoidable	"…failure in some things is unavoidable so it is something that just has to be worked through."
Disappointing expectations	Disappointment	"Failure is not accomplishing one of my goals and most likely disappointing myself and my family."
	Unmet expectations	"Failure is not succeeding in meeting certain expectations or goals."
	Disappointing others	"…failure is disappointing yourself or others."
	Unmet expectations for self	
	Unmet expectations for others	
Constructive	Failure is good	"…failure is a good thing."
	Valuable	"We must fail in order to learn."
	Waymaker	"Failure enables me to do the next challenge or task better than I would've been able to do otherwise."

Note: We assigned 64 axial codes and 305 open codes during the first two stages of our data analysis.

Appendix E

Primary Data Codebook

Table 5

Primary Data Codebook

Selective Code	Definition	Axial Code(s)	Relevant Text Example(s)
A personal flaw	The perception that failure is a reflection of the participants own inadequacies.	Unmet goals Disappointing expectations Feeling/sign of inadequacy	"Failing is scary because it makes you feel inadequate which hurts" "[Failure means to me] disappointing yourself or others" "Not accomplishing one of my goals, and most likely disappointing myself and my family"
Destructive	The belief that failure is harmful and should be avoided at all costs, often leading to quitting.	Giving up Avoided Outlawed Destructive	"I don't view failure as an option" "[Failure is an] attempt to do something but don't end up doing it well or right." "Failure can only happen if I stop trying and I give up"
Expected and anticipated	Failure is seen as natural and necessary, it's an inevitable part of life and learning that must be experienced and dealt with.	Natural process Necessary process	"Failure in some things is unavoidable so it is something that just has to be worked through" "[Failure is] likely going to come close to happening several times" "[Failure] is a part of life"
Subjective	Failure's impact and cause is perceived to vary based on personal efforts emotional responses.	Product of effort Mixed emotions	"A measure of how much I was willing to give to the task" "Failure can be both a good and a bad thing" "[Failure] means I have to try again and work harder"
A constructive opportunity	Failure is an opportunity to identify areas of improvement, it's a chance to learn and grow but requires a growth mindset.	Encourages growth Fosters learning Motivates Constructive Opportunity to learn Opportunity to grow Growth mindset	"[Failure is an] opportunity to learn and become better" "[Failure is a] sign that you're succeeding as it shows I'm making progress and learning from my past experiences and mistakes" "I can learn from [failure] or make it a teaching experience for others" "I have to look as failure as where to improve" "I view failure in my next challenge or task as a place to improve"

Selective Code	Definition	Axial Code(s)	Relevant Text Example(s)
			"I have learned from my mistakes due to failure and am grateful for the growth mindset I have"
A necessary experience for teachers	Failure is considered an important tool for teachers to learn from their mistakes and improve their practices.	Beneficial for teachers Necessary for learning Necessary for success Motivating Necessary to embrace A tool to be used	"The first couple of years [teaching] are going to take grit and have failures" "I believe failure is okay to happen in the classroom...If a lesson fails and doesn't go the way I wanted it too, I will go and change it to better fit my students and classroom" "Failure is a necessary tool that allows for me to learn from my mistakes"
A constant in the classroom	Failure is inevitable; therefore it's accepted as a common and normal aspect of teaching.	Failure is inevitable Acknowledges failure	"I know that I will fail plenty of times as a first-year teacher" "[I] perceive failure as a normal aspect of the learning journey" "I know I am going to fail"
Paralyzing	Failure causes discouragement and is an experience that hinders personal and professional action.	Contempt for failure Failure is a barrier Absence of success Absence of learning Scary Discouraging Failure is who you are Personally harmful	"I hate failure...the feeling of disappointment in myself" "I cannot fail before otherwise I get thrown off and cannot fully function" "Failure is scary"
Self-inflicted	Failure is based on personal shortcomings that result from not meeting one's own high standards of success.	Unmet goals Disappointing expectations Product of effort Illuminates inadequacies Oriented on success/perfection	"[Failure is] something I need to get better at" "Failure is the inability to do something" "If I give effort, work hard, and apply myself I should not fail"
Acknowledged, yet resisted	Failure is acknowledged, but when it's understood as a part of the process, it is often resisted because it is seen as a disruption.	Perplexing Unwelcomed Disrupts plans	"[Failure] is a hard thing for me to understand sometimes" "Failure scares me...failure is something that gives me anxiety" "If I mess up [my next 26hallenge] it will be the end of my world"
Failure is a learning process	Failure is valuable experience because of its role in facilitating reflection, growth, and learning, ultimately leading to	Embracing risk Impactful failure because of reflection Encourages growth Facilitates learning	"A great way to [remember failure is a learning experience] in teaching is to reflect on my work regularly" "Through failure, I can learn about how to improve…I can take my

Selective Code	Definition	Axial Code(s)	Relevant Text Example(s)
	personal growth and development.		learnings and be more prepared for the next task/challenge" "Failure is my fire...my next challenge or task consumes my life because I want to best prepare myself…"
Judged by success	Failure is measured by the inability to meet standards of success, often leading to criticism.	Oriented on success Disappointing expectations	"I sometimes become worried about not succeeding" "I am very hard on myself...not achieving a small goal is a failure" "Failure is letting myself down"
Difficult to process	Failure is challenging for individuals to handle and results in feelings of frustration and/or blaming themselves.	Disrupts plans Unmet goals Disappointing expectations Undesired feeling	"If I set a goal and don't achieve it, I feel angry with myself" "In the instance I don't achieve a goal, I feel that I have let myself down" "Failure isn't always comfortable to experience"
Expected, required, and beneficial in teaching	Failure is an expected and useful part of teaching that drives improvement and learning, serving as a valuable asset for teachers.	Motivates Normal in teaching Asset for teachers	"As a teacher, I am always going to be failing at something...I'm never going to know everything and that's okay" "I see failure as a necessary building block to find my roadmap as a teacher" "Being a lifelong learner is about craving failure and consistently desiring to become better" "I hope to fail regularly, but always learn from those failures" "I am going to fail as a teacher, and that will be okay...I will use failure as a learning opportunity for my [teaching] career" "Failure may set me back in a unit plan but should not define the rest of the school year" "To make me a better teacher, I can't let failure bring me down"

Note: The data used to develop the selective codes, definitions, axial codes, and relevant text examples derive from four separate data sets within our study. These were analyzed together to develop the themes described above.

Appendix F

Triangulating Data Codebooks

Table 6

Triangulating Data Codebook, Focus on Identified Failures

Selective Code	Definition	Axial Code(s)	Relevant Text Example(s)
Did not communicate to learners	Failure resulted from not providing necessary feedback or clear instructions to the students, which hindered student learning.	Did not provide feedback to learners Unclear instructions and/or directions Not summarizing learning experience Poor questioning	"I believe not recapping the information after the assessment left some of the learners without closure of knowing how they did…giving feedback on the information is helpful to them retaining the knowledge" "I should have been more aware of my learners and their need for a definitive answer" "I did not ask enough questions in my opinion to see what all my students had learned"
Delivered unstructured learning experience	Delivering a disorganized learning experience without clear structure or expectations, causing confusion.	Unstructured assessment Unstructured learning experience Classroom behavioral issues Not summarizing learning	"I tried to speed the conversation along too much and ended up being overly involved in the [Socratic seminar] discussion" "My failure moment was not setting higher expectations" "I also do not think [the fist of five method] is the most accurate method"
Lack of teacher preparation	Teachers were unprepared in areas of attitude, planning, or using technology.	Teacher attitude Being unprepared Technology issues	"I don't know [my] students names" "I failed because of my mood...I could have given more energy" "I forgot to add the animation to the slides, so everyone could see the correct answers on the board"
Lack of student learning	Students did not comprehend or retain the content/instruction delivered.	Lack of student learning	"There was about 4-5 learners in every question that missed the right answer" "Out of the 25 responses, only 10 people got it completely correct while 12 people got it partially correct and 3 people wrote nothing…only 2/5 of students got the answer right and knew what I was teaching" "6 out of 23 people did not give specific examples...I am not sure if they just did not understand the

Selective Code	Definition	Axial Code(s)	Relevant Text Example(s)
			directions or could not remember one"
Failure beyond perceived control	Failures resulted from factors beyond the teachers' control; circumstances that were unforeseen.	Lack of student learning Failure of circumstance Technology issues	"In a scenario where I get more than 2 minutes, I would be able to fix the problem" "A few people who could not/ did not give a specific example" "Some my students were unable to access the QR code"

Table 7

Triangulating Data Codebook, Focus on Correcting Failures

Selective Code	Definition	Axial Code(s)	Relevant Text Example(s)
Providing a structured experience for learners	Create a well-organized and structured learning environment to enhance student learning and engagement.	Better structured assessment Use better and more specific questions Better structure learning experience Summarize learning Utilize classroom management strategies	"I will research ways to get the class up and moving…next time we will do jumping jacks" "I will review attempt one and incorporate the memory device" "Some opportunities to address this failure would be going over the test or quiz after a class, a quick wrap up at the end"
Communicating to learners	Improve communication with students through clearer instructions, better questions, and thorough feedback	Provide feedback to learners Use better and more specific questions Summarize learning Provide clearer instructions	"I do need to wrap up the facilitation and give more in depth explanations" "I need to use more specific questions so that I can get a direct answer that I am looking for...This will allow me to test the knowledge on a specific topic" "I want to give clearer instructions...preface my instructions with 'No one move until I give all the instructions' and then give the instructions, ask the class for clarity and then move into the activity"
Preparing to facilitate learning	Better prepare by reviewing technology beforehand or finding an emotionally-balanced state that is excited and confident to teach.	Select alternative technology Better prepare for instruction Better prepare emotionally	"Double check my assessment before posting it" "Showing up in a better mood" "Being confident that the information I am presenting…I am not as confident as I want to be"