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RESILIENCE THROUGH PROXIMAL PROCESSES: EVIDENCE FROM A MULTI-CASE STUDY OF FTEP PRESERVICE TEACHERS IN RURAL CHINA

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ABSTRACT

Purpose –Teacher resilience is central to professional development, yet its formation during the preservice stage, especially in policy-constrained rural practicums, remains underexplored. This study addresses this gap by examining how proximal processes, specifically mentoring, peer collaboration, and teacher-student interaction, shape preservice teachers' resilience during compulsory rural placements in rural China.

Methodology – This is a qualitative multiple-case study guided by Bronfenbrenner's Process–Person–Context–Time (PPCT) framework. A total of six purposively sampled EFL preservice teachers from China's Free Teacher Education Program participated in the study. Semi-structured interviews served as the primary data source, which were analyzed using reflexive thematic analysis. Weekly reflective journals and practicum-related documents were also collected to provide contextual information and to triangulate interview accounts.

Findings – Teacher resilience was found to be shaped more by the quality of interaction than by formal support structures. Accessible and reciprocal mentoring promoted growth, whereas absent or non-reciprocal mentoring led to constrained coping. Structured peer collaboration buffered stress and supported adaptation, while structured isolation intensified vulnerability. Teacher-student interaction functioned as a site of professional identity negotiation, where meaning-making and relational repair supported identity

reconstruction, whereas unresolved conflict under limited relational support resulted in protective boundary-setting. Three resilience configurations were identified, namely, Interactive Growth, Stable Adaptation, and Constrained Coping.

Significance – The findings reconceptualize preservice teacher resilience as an interactionally constructed developmental process rather than an individual trait. For teacher education programs, institutions, and policymakers, the findings highlight the importance of mentor preparation, structured peer support, and practicum designs which foster accessible, reciprocal, and developmentally scaffolding interactions in rural school contexts.

Keywords: Teacher resilience, proximal processes, mentoring, peer collaboration, teacher-student interaction, preservice teachers, free teacher education program (FTEP), PPCT.

INTRODUCTION

Teacher shortage in rural and remote schools remain a persistent challenge worldwide – from Australia’s Outback to South Africa’s rural provinces and the midwestern United States (Cuervo, 2020; Omodan, 2022; Williams et al., 2022). Across these diverse contexts, recruiting and retaining qualified teachers in hard-to-staff rural schools have remained a common policy challenge. China’s Free Teacher Education Policy (FTEP), launched in 2007, represents a macrosystemic reform to address chronic teacher shortage in rural areas. By providing full scholarships and guaranteed employment, the policy aims to attract academically strong students into teaching positions in their home provinces (Hagin, 2012). However, the situation has remained similar to findings from other national contexts where financial incentives alone have proven insufficient to sustain rural commitment (Blackmore et al., 2024). Empirical evidence reveals persistent tensions between policy intentions and individual aspirations. Research shows that many FTEP participants are motivated more by pragmatic concerns, such as job security and financial stability, than by intrinsic commitments to rural teaching (Wang et al., 2025; Youngs et al., 2017). The tension between macrosystemic vision and microsystemic motivation becomes most apparent during the compulsory rural practicum, a critical transition in professional development (Chen et al., 2025; Qiao & Lai, 2019).

Rural placements in China present distinctive challenges, such as limited parental engagement, complex collegial relations, and scarce resources (Wang & Lo, 2022). Prior research has documented motivational decline during university training (Xiong, 2020) and adaptation difficulties in under-resourced schools (Chen et al., 2025; Qiao & Lai, 2019). Such challenges make resilience particularly important, not as a fixed trait, but as a dynamic, contextually embedded process of positive adaptation (Mansfield et al., 2016; Schwarze & Wosnitza, 2018). Preservice teachers’ adaptation depends on the quality of social and institutional support from mentors, universities, and communities (Ye & Wang, 2023). International studies have demonstrated that structured professional learning communities could enhance teachers’ adaptive capacities and retention (Vestal et al., 2025).

A key issue lies in the urban-oriented design of university curricula, which often leaves FTEP students underprepared for rural teaching realities (Qiao & Lai, 2019). Recent policy initiatives have sought to address this gap. Both the Rural Teacher Support Plan (2015–2020) and its subsequent extension, entitled

Strengthening the Construction of the Rural Teacher Workforce in the New Era have introduced measures such as targeted recruitment from rural backgrounds, enhanced pre-service training in rural pedagogy, and financial incentives for long-term rural service (Ministry of Education of the People's Republic of China, 2020; State Council of the People's Republic of China, 2015). However, evidence suggests that implementation remains inconsistent across regions, and the fundamental disconnect between urban-centric curriculum design and rural classroom conditions persists (Qian et al., 2020). Consequently, many experience tensions between their expectations and the realities of rural classrooms. Nearly 30% of preservice teachers reportedly intend to break their service commitment, particularly those from urban backgrounds (Chen et al., 2025). These patterns reveal persistent gaps or discontinuities between policy expectations, institutional structures, and local realities (Jian, 2020; Qian et al., 2020).

Resilience, understood as sustained positive adaptation amid adversity (Riley & Masten, 2005), is key to explaining why some preservice teachers maintain commitment while others withdraw. Although in-service resilience has been widely studied (Sun et al., 2024; Wu et al., 2025), little is known about how adaptive capacities emerge during the preservice stage. While existing research has established associations between social support and teacher resilience (Gu & Day, 2013; Mansfield et al., 2016), less attention has been paid to how such support is enacted through everyday interaction and functions as a developmental mechanism over time.

To address this gap, the present study adopts an ecological perspective to examine the proximal processes through which resilience is generated during the rural practicum. In teacher education research, mentoring relationships, peer collaboration, and teacher-student classroom interactions are widely recognised as primary sites of professional learning and adaptation (Le Cornu, 2009; Mansfield et al., 2016). Within this perspective, these interactions constitute proximal processes that link individual and contextual factors to adaptive outcomes (Bronfenbrenner & Morris, 1998, 2006). Guided by Bronfenbrenner's bio-ecological theory, the study asks: How do mentoring, peer collaboration, and teacher-student interaction function as key proximal processes in shaping resilience development among FTPE preservice teachers during their rural practicum?

By investigating this question, the study explains how everyday proximal processes shape the development of teacher resilience, demonstrating how repeated interactions cumulatively influence whether preservice teachers survive, adapt, or grow through challenging placements. Conceptually, the study extends resilience research by positioning resilience as an interactionally constructed process emerging through high-quality proximal interactions rather than as an individual attribute. Methodologically, it adopts a process-oriented multiple-case design to trace how mentoring, peer collaboration, and teacher-student interaction shape different resilience trajectories. This perspective offers a lens for understanding how professional identity is constructed at the intersection of individual agency and relational ecology.

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

Teacher Resilience as a Relational Process

Recent scholarship has conceptualized teacher resilience not as a fixed trait, but as a dynamic, contextually embedded developmental process (Beltman, 2020; Mansfield et al., 2016). Rather than an inherent personal

quality, resilience is understood as an adaptive capacity emerging through sustained person–environment engagement. Gu and Day (2013) show that resilience is shaped by working conditions and relational support, while Schwarze and Wosnitza (2018) emphasize cyclical processes of appraisal and adaptive response. From this perspective, resilience is co-constructed through ongoing negotiation with contextual resources and challenges. This view aligns with relational and social-ecological perspectives that locate resilience in relational processes and access to resources, rather than in individual traits alone (Jordan, 2004; Ungar, 2011).

Empirical studies have consistently demonstrated that social support and professional communities strengthen adaptive capacity (Vestal et al., 2025; Wang & Lo, 2022). However, much research has identified supportive factors at structural or relational levels, without specifying the interactional mechanisms through which support translates into resilient outcomes. While mentoring, collaboration, and positive school climates are recognized as important, less is known about how support is enacted in daily practice and why similar conditions yield divergent trajectories (Beltman, 2020; Mansfield et al., 2016).

Within rural China, resilience is shaped by layered ecological influences, including policy environments, school culture, and individual efficacy (Wang & Lo, 2022). Research on the Free Teacher Education Programme (FTEP) indicates that institutional design influences professional commitment and identity formation (Qian et al., 2020; Wang et al., 2025; Youngs et al., 2017). Studies on preservice teachers in FTEP contexts reveal fluctuating motivation, ambivalent rural commitment, and tensions between expectations and lived realities (Chen et al., 2025; Qiao & Lai, 2019; Xiong, 2020). Importantly, these challenges are not unique to China. Similar patterns of commitment uncertainty, rural adjustment difficulties, and tensions between teacher preparation and local school realities have been documented among preservice teachers in Australia, the United States, and other rural education contexts (Cuervo, 2020; Williams et al., 2021). These findings suggest that adaptive pathways may begin to develop before teachers formally enter the profession, yet how they emerge through everyday interactions remains unclear.

The concept of resilience offers a valuable lens for understanding these formative processes. However, while teacher resilience has been extensively studied among in-service populations (Gu & Day, 2013; Sun et al., 2024; Wu et al., 2025), far less attention has been paid to how adaptive capacities emerge during the preservice stage (Beltman, 2020; Mansfield et al., 2016). This is a critical oversight: the practicum represents preservice teachers' first sustained encounter with authentic professional demands, a period during which patterns of appraisal, coping, and resource mobilization begin to take shape. For FTEP preservice teachers placed in under-resourced rural schools, the mismatch between prior expectations and lived realities is particularly acute, making the practicum a critical period for resilience development (Hagin, 2012; Youngs et al., 2017). Yet how they navigate this mismatch through everyday exchanges with mentors, peers, and students remains largely underexplored. In other words, while existing research has identified what challenges preservice teachers face and that support does matter, it has yet to illuminate the interactional mechanisms through which support translates into resilient outcomes.

Building on this gap, the present study conceptualizes preservice teacher resilience as a developmental process emerging through sustained person–context engagement during practicum. From a bioecological perspective, such engagement is enacted through proximal processes that shape trajectories of adaptation, and professional development (Bronfenbrenner & Morris, 2006).

PPCT and Proximal Processes

Bronfenbrenner's bioecological theory, particularly the PPCT model (Bronfenbrenner & Morris, 2006), provides the analytical lens through which resilience trajectories are interpreted in this study. Within this framework, development is driven by proximal processes, namely enduring, recurrent forms of interaction in the immediate environment, which function as the primary engines of development. From this perspective, resilience is not the product of static protective factors, but of sustained engagement in developmentally generative processes (Riley & Masten, 2005; Xia et al., 2020).

Within the FTEP practicum, proximal processes are operationalized through three key relational domains, that is, mentoring relationships, peer collaboration, and teacher-student classroom interactions. These recurrent exchanges constitute sites where preservice teachers interpret challenges, mobilize resources, and construct professional meaning (Mansfield et al., 2016; Schwarze & Wosnitza, 2018). Rather than treating support as a background condition, the framework conceptualizes these processes as mechanisms through which resilience is enacted.

The Person dimension includes characteristics such as motivation, beliefs, reflective capacity, and emotional regulation (Wang et al., 2025; Ye & Wang, 2023), which shape engagement in proximal processes. Analytically, it explains why preservice teachers respond differently to similar interactional experiences.

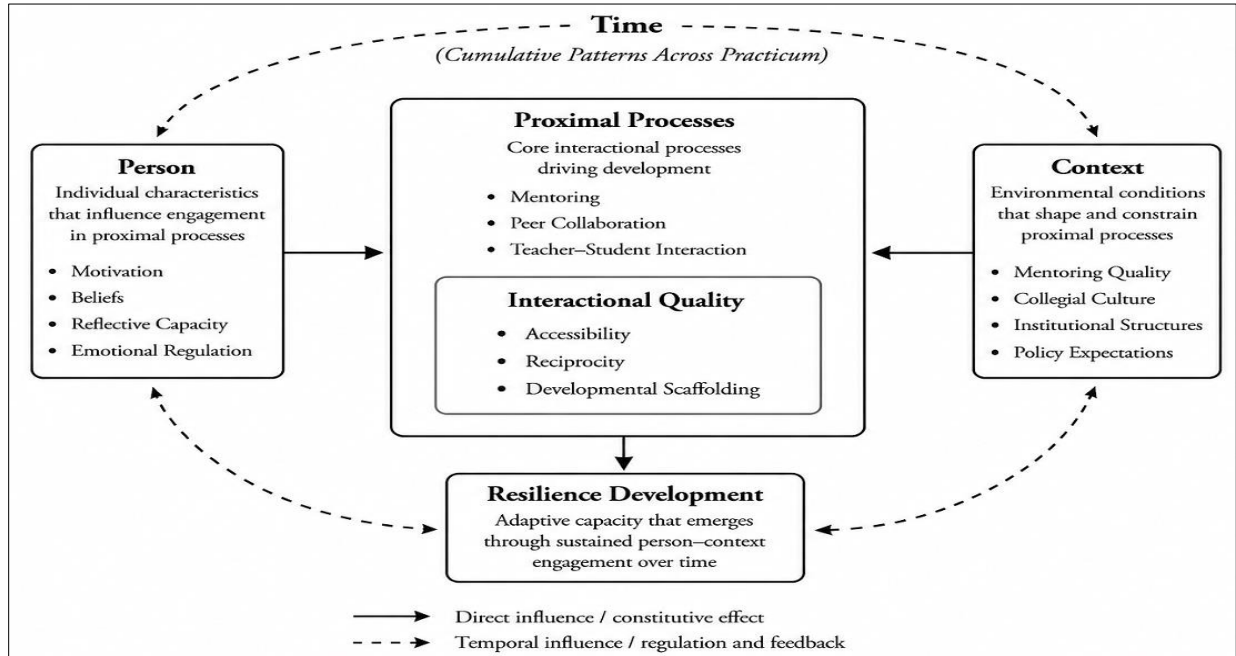
The context dimension encompasses mentoring quality, collegial culture, institutional structures, and policy expectations (Gu & Day, 2013; Wang & Lo, 2022). Analytically, it situates resilience development within the opportunities and constraints of rural practicum environments. Person and context jointly influence the regularity, quality, and developmental impact of proximal processes.

The dimension of time underscores the cumulative nature of development (Bronfenbrenner & Morris, 2006). Analytically, it directs attention to how repeated interactions shape resilience trajectories across the practicum rather than through isolated events. Resilience emerges not from isolated incidents but from patterns of interaction sustained across the duration of practicum (Xia et al. 2020; Mansfield et al., 2016). Over time, recurrent supportive processes may strengthen competence and commitment, whereas persistent tension may redirect trajectories toward withdrawal.

Operationalised within the FTEP context, the PPCT framework guides the analysis by examining how process (mentoring, peer collaboration, and teacher-student interaction), person, context, and time interact to shape resilience trajectories. By centering proximal processes, the framework shifts attention from the presence of support to its interactional quality, conceptualized through accessibility, reciprocity, and developmental scaffolding. This perspective helps explain why similar support structures may generate different resilience outcomes. Figure 1 below presents the analytical framework.

Figure 1

PPCT Framework for Teacher Resilience



METHODOLOGY

Research Design

This study employed a qualitative multiple-case study design (Merriam, 1998; Yin, 2018) to examine how FTEP preservice teachers enacted resilience during their compulsory rural practicum. A multiple-case design was selected because the study sought to examine how similar practicum conditions produced different resilience trajectories across participants, thereby enabling analytical replication through cross-case comparison (Yin, 2018). Such designs have been used effectively in resilience research to capture how teachers’ developmental experiences vary across shared ecological contexts (e.g., Wang & Lo, 2022).

The overarching case concerned resilience development during practicum, while each preservice teacher represented an individual case defined by his or her practicum experiences and resilience trajectory, enabling both within-case process tracing and cross-case comparison.

Participants and Sampling

Following theoretical replication logic (Yin, 2018), purposive sampling was used to identify information-rich cases that could illuminate variation in resilience development under similar rural practicum conditions. Rather than seeking demographic representativeness, the sampling was aimed at maximizing contrasts in practicum responsibilities, interactional experiences, and access to support systems. Preliminary reviews of

reflective journals and practicum records indicated substantial variation in mentoring experiences, peer relationships, and school responsibilities, suggesting the potential for contrasting developmental pathways.

A total of six final-year EFL preservice teachers (aged 22-23) from a university in Hunan Province were selected. All these preservice teachers had completed semester-long placements in township-level schools in Xiangxi Prefecture, an under-resourced rural region in Midwest China. One exception was Song, whose practicum lasted for two semesters due to her class teacher responsibilities and her placement school's request. Despite sharing a common policy and practicum context, participants occupied different ecological positions, including class teacher roles, administrative responsibilities, varying levels of mentor support, and had different opportunities for peer collaboration. These contrasts enabled theoretical replication through comparison of how similar contextual conditions generated different resilience trajectories. Ethical approval was obtained from the research ethics board of the university, and all participants provided informed consent for the study.

Table 1

Participant Characteristics and Sources of Variation

Participants	Gender	Practicum role	Formal mentors assigned	Practicum duration
Yuan	Female	Teaching only	No	One semester
Song	Female	Teaching + class teacher	Yes	Two semesters
Mei	Female	Teaching + administration	Yes	One semester
Lin	Male	Teaching + administration	Yes	One semester
Xu	Male	Teaching + administration	Yes	One semester
Xiao	Female	Teaching only	No	One semester

Notes. Participants were selected to maximize variation in practicum responsibilities, mentoring arrangements, and placement duration within a shared rural practicum context.

Data Collection

Multiple data sources were collected to capture proximal processes as they unfolded across time (Xia et al., 2020; Yin, 2018). Semi-structured interviews, each lasting 45 to 60 minutes, were conducted in May 2025 prior to graduation, and served as the primary data source. Interview questions explored participants' experiences of mentoring, peer collaboration, teacher-student interaction, and major practicum challenges, allowing comparisons across cases while preserving sensitivity to individual developmental pathways.

Weekly reflective journals, written throughout the practicum, and institutional documents, such as FTEP policy statements and university curriculum were also collected to provide contextual information and to triangulate the interview accounts, consistent with the role of supplementary data described in the study

design. The school mentors referenced by participants were experienced English teachers assigned by placement schools to supervise teaching practice, provide feedback, and support professional adjustment throughout the practicum.

Data Analysis

Data was analyzed using reflexive thematic analysis (Braun & Clarke, 2021), and informed by the PPCT model (Bronfenbrenner & Morris, 2006; Xia et al., 2020). NVivo 15 was used to support data organization and coding.

Analysis proceeded through four recursive phases. First, interview transcripts, reflective journals, and supporting documents were read repeatedly to develop familiarity with the data. Initial coding focused on participants' accounts of mentoring, peer collaboration, teacher-student interaction, and their interpretations of these experiences. Codes captured both interactional episodes and participants' evaluations of their significance.

Next, codes were reviewed and compared across cases to identify recurring patterns of meaning. Consistent with reflexive thematic analysis, themes were generated inductively through iterative engagement with the dataset rather than predetermined by the PPCT framework. Emerging themes were refined through repeated comparisons across participants and examination of disconfirming cases.

Subsequently, the PPCT framework was used as a sensitizing analytical lens to interpret relationships among themes. Codes and themes were examined in relation to process, person, and context dimensions to explore how interactional experiences, individual dispositions, and institutional conditions shaped resilience development. The framework informed interpretation rather than serving as a fixed coding template.

Finally, the dimension of time was incorporated by tracing interactional patterns across the practicum period. Coded episodes were examined chronologically to identify whether key relationships intensified, stabilized, or weakened over time. Reflective journals were revisited to enrich interpretations of participants' developmental trajectories and identify shifts in their perspectives over time.

Throughout the analysis, coding, theme development, and interpretation proceeded recursively. Interpretations were continuously checked against the dataset and discussed with peers to enhance analytical rigor. The researchers' background knowledge and experience in teacher education provided contextual familiarity while requiring reflective awareness of how prior assumptions and perspectives might shape interpretation.

Ethical Considerations and Trustworthiness

Ethics approval was granted by the university's research ethics committee. Participants provided informed consent and were also briefed on their right to withdraw. Given the discussion of challenging practicum experiences, participants were also informed that they could decline any question or discontinue the

interview at any point without consequence. Pseudonyms were assigned, identifying details were removed, and data were securely stored.

Trustworthiness was strengthened through data triangulation (interviews, journals, and documents), member checking, and peer debriefing. Participants were invited to review interview summaries and preliminary interpretations, while two qualitative research colleagues reviewed coding decisions and thematic development. Attention to disconfirming cases during theme development further supported analytic rigor. Detailed contextual descriptions of the research setting and participants were provided to support transferability.

FINDINGS

This section examines how mentoring, peer collaboration, and teacher-student interaction shaped resilience development among the FTEP preservice teachers during their rural practicum. Drawing on Bronfenbrenner's PPCT framework, the analysis focuses on the quality of proximal interactions rather than the mere presence of support structures. Across cases, interactional quality was operationalized through three interrelated dimensions, namely accessibility, reciprocity, and developmental scaffolding. Cross-case comparison indicated that resilience emerged through how participants engaged with, activated, reconstructed, or compensated for proximal processes in their immediate ecology. Table 2 provides an overview of interactional patterns across the three relational domains examined in this study.

Table 2

Proximal Process Patterns across Relational Domains

Participant	Mentoring	Peer Interaction	Teacher-Student Processing
Yuan	Absent	Limited	Internalized regulation
Song	Non-reciprocal	Informal peer alliance	Emotional detachment
Mei	Responsive scaffolding	Institutionalized collaboration	Reflective reconstruction
Lin	Accessible	Structured collaboration	Theory-practice integration
Xu	Networked	Selective engagement	Relational repair
Xiao	Compensatory observation	Collegial affirmation	Meaning reconstruction

Theme 1: Mentoring as a Developmental Mechanism

Mentoring emerged as the most important proximal process during the rural practicum, yet its impact depended on interactional quality rather than formal assignment.

Sub-theme 1.1: Scaffolding Mentoring

When mentoring was accessible, responsive, and practically oriented, it functioned as developmental scaffolding that supported participants' professional learning. Lin described how his mentor's physical

proximity enabled immediate problem-solving: “My mentor was available whenever I needed him ... his desk was right next to mine” (Lin, interview). This accessibility reduced uncertainty during the early practicum stage and transformed mentoring from formal supervision to an active developmental resource.

Similarly, Mei benefited from intensive guidance during her critical first month: “For the first month, he came to observe me almost every day and gave me suggestions after each class” (Mei, interview). Frequent feedback was found to enable iterative adjustment of teaching practice, illustrating how mentoring functioned as an ongoing proximal process rather than a one-time intervention.

Sub-theme 1.2: Networked Mentoring

Mentoring extended beyond a single dyadic relationship. Teaching in his alma mater, Xu activated long-standing ties: “My former teachers, and many other teachers I knew, all helped me” (Xu, interview). His former English teacher remained accessible via WeChat, his assigned mentor provided pedagogical guidance, and other familiar educators also offered informal support. The key mechanism lay in actively drawing on pre-existing ties: “I visit them every year during the Chinese New Year” (Xu, interview), rather than the result of new relationship formation. Access to several trusted mentors reduced stress by providing multiple sources of advice, suggesting that effective mentoring may extend beyond formal assignment.

Sub-theme 1.3: Absent Mentoring

When promised mentoring was absent despite institutional arrangements, participants experienced heightened anxiety. Yuan recounted: “When I arrived, I discovered there was no mentor assigned to guide me. I was devastated” (Yuan, interview). Without accessible guidance, she turned inward, using her undergraduate thesis as an intellectual scaffold: “I used these two classes for my thesis experiment” (Yuan, interview). This cognitive self-scaffolding partially compensated for the absence of human mentoring.

Xiao faced a more pervasive absence. Though her handbook listed assigned mentors, she explained: “In reality, I had no mentor at all” (Xiao, interview). Her requests to observe classes were frequently declined. Unlike Yuan’s inward turn, Xiao turned outward, watching the grade-level coordinator to piece together pedagogical models through observational self-compensation. Both compensatory strategies demanded greater psychological effort than formal mentoring would have required. In the absence of institutional support, resilience took the form of endurance rather than facilitated growth.

Sub-theme 1.4: Pseudo-Mentoring

A more problematic scenario occurred when mentoring existed formally, but lacked pedagogical reciprocity. One example was Song’s assigned mentor who never observed her teaching despite contractual obligations. The mentor instead asked Song to record lessons for the mentor’s own use: “She never came to observe my classes. She only asked me to record lessons for her, unit by unit” (Song, interview). The absence of reciprocal engagement meant that formal mentoring failed to provide developmental support, prompting Song to rely on constrained coping strategies instead. Under such conditions, mentoring became a stressor rather than a buffer.

Cross-case pattern. Mentoring quality, not mere assignment, actually determined its developmental impact. Responsive mentoring accelerated competence and stabilised identity, while absent or exploitative mentoring redirected resilience toward self-protection and compensatory effort. Mei and Lin were in schools which embedded accessible mentoring into routine practice. In contrast, Yuan's school left her unassigned, while Song's school assigned a mentor who extracted labour without reciprocity. These school-level differences, not just individual mentor quality, were determinants whether mentoring became a resource for growth or a source of strain.

Theme 2: Peer Collaboration as a Relational Support Mechanism

Peer interaction constituted a second critical proximal process, often mediating, and sometimes compensating for the effects of mentoring adequacy.

Sub-theme 2.1: Institutionalized Collaboration – Shared Scaffolding

In schools where regular teaching-research meetings were embedded in organizational routines, peer collaboration transformed pedagogical problem-solving from an individual endeavor into a collective process. Mei described the structured support at her school: “We had teaching research meetings once a week, every Friday. All the grade-level teachers sat together, including the grade leader, and discussed how to teach” (Mei, interview). Rather than relying on individual problem-solving, these routine and reciprocal interactions reframed pedagogical challenges as collective concerns, demonstrating how institutionalized collaboration functioned as a high-quality proximal process characterized by reciprocity and shared engagement, and a form of collective scaffolding.

Peer collaboration, however, was not limited to formal teaching-research structures. Assigned to the Academic Affairs Office, Lin found himself part of a small peer group navigating school operations together: “The three of us young guys in the Academic Affairs Office ... we all joined last semester” (Lin, interview). Their shared tasks, such as scheduling exams, compiling data, or organizing personnel required collective problem-solving, especially given their non-familiarity with school routines. Although not directly focused on pedagogy, these routine collaborative exchanges facilitated organizational adjustment and fostered a sense of collegiality. It illustrated how peer interaction supported resilience through integration into the broader school community.

Through both pedagogical and administrative channels, structured peer interaction turned institutional challenges into shared problems. Teachers in such environments adapted steadily and experienced less emotional strain, demonstrating how the quality of proximal processes, be it in the classroom or office, shapes adaptive outcomes.

Sub-theme 2.2: Informal Peer Alliances – Compensatory Support

Where mentoring was weak or dysfunctional, preservice teachers formed informal peer alliances. Song, who encountered competitive and withholding older colleagues, banded together with fellow newcomers: “There were seven female teachers in the office ... we had all just arrived at this school, so we basically banded together” (Song, interview). These self-initiated interactions functioned as a compensatory proximal

process, partially offsetting the limitations of formal support structures. Even without experienced guidance, these peer alliances provided emotional and practical support, demonstrating that resilience can emerge from solidarity among equals when formal systems fail.

Peer support, however, took varied forms. Xiao experienced collegial affirmation from established colleagues after a student's verbal abuse reduced her to tears. Her office colleagues, who were all experienced teachers, immediately rallied around her. One highly experienced teacher lightened the moment with dry humor: "I've set myself a rule ... I'm only allowed to cry twice a semester. You've only cried once, you're doing great" (Xiao, interview). This collective response helped to normalise emotional difficulty and reassured Xiao that such challenges were a manageable part of teaching, rather than evidence of perceived personal inadequacy. Unlike informal peer alliances among equals facing shared threat, collegial affirmation came from more experienced others offering acceptance and reassurance, facilitating Xiao's emotional recovery and informal integration into the school community.

However, not all peer engagement followed a simple pattern of collaboration or isolation. For example, Xu exercised agency in managing workplace relationships, choosing to engage primarily with trusted peers and familiar contacts. As he noted, "I communicate more with teachers at my same level" (Xu, interview). Rather than fitting neatly into either collaboration or isolation, this case highlights how individual agency shapes access to proximal processes by selectively engaging with available relational resources.

Sub-theme 2.3: Structural Isolation—Restricted Access to Support

Participants assigned to different grades or segregated office spaces reported limited access to peers facing similar challenges. Yuan explained that most of her university peers were teaching different grade levels, leaving few opportunities for sharing resources or discussing common problems. Within her school, she also experienced social isolation, noting that "there were no teachers my age ... I was afraid I wouldn't fit in, and indeed I never did" (Yuan, interview). This isolation reflected not merely a lack of companionship, but a lack of access to reciprocal interactions through which challenges could be collectively interpreted and managed. Structural separation restricted interaction frequency and reduced opportunities for collaborative reflection, thus intensifying stress. As a result, resilience depended largely on individual coping rather than relational support, contributing to a more vulnerable developmental trajectory.

Cross-case pattern. Peer interaction functioned as a critical proximal process within the microsystem, amplifying or buffering the effects of contextual support conditions. Structured collaboration stabilized adaptation, while informal alliances support short-term coping, and structural isolation intensified vulnerability. These contrasting patterns were not random. Mei and Lin were in schools which had established collaborative routines, such as weekly teaching-research meetings in Mei's case, and shared administrative tasks in Lin's, hence, encouraging structured peer interaction into daily practice. Song and Yuan were in schools which, in contrast, offered no such structures, since Song faced withholding colleagues who treated novices as competitors rather than collaborators. Likewise, Yuan was placed in an office with no same-age peers and indifferent veteran teachers. These school-level differences did not merely shape individual experience; they fundamentally conditioned whether preservice teachers had access to reciprocal peer interaction at all. When proximal processes were absent in one relational domain, peers could compensate, but only when accessible and reciprocal.

Theme 3: Teacher-Student Interaction as Professional Identity Negotiation

Teacher-student interaction emerged as a central factor where resilience was tested and reconstructed. Classroom adversity did not automatically erode professional identity, but outcomes depended on how conflicts were processed interactionally.

Sub-theme 3.1: Crisis Processing and Meaning-Making

It was found that episodes of student resistance triggered intense emotional responses. Xiao described being cursed at by a student: “I never thought of myself as someone who cries easily, but I was so angry that I actually cried” (Xiao, interview). Leaving the classroom, she experienced “emotional flooding”, that is, stress levels exceeding regulatory capacity. What proved decisive was the collegial affirmation Xiao received immediately afterward (see Sub-theme 2.2). Buffered by experienced colleagues’ support, she reflected: “Afterward, I regretted it ... I wasted that class” (Xiao, interview). This reflection crystallized into a mature philosophy: “Let flowers be flowers, let trees be trees.” The sequence, including crisis, peer buffering, and reflection, illustrates how proximal processes across relational domains interact. In Xiao’s case, peer affirmation enabled her to transform potential identity erosion into developmental insight.

Meaning-making also emerged from cumulative frustration, not only from discrete crises. For Mei, there were persistent pedagogical struggles of students failing to grasp material she assumed would be simple, and a new textbook that compounded difficulties built across practicum: “I felt like a fly crashing into walls all semester” (Mei, interview). Unlike Xiao’s single negative experience, Mei’s dissonance accumulated slowly, eventually prompting recalibration: “Before this practicum, I set my expectations too high. Now I need to lower them” (Mei, interview). This meaning-making was enabled by conditions detailed earlier as intensive mentoring (Sub-theme 1.1) and institutionalized peer collaboration (Sub-theme 2.1), which provided safe spaces for sustained reflection that Xiao’s crisis-driven processing did not require.

Additionally, meaning-making was not always reactive. Lin’s experience illustrates a preventive mode, whereby early emotional fluctuations prompted conscious reconstruction: “I am their teacher ... my conscience is clear - whether they change or not, I don’t need to worry excessively” (Lin, interview). This was deliberate calibration, not detachment, which protected emotional resources while maintaining commitment. His performed strictness, such as, “look fierce, without actually getting angry” distinguished external authority from internal state to avoid exhaustion. This preventive meaning-making was enabled by conditions detailed earlier as accessible mentoring (Sub-theme 1.1) and task-based peer collaboration (Sub-theme 2.1), which reduced uncertainty and provided a sense of collegial belonging, freeing cognitive resources for Lin to develop proactively rather than resorting to reactive coping strategies.

Sub-theme 3.2: Relational Repair

Direct apology was seen to rebuild trust after conflict. This was evident when Xu publicly scolded a student for sharing homework, then reflected overnight and subsequently apologized: “I told him that my tone had been too harsh... I’m not someone who stands above students” (Xu, interview). The apology reconfigured the relationship, whereby the student stopped sharing homework and started tutoring peers instead. Xu reflected, “After the midterm exams, he continued helping struggling classmates, so the teacher really did

influence him” (Xu, interview). This repair was enabled by relational resources documented earlier. Xu’s networked mentoring (Sub-theme 1.2) provided emotional buffering and diverse advice, while his selective peer engagement (Sub-theme 2.2) preserved relational energy. Unlike meaning-making, which processes internal distress, relational repair is an interpersonal act that requires pre-existing relational capital to be drawn upon.

Sub-theme 3.3: Boundary Setting and Emotional Regulation

When adversity accumulated without adequate support, participants adopted boundary-setting or emotional detachment. This was demonstrated by Song, after a confrontation with an angry parent: “I was crying as I shouted back at him” (Song, interview), and consciously adopted detachment as a survival strategy: “I separate my work and personal life” (Song, interview). This strategy was not a personal failure but an adaptive response to conditions detailed earlier as pseudo-mentoring (Sub-theme 1.4) that extracted labour without reciprocity, and informal peer alliances (Sub-theme 2.2) which provided emotional containment but no expert guidance. Cumulative pressures gradually eroded her initial enthusiasm: “For the first month or two, I had a sense of freshness ... but later, I’ve been in a state of burnout” (Song, interview). Unlike Xiao’s meaning-making, which transformed crisis into growth, Song’s boundary-setting preserved functioning without professional expansion — a different, but equally logical adaptation to a chronically unsupportive ecology.

Similarly, Yuan, warned that previous teachers had also experienced physical confrontations with students, consciously constraining her natural teaching style: “So I suppressed my personality, again and again” (Yuan, interview). While this strategy avoided escalation, it came at the cost of sustained internal tension, or self-regulation which consumed psychological resources without generating growth. This protective boundary-setting cannot be understood in isolation. As documented in Sub-theme 1.3, Yuan had no assigned mentor, as shown in Sub-theme 2.3, and was structurally isolated from peers. Without relational buffering from any domain, suppression became her only available strategy. Unlike Lin’s strategic boundary-setting (which preserved engagement), Yuan’s suppression was a response to complete ecological deficit; a pattern illustrating how the absence of proximal processes across multiple domains forces resilience into costly, individualized forms.

Cross-case pattern. Teacher-student interaction served as the immediate factor where resilience was tested and reconstructed. How conflict was processed through meaning-making, relational repair, or protective boundary-setting determined its developmental consequence. Examples of important contrasting school conditions included Xiao receiving collegial affirmation from experienced teachers who normalized her distress, while Song and Yuan were facing indifferent or competitive colleagues, and in turn, having no relational buffer when conflicts escalated. These school-level differences in collegial climate and leadership responsiveness fundamentally conditioned access to the relational resources necessary for meaning-making or repair. The same interactional event could strengthen or erode professional identity, depending on reflective space and relational support. Here, the quality of proximal processes shaped not only adaptation, but also how preservice teachers negotiated and reconstructed their emerging professional identities.

Cross-Case Synthesis: Interactional Quality as the Organizing Principle

Across all cases, resilience development was less shaped by rural school placement itself, but more by the quality of proximal processes. Three broad configurations emerged from the interplay of mentoring, peer collaboration, and teacher-student interaction. These are not developmental stages (that is, participants did not progress from one stage to another) or fixed personality types, but dominant ecological patterns, which reflected how person-level characteristics interacted with context-specific resources and constraints over time. As illustrated in Figure 2 and summarized in Table 3, the three configurations differed in the accessibility, reciprocity, and developmental scaffolding available across relational domains.

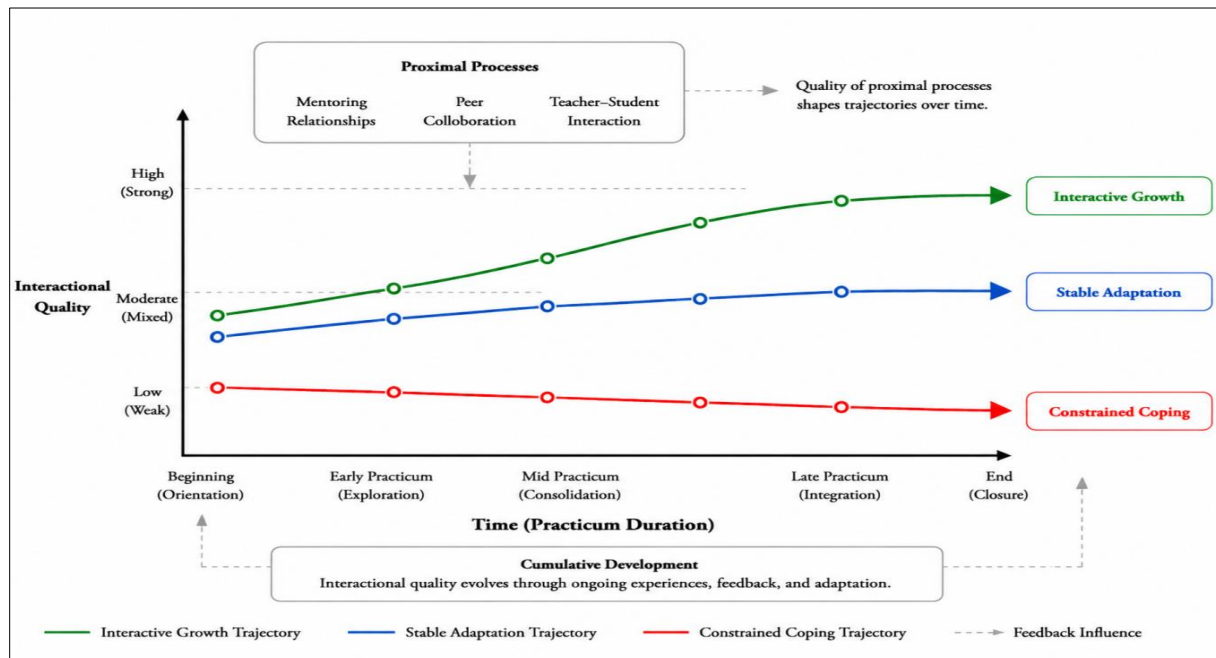
Table 3

Interactional Quality Profiles across Resilience Trajectories

Developmental Trajectory	Participant	Interactional Quality Profile
Constrained Coping	Yuan, Song	Limited accessibility, weak reciprocity, and insufficient scaffolding across relational domains
Stable Adaptation	Mei, Lin	Adequate accessibility, reciprocity, and scaffolding supporting sustained functioning
Interactive Growth	Xu, Xiao	High accessibility, strong reciprocity, and sustained scaffolding enabling reflective transformation

Figure 2

Interactional Quality and Resilience Trajectories



Interactive growth (Xu, Xiao) was defined by transformation, not merely functioning. Xu turned public scolding into relational repair (Sub-theme 3.2), while Xiao transformed emotional flooding into meaning-making (Sub-theme 3.1). Both had access to high-quality proximal processes across all three domains, namely, mentoring (networked for Xu, compensatory-observational for Xiao), peer interaction (selective engagement for Xu, collegial affirmation for Xiao), and teacher-student processing (repair for Xu, reconstruction for Xiao). What distinguishes interactive growth is not the absence of adversity, where Xiao experienced student hostility and Xu a loss of emotional control, but the presence of relational resources which enabled reflective transformation, rather than mere endurance.

Stable adaptation (Mei, Lin) was defined by competent functioning supported by adequate relational resources, but without substantial identity transformation. Mei adjusted her expectations, and Lin strategically regulated his emotional investment through strategic boundary-setting. Both had accessible mentoring and structured peer collaboration (Sub-themes 1.1, 2.1). However, unlike interactive growth, their processing was adjustments rather than transformations. Importantly, boundary fluidity appears here: Lin's "look fierce, without actually getting angry" shares features of emotional containment strategies for constrained coping. Nevertheless, classification as stable adaptation is justified by the absence of emotional depletion, for instance, Lin continued pedagogical engagement and expressed satisfaction. This fluidity is not a flaw, instead it shows that boundary-setting can be developmental (preserving engagement) or constrained (retreating from it), depending on ecological conditions. Mei's meaning-making from cumulative frustration (Sub-theme 3.1) also overlaps with interactive growth's reflective processing, yet her expectations-adjusted realism lacks the identity transformation Xiao achieved. These overlaps reflect that configuration lies on a continuum, the distinction lies on whether processing leads to growth or maintains stability.

Constrained coping (Song, Yuan) was defined by maintaining functioning through self-protection in the absence of developmental support. Both participants faced deficits across multiple domains, such as mentoring absence (Yuan) or pseudo-mentoring (Song), peer isolation (Yuan) or informal peer alliances (Song), teacher-student processing through suppression (Yuan) or detachment (Song), rather than meaning-making or repair. Boundary fluidity appeared again, where Song's informal peer alliances (Sub-theme 2.2) provided emotional containment, demonstrating agency within ecological constraint. Similarly, Yuan's cognitive self-scaffolding (Sub-theme 1.3) demonstrates initiative. However, unlike interactive growth, these strategies did not lead to professional expansion. Unlike stable adaptation, they were accompanied by ongoing emotional strain, reflected in Song's burnout, and Yuan's sustained tension. The distinction lies not on whether agency was exercised, but on whether ecological conditions allowed agency to translate into growth rather than merely survival.

These three configurations, thus represent different person-context relationships qualitatively. Interactive growth occurs when accessible, reciprocal proximal processes across all domains enable reflective transformation of adversity. Stable adaptation occurs when adequate processes support functioning without identity transformation, while constrained coping occurs when deficient processes force costly, individualised regulation. Overlap between adjacent configurations is expected and can be seen in Lin's boundary-setting and Mei's cumulative meaning-making, which sit near the stable-adaptation/interactive-growth boundary, and Song's defensive alliances sit near the constrained-coping/stable-adaptation

boundary. What really distinguishes them is not categorical purity, but the dominant pattern of person-context interaction over time.

These configurations are not fixed trajectories but dynamic outcomes, shaped by the density, reciprocity, and accessibility of interactions across the three relational domains examined. The same individual could, with different interactional conditions, have experienced a different adaptive path. What distinguished growth from endurance was not the presence of challenge, but the quality of the proximal processes through which challenge was navigated.

DISCUSSION

The findings reveal a clear relationship between the proximal process patterns identified in Table 2 and the resilience trajectories summarised in Table 3. Across cases, mentoring, peer collaboration, and teacher-student interaction did not influence resilience through their formal presence, but through their interactional quality. In doing so, the findings address a gap identified in previous resilience research, which has recognised mentoring, collaboration, and supportive school climates as important protective factors, but has offered limited explanation of how these supports are translated into resilient outcomes (Beltman, 2020; Mansfield et al., 2016). Drawing on Bronfenbrenner's PPCT model, the findings suggest that proximal processes function as developmental mechanisms only when they are sustained, reciprocal, and accessible. Extending previous resilience research and consistent with relational and social-ecological perspectives (Gu & Day, 2013; Jordan, 2004; Mansfield et al., 2016; Ungar, 2011), the findings identify three interrelated dimensions of interactional quality, namely accessibility, reciprocity, and developmental scaffolding. Together, these dimensions explain how relational supports become either resources for growth or sources of strain. In rural practicum contexts, structural assignment alone is insufficient. Rather, the interactional patterns summarised in Table 2 help explain the resilience configurations presented in Table 3. As illustrated in Figure 2, differing levels of interactional quality gave rise to distinct resilience trajectories.

The three resilience configurations identified—interactive growth, stable adaptation, and constrained coping—should be interpreted as ecological patterns rather than personality types. In line with contextualised understandings of resilience (Schwarze & Wosnitza, 2018), resilience varied according to the accessibility and reciprocity of relational systems rather than individual capability alone. Interactive Growth emerged where multiple high-quality proximal processes enabled reflective transformation of adversity; Stable Adaptation reflected sufficient relational support for sustained functioning; and Constrained Coping occurred when proximal processes became fragmented, inaccessible, or non-reciprocal, redirecting resilience toward self-protection rather than professional growth. Supporting Masten's (2001) view of resilience as the functioning of adaptational systems, these configurations highlight the ecological and fluid nature of resilience development.

Within the FTEP context, resilience trajectories varied despite participants being subjected to the same policy framework. Consistent with the research gap identified in the literature, these differences emerged from interactional ecology rather than policy design itself. Similar relational challenges have been reported in rural teacher education in the United States, Australia, and South Africa (Cuervo, 2020; Omodan, 2022; Williams et al., 2022). This study extends the literature by identifying accessibility, reciprocity, and

developmental scaffolding as interactional mechanisms linking ecological conditions to resilience outcomes. These findings further support conceptualisations of resilience as an everyday developmental process, enacted through routine social interaction rather than extraordinary responses to major adversity (Hart et al., 2016). This perspective reframes resilience not as a rare outcome, but as a predictable function of accessible, reciprocal, and developmentally supportive interactional conditions.

Taken together, these findings suggest that strengthening teacher resilience requires attention to relational architecture rather than individual grit. Consistent with resilience-building frameworks in teacher education (Beltman, 2020; Mansfield et al., 2016), the results indicate the importance of creating mentoring and collaborative structures that are accessible, reciprocal, and developmentally supportive. More importantly, the findings demonstrate how the four PPCT components operated as an integrated developmental system. Mentoring, peer collaboration, and teacher-student interaction constituted proximal processes; participants' agency and reflective capacity shaped engagement with these processes; school relational climates and institutional arrangements provided the contextual conditions; and repeated interaction across the practicum generated different resilience trajectories over time. The study, therefore advances a process-oriented understanding of resilience as an interactionally constructed developmental phenomenon and operationalises the PPCT framework by explaining how accessibility, reciprocity, and developmental scaffolding function as interactional conditions through which proximal processes shape developmental outcomes.

CONCLUSION

This study contributes a dynamic account of preservice teacher resilience, conceptualising it as an interactionally constructed developmental process rather than as an individual trait. Across six cases of FTET preservice teachers navigating rural practicums, formal support structures were universally present, yet outcomes ranged from transformative growth to constrained coping. The difference lay not in whether support structures existed, but in the daily quality of those supports; which was reflected in accessibility, reciprocity, and developmental scaffolding.

These findings suggest that resilience emerges from the quality of interactions through which challenges are negotiated rather than from individual characteristics alone. This reframing carries several practical implications. First, strengthening resilience in rural teacher preparation requires designing for interactional quality by ensuring that every preservice teacher, regardless of placement, has access to responsive mentors, reciprocal peer structures, and opportunities to process classroom challenges reflectively. Additionally, policy interventions that stop at structural assignment, and mandating mentors without ensuring their responsiveness, or requiring collaboration without cultivating collaborative culture are unlikely to generate the interactional quality that this study identifies as the core driver of resilience.

Limitations of the present study include the use of a single-university sample and the one-semester time frame, which cannot capture how practicum interactional patterns translate into long-term career trajectories. Future research should trace these patterns in early career retention and test targeted interventions aimed at improving interactional quality. Ultimately, this study suggests a shift in focus, that is, if we want resilient teachers in rural schools, we must build not only resilient individuals, but also resilient interactions.

CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

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REFERENCES

- Beltman, S. (2020). Understanding and examining teacher resilience from multiple perspectives. In C.F. Mansfield (Ed.). *Cultivating teacher resilience* (pp. 11-26). Springer. https://doi.org/10.1007/978-981-15-5963-1_2
- Blackmore, J., Hobbs, L., & Rowlands, J. (2024). Aspiring teachers, financial incentives, and principals' recruitment practices in hard-to-staff schools. *Journal of Education Policy*, 39(2), 233-252. <https://doi.org/10.1080/02680939.2023.2193170>
- Braun, V., & Clarke, V. (2021). One size fits all? What counts as quality practice in (reflexive) thematic analysis? *Qualitative Research in Psychology*, 18(3), 328-352. <https://doi.org/10.1080/14780887.2020.1769238>
- Bronfenbrenner, U., & Morris, P. A. (1998). The ecology of developmental processes. In W. Damon & R. M. Lerner (Eds.), *Handbook of child psychology: Theoretical models of human development* (5th ed., pp. 993-1028). John Wiley & Sons, Inc.
- Bronfenbrenner, U., & Morris, P. A. (2006). The bioecological model of human development. In W. Damon & R. M. Lerner (Eds.), *Handbook of child psychology* (6th ed., Vol. 1, pp. 793–828). Wiley.
- Chen, J., Wang, Z., Zhang, L., Zhao, Y., & Ma, Y. (2025). Investigating the default intention among preservice teachers in the free teacher education programme: Implications for enhancing rural education quality. *Journal of Education for Teaching*, 51(2), 245-258. <https://doi.org/10.1080/02607476.2025.2449668>
- Cuervo, H. (2020). A social justice approach to rural school staffing: The need for a politics of distribution and recognition to solve a perennial problem. *Journal of Pedagogy*, 11(1), 127-146. <https://doi.org/10.2478/jped-2020-0007>
- Gu, Q., & Day, C. (2013). Challenges to teacher resilience: Conditions count. *British Educational Research Journal*, 39(1), 22-44. <https://doi.org/10.1080/01411926.2011.623152>
- Hagin, D. A. (2012). *Free teacher education policy implementation in China* [Unpublished doctoral dissertation]. University of Washington. <http://hdl.handle.net/1773/20837>
- Hart, A., Gagnon, E., Eryigit-Madzwamuse, S., Cameron, J., Aranda, K., Rathbone, A., & Heaver, B. (2016). Uniting resilience research and practice with an inequalities approach. *Sage Open*, 6(4) <https://doi.org/10.1177/2158244016682477>
- Jian, L. I. (2020). Improving teacher development in rural China: A case of “rural teacher support plan”. *Beijing International Review of Education*, 2(2), 301-306. <https://doi.org/10.1163/25902539-00202010>

- Jordan, J. V. (2004). Relational resilience. In J. Jordan, M. Walker, & L. M. Hartling (Eds.), *The complexity of connection: Writings from the Stone Center's Jean Baker Miller Training Institute* (pp. 28–46). Guildford Press.
- Le Cornu, R. (2009). Building resilience in pre-service teachers. *Teaching and Teacher Education*, 25(5), 717-723. <https://doi.org/10.1016/j.tate.2008.11.016>
- Mansfield, C. F., Beltman, S., Broadley, T., & Weatherby-Fell, N. (2016). Building resilience in teacher education: An evidenced informed framework. *Teaching and Teacher Education*, 54, 77-87. <https://doi.org/10.1016/j.tate.2015.11.016>
- Merriam, S. B. (1998). *Qualitative research and case study applications in education*. Jossey-Bass Publishers.
- Masten, A. S. (2001). Ordinary magic: Resilience processes in development. *American Psychologist*, 56(3), 227. <https://doi.org/10.1037/0003-066X.56.3.227>
- Ministry of Education of the People's Republic of China. (2020, July 31). *Opinions on strengthening the construction of the rural teacher workforce in the new era*. https://www.gov.cn/zhengce/zhengceku/2020-09/04/content_5540386.htm
- Qian, H., Youngs, P., Hu, S., & Prawat, X. J. (2020). Will China's free teacher education policy address teacher shortages in rural schools or reproduce existing inequality? *Compare: A Journal of Comparative and International Education*. 50(5), 713–725. <https://doi.org/10.1080/03057925.2018.1559037>
- Qiao, X., & Lai, M. (2019). Pre-service teachers' job-related perceptions of teaching in rural areas: A study of the free teacher education programme in mainland China. *Teachers and Teaching*, 25(7), 782-799. <https://doi.org/10.1080/13540602.2019.1693358>
- Riley, J. R., & Masten, A. S. (2005). Resilience in context. In R.D. Peters, B. Leadbeater, R.J. McMahon (Eds.), *Resilience in children, families, and communities: Linking context to practice and policy* (pp. 13-25). Springer. https://doi.org/10.1007/0-387-23824-7_2
- Omodan, B. I. (2022). Challenges of pre-service teachers in rural places of teaching practice: A decolonial perspectives. *International Journal of Learning, Teaching and Educational Research*, 21(3), 127-142. <https://doi.org/10.26803/ijlter.21.3.8>
- Schwarze, J., & Wosnitza, M. (2018). How does apprentice resilience work? In M. Wosnitza, F. Peixoto, S. Beltman, C.F. Mansfield (Eds.), *Resilience in education: Concepts, contexts and connections* (pp. 35-51). Springer. https://doi.org/10.1007/978-3-319-76690-4_3
- State Council of the People's Republic of China. (2015, June 1). *The rural teacher support plan (2015–2020)*. https://www.gov.cn/zhengce/content/2015-06/08/content_9833.htm
- Sun, X., Zhou, J., Liu, L. B., & Li, Q. (2024). Teacher resilience development in rural Chinese schools: Patterns and cultural influences. *Teaching and Teacher Education*, 147. <https://doi.org/10.1016/j.tate.2024.104656>
- Ungar, M. (2011). The social ecology of resilience: addressing contextual and cultural ambiguity of a nascent construct. *American Journal of Orthopsychiatry*, 81(1), 1-17. <https://doi.org/10.1111/j.1939-0025.2010.01067.x>
- Vestal, S. S., Burke, R. S., Browning, L. M., Hasselquist, L., Hales, P. D., Miller, M. L., Nepal, M. P., & White, P. T. (2025). Building resilience in rural STEM teachers through a Noyce professional learning community. *Education Sciences*, 15(1), 85. <https://doi.org/10.3390/educsci15010085>
- Wang, N., Rule, A., Yu, J., & Rozelle, S. (2025). Professional identity and commitment to rural teaching: Evidence from a normal university in China. *Teaching and Teacher Education*, 157, 104950. <https://doi.org/10.1016/j.tate.2025.104950>

- Wang, X., & Lo, L. N. (2022). Development of resilience among Chinese rural teachers: A social ecological perspective. *Teachers and Teaching*, 28(5), 533-554. <https://doi.org/10.1080/13540602.2022.2062743>
- Williams, H., Williamson, J., & Siebert, C. (2022). Exploring perceptions related to teacher retention issues in rural western United States. *Australian and International Journal of Rural Education*, 32(2), 91-107. <https://doi.org/10.47381/aijre.v32i2.331>
- Wu, X., Deng, X., & Greenier, V. (2025). A narrative inquiry into the resilience of novice middle school English teachers in China: Negative emotions as a catalyst for change. *Teaching and Teacher Education*, 165, 105139. <https://doi.org/10.1016/j.tate.2025.105139>
- Xia, M., Li, X., & Tudge, J. R. (2020). Operationalizing Urie Bronfenbrenner's process-person-context-time model. *Human Development*, 64(1), 10-20. <https://doi.org/10.1159/000507958>
- Xiong, S. (2020). *Exploring how student teachers' motivation change in free teacher education program*. Proceedings of the 2020 4th International Conference on Deep Learning Technologies (pp. 75-83). <https://doi.org/10.1145/3417188.3417204>
- Ye, Q., & Wang, H. (2023). Effects of profession-related support from different sources on subjective well-being among Chinese tuition-free normal university students: the mediation of intrinsic motivation for teaching and moderation of dispositional gratitude. *Psychology Research and Behavior Management*, 5237-5254. <https://doi.org/10.2147/PRBM.S445123>
- Yin, R. K. (2018). *Case study research and applications: Design and methods* (6th ed.). SAGE Publications.
- Youngs, P., Qian, H., Hu, S., & Prawat, X. J. (2017). China's free teacher education policy. In A. Motoko & K. L. Gerald (Eds.), *International handbook of teacher quality and policy* (1st ed., pp. 463-477). Routledge. <https://doi.org/10.4324/9781315710068>