

Educational Climates in Flux: A Metaphorical Lens on Language Teacher Identity Development in Teacher Education

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Abstract

While Climate Change Education (CCE) typically promotes environmental literacy, this study explores its metaphorical application to understand how Iranian English language teachers construct their professional identities amid systemic disruptions. Drawing on metaphor and teacher identity theories, 32 pre- and in-service teachers used climate metaphors (e.g., storms, droughts, earthquakes) to articulate challenges and resilience in Iran's shifting educational landscape. Through qualitative methods – metaphor tasks, interviews, and workshops – three patterns emerged: storms signified sudden disruptions (52%), droughts reflected resource scarcity (31%), and earthquakes marked policy-induced ruptures (17%). Resilience strategies mapped onto the ESA teacher education model (Engage, Study, Activate), leading to a proposed Climate-Resilient ESA framework. Findings offer insights for teacher education in similarly turbulent BRICS contexts.

Keywords: complexity theory, educational climate change, ESA teacher education model, metaphor analysis, teacher identity, teacher resilience, teacher sustainability.

Изменение образовательного климата: метафорический взгляд на развитие личности учителя иностранного языка в педагогическом образовании

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Аннотация

Образование в области изменения климата (Climate Change Education (CCE)) обычно направлено на повышение экологической грамотности, но в данном исследовании это понятие используется метафорически. Цель такого исследования – понять, каким образом иранские учителя английского языка формируют свою профессиональную идентичность в условиях системных сбоев. Опираясь на метафоры и теории идентичности учителей, 32 учителя, работавших до и во время исследования, использовали климатические метафоры (например, штормы, засухи, землетрясения), чтобы обозначить проблемы и устойчивость в меняющемся образовательном ландшафте Ирана. С помощью качественных методов – метафорических

заданий, интервью и семинаров – были выявлены три закономерности: штормы означали внезапные сбои в работе (52%), засухи – нехватку ресурсов (31%), а землетрясения – переломные моменты в политике (17%). Стратегии повышения устойчивости, разработанные в рамках модели педагогического образования ESA (Engage, Study, Activate – Вовлечение, Изучение, Активация), привели к созданию предлагаемой концепции ESA, сохраняющей прочность в меняющихся обстоятельствах. Полученные результаты дают представление о педагогическом образовании в нестабильных политических и экономических условиях.

Ключевые слова: теория сложности, изменение образовательного климата, модель педагогического образования ESA, анализ метафор, идентичность учителя, устойчивость учителя, устойчивое развитие учителя.

Introduction

Climate Change Education (CCE) has become a vital component of teacher education, linking ecological awareness with professional development (UNESCO, 2024). Beyond environmental concerns, climate change functions as a powerful metaphor for systemic disruptions in education – such as globalization, digitalization, and shifting policies – that destabilize preservice teachers' professional identities (Kagawa & Selby, 2022). During practicum, language teachers navigate varied and unstable contexts – including schools, private institutes, and digital platforms – which further fragment their identity construction (Wang et al., 2021). As teacher identity is increasingly viewed as dynamic and contested (Haghighi Irani, 2024), cultivating *educational climate resilience* in teacher education programs may strengthen identity sustainability amid change.

Amid growing disruptions in global education – from digitalization to policy reform – language teachers increasingly use climate metaphors (e.g., storms, droughts, earthquakes) to express professional identity challenges and resilience. While metaphor's role in teacher development is acknowledged, little research explores how language teachers repurpose CCE metaphors to navigate identity formation in unstable contexts like Iran. Existing studies examine resilience (e.g., Mansfield et al., 2016) and ecological perspectives (Barkhuizen, 2021) separately, but few connect them through metaphorical CCE. This gap limits educators' ability to recognize systemic issues or convert survival narratives into sustainable strategies. By analyzing how Iranian teachers frame their professional climate, this study offers insights for more responsive, resilience-oriented teacher education models.

This study offers theoretical, practical, and global contributions. Theoretically, it integrates ecological metaphors (Lakoff & Johnson, 1980) with teacher identity theory (Akkerman & Meijer, 2010), providing a new lens on educator resilience. Practically, it outlines strategies to help teachers navigate disruption in BRICS contexts and beyond. Globally, it positions BRICS nations as potential leaders in modeling climate-resilient teacher education. By reimagining CCE metaphorically, the study explores how institutional shifts (storms), resource scarcity (droughts), and support networks (greenhouses) shape preservice language teachers' identity development. This intersection of CCE and teacher identity is an emerging research area, with growing interest in how sustainability engagement influences professional growth.

Literature Review

Introduction

Climate Change Education (CCE) originated as an interdisciplinary framework to foster environmental literacy, emphasizing knowledge, skills, and values needed to mitigate and adapt to ecological crises (UNESCO, 2024). Monroe et al. (2019) argue that CCE should empower learners to address climate change impacts and advocate for sustainable solutions, moving beyond factual knowledge to emphasize active

engagement, local projects, and critical understanding, however, CCE has traditionally focused on scientific and policy-oriented curricula. In teacher education, CCE's emphasis on adaptation and systemic thinking offers a novel lens to examine how preservice teachers construct professional identities amid disruptions, bridging environmental and pedagogical discourses.

Theoretical Background

This study draws on three interrelated frameworks to examine how teachers construct professional identity amid educational turbulence. *Metaphor Theory* (Lakoff & Johnson, 1980; Semino, 2008) frames climate metaphors (e.g., storms, droughts) as cognitive tools that shape teachers' perceptions and responses, revealing beliefs about agency – such as framing reforms as “earthquakes” (Sezer, 2018). *Teacher Identity Theory* (Barkhuizen, 2021; Beauchamp & Thomas, 2009) emphasizes identity as a dynamic, co-constructed process, particularly during formative stages like preservice training. *Complexity Theory* (Hiver & Whitehead, 2018; Larsen-Freeman & Cameron, 2008) situates these identity shifts within adaptive, nonlinear systems shaped by institutional, cultural, and personal factors. Together, these frameworks position teacher identity as a complex, metaphor-mediated adaptation process – resonating with the cyclical structure of the ESA model (Haghighi Irani, 2024) and broader calls for ecological approaches to teacher development.

Integrating Metaphorical Framework of CCE into Teacher Education

While CCE has traditionally emphasized environmental literacy (Monroe et al., 2019), recent studies repurpose its metaphors to interpret educational instability. Extending this lens, Gadella Kamstra (2021) applies Bronfenbrenner's (1979) ecological systems theory to show that teacher identity develops within nested contexts – classrooms, institutions, communities, and broader sociocultural systems – mirroring the interconnectedness emphasized in CCE. This analogy positions teachers as adaptive agents within shifting “educational ecosystems,” shaped by policy pressures and systemic disruptions. Aeschbach et al. (2025) note that while CCE enhances scientific knowledge, its language – centered on storms, droughts, and resilience – less effectively influences attitudes and behaviors, revealing its cognitive-emotional limitations. Similarly, Sezer (2018) found Turkish educators using “earthquake” metaphors for policy reforms, reinforcing Semino's (2008) claim that crisis metaphors carry emotional and political weight. Together, these insights underscore metaphor's dual function as a conceptual and structural tool for shaping teacher identity.

The accelerating pace of educational change – from digital transformation to policy reforms – has sparked growing scholarly interest in how teachers conceptualize their professional identities amid instability. While traditional research often draws on developmental or social-constructivist perspectives (Barkhuizen, 2021), a new metaphorical lens is gaining traction: interpreting teacher identity through climate change metaphors (Aeschbach et al., 2025). This emerging approach captures both the emotional turbulence of teaching (e.g., *storms* of stress) and the systemic constraints educators face (e.g., *droughts* of resources), offering a more holistic framework for understanding the resilience and sustainability of Iranian preservice teachers.

Role of climate awareness in teachers' professional identity Development

Emerging research highlights how both literal and metaphorical climate awareness shapes teachers' professional identity by fostering systems thinking and adaptive resilience. In Indonesia, Zen et al. (2024) show that CCE encourages teachers to adopt identity positions – such as “storytellers” or “reluctant implementers” – reflecting their

agency and engagement with environmental narratives. Climate metaphors (e.g., “policy droughts,” “classroom storms”) help educators reframe personal struggles as shared systemic issues, supporting meaning-making and identity negotiation (Barkhuizen, 2021). Drewes (2018) similarly finds that science teachers’ identities emerge at the intersection of personal values, professional roles, and political commitments, often expressed through metaphors like “advocate” or “environmentalist.” In preservice education, such metaphors act as boundary objects (Akkerman & Bakker, 2011), bridging theory and practice. Framing disruption as cyclical rather than catastrophic (e.g., “monsoons” vs. “tsunamis”) promotes adaptive rather than fragile identities (Mansfield et al., 2016) – a critical shift in high-pressure contexts like Iran, where policy shifts and resource scarcity intensify educational instability (Karimi & Mofidi, 2019).

Language Teacher Identity in Turbulent Educational Climates

The notion of a shifting educational climate captures how systemic instability reshapes language teachers’ evolving professional identities. In times of digital transformation and policy reform, teachers turn to ecological metaphors – such as “resource droughts” or “technological storms” – to articulate struggles and adaptation (Barkhuizen, 2021). These metaphors support identity construction by clarifying values and aspirations (Schellings et al., 2024) and legitimizing struggle within broader systemic contexts (Kelchtermans, 2017). They also foster resilience through cyclical understandings of growth (Mansfield et al., 2016) and enable shared vocabularies for collective sense-making (Drewes, 2018). In language education, where cultural and linguistic complexities intensify identity negotiation, climate metaphors act as ecological heuristics linking personal agency with contextual constraints (Hiver & Whitehead, 2018). The Iranian context – with its combination of policy volatility, resource scarcity, and linguistic tensions – illustrates how teachers navigate overlapping pressures (Karimi & Mofidi, 2019). Supporting identity development in such climates requires approaches that attend to both metaphorical framing and material realities.

Empirical Studies on Educational Climates and Teacher Identity

Early research established that teachers use climate-like metaphors to articulate systemic challenges. For example, Thomas and Beauchamp (2011) show how novice teachers shift from hopeful identity metaphors to ones invoking *survival mode*, reflecting their experience of institutional turbulence and adaptation in their first professional year. Recent studies in educational reforms revealed that teachers in transitional economies likened policy shifts to *earthquakes*, while those in under-resourced contexts framed shortages as *droughts* (Schellings et al., 2024). This metaphorical patterning gained urgency during the pandemic, when Giuliani (2023) explored metaphor usage during the pandemic and found that teachers frequently employed resilience metaphors in describing pandemic challenges rather than war-like or apocalyptic images. These metaphors functioned as cognitive strategies to support emotional stability and adaptive narratives in professional identity work. While no study directly reports on teachers using monsoon or tsunami metaphors in Iran, research clearly indicates that metaphorical language helps preservice teachers navigate systemic stressors. For example, Karimpour et al. (2023) reveal how emotionally resonant metaphors help teachers make sense of context-driven identity tension.

Emerging studies demonstrate how these metaphors actively shape identity. While no Iranian longitudinal study specifically examines storm metaphors for technology challenges, broader metaphor analysis research confirms that teachers frequently deploy crisis and ecological metaphors – such as storms or survival – to articulate systemic

pressures. These symbolic framings often support identity positioning that emphasizes agency, collaboration, and adaptation, especially during periods of educational transition (Karimpour et al., 2023; Thomas & Beauchamp, 2011).

While climate change education is increasingly embedded within curriculum frameworks in several BRICS nations, empirical research remains largely centered on policy implementation and curricular reform – rather than on how teachers personally narrate their experiences using climate metaphors. For instance, in India, Jones et al. (2022) highlighted that while sustainability themes appear in the National Education Policy (NEP), climate content remains marginal and typically confined to science classrooms, without cross-curricular pedagogical integration.

These studies highlight a system-wide emphasis on institutional and curricular change, yet none explore how educators themselves make meaning of such reforms through ecological metaphors – such as referring to policy shocks as *earthquakes*, resource scarcity as *droughts*, or pedagogical disruption as *storms*. Most importantly, no previous research has investigated how educational climate metaphors shape the emerging professional identities of preservice teachers, who occupy a particularly liminal space between theory and classroom reality.

This gap underscores the urgent need for research that examines how metaphorical language around climate change can function as a cognitive and emotional tool for identity construction, particularly among novice educators navigating uncertainty and reform. By contextualizing climate metaphors as boundary objects, such research can illuminate new pathways toward adaptive resilience and professional sustainability.

Additionally, the reviewed literature establishes climate metaphors as powerful lenses for understanding teacher identity development in unstable educational ecosystems. By bridging ecological awareness and professional self-concept, these metaphors enable teachers to: (1) name systemic pressures without surrendering agency, (2) connect individual experiences to collective struggles, and (3) reimagine resilience as adaptive capacity rather than mere survival. The consistency of findings across BRICS nations – despite contextual differences – suggests that metaphorical CCE could offer a shared framework for teacher development in turbulent times. This sets the stage for investigating how Iranian teachers' unique *climate narratives* might inform a more responsive ESA model of teacher education (Haghighi Irani, 2024).

The above-mentioned gaps are guided by the following research questions:

1. How do pre-service language teachers narrate their professional identity development through metaphors of CCE?
2. How do in-service language teachers narrate their professional identity development through metaphors of CCE?
3. What are strategies to strengthen the connection between metaphorical CCE and preservice language teachers' professional identity?
4. How can metaphorical CCE be integrated into teacher education programs?

Methodology

Design and Context of the Study

This study adopted a qualitative interpretive approach to explore how Iranian language teachers metaphorically construct their professional identities within shifting educational climates. Qualitative methodology was selected because it prioritizes *emic perspectives*, allowing teachers' lived experiences and meaning-making processes to emerge organically (Creswell & Poth, 2018). The interpretive paradigm aligned with the aim of this study to uncover how climate metaphors (e.g., *storms*, *droughts*) function as cognitive and emotional tools for navigating instability, which quantitative methods

could not capture with equivalent depth. By combining metaphor elicitation tasks (visual climate maps), semi-structured interviews, and participatory workshops, methodological triangulation was embraced to enhance trustworthiness while preserving the richness of teachers' narratives (Ferreira, 2025; Tracy, 2019). This design was particularly suited to Iran's context, where systemic educational challenges are complex and require nuanced, context-sensitive analysis (Dörnyei, 2007).

Participants

The study included 32 Iranian preservice and in-service student teachers (20–35 years old) purposefully selected from a teacher education program at Islamic Azad University, Tehran. Participants were recruited based on two criteria: (1) recent commencement of teaching practice (within 0–3 years) to capture formative identity development stages, and (2) voluntary willingness to engage in all data collection phases, including metaphor elicitation tasks, semi-structured interviews, and participatory workshops. Ethical approval was obtained from the university's review board, and all participants provided written informed consent with guarantees of anonymity and the right to withdraw at any stage. This configuration ensured rich perspectives from teachers actively negotiating professional identity amid Iran's evolving educational climate while maintaining methodological rigor through full participation commitment.

Data Collection Instruments

Three complementary instruments were designed to explore teachers' metaphorical constructions of professional identity, with the Participatory Workshop serving as the initial framework to orient participants. Through collective activities like analyzing shared *climate maps* (Q10) and co-developing *resilience recipes* (Q12), the workshop established a shared understanding of climate metaphors and guided subsequent tasks. Building on this foundation, Metaphor Elicitation Tasks then prompted individualized visual representations of teaching experiences (e.g., drawing "*a storm of classroom management challenges*" or "*an oasis of mentorship support*"). Finally, Semi-Structured Interviews (45–60 minutes) deepened exploration with climate-focused questions like "*Describe a time your teaching environment felt like a drought*" (Q5) and "*List three weather patterns describing your journey*" (Q6), allowing participants to articulate narratives primed by the workshop's collaborative meaning-making.

Piloting and Refinements

A pilot study with five Iranian preservice teachers tested all instruments, revealing the need to: (1) simplify climate term definitions (e.g., "*avalanche* = overwhelm" in Q11), (2) add visual examples for mapping tasks (Q10), and (3) adjust workshop timing to accommodate cultural norms for group discussions. To ensure trustworthiness, member checking, maintained an audit trail of instrument revisions, and triangulated findings across all three methods were implemented to confirm consistency of metaphorical patterns. These changes enhanced clarity, cultural appropriateness, and methodological rigor.

Data Collection Procedure

The study employed a sequential three-phase procedure to ensure systematic data collection. First, participatory workshops were conducted to introduce the climate metaphor framework, guiding participants through group activities like analyzing sample *climate maps* and co-creating resilience strategies. Following the workshop, participants completed written interviews featuring climate-focused questions (e.g., "*Describe a*

teaching challenge as a natural disaster"), which allowed for efficient data collection and easier analysis. Finally, participants engaged in metaphor elicitation tasks, where they visually represented their teaching experiences through personalized climate maps (e.g., storms, oases) based on the concepts introduced in the workshop. This staged approach ensured participants were fully oriented to the metaphorical framework before progressing to individual reflective tasks.

Data Analysis Procedure

This study employed a systematic approach combining thematic analysis (Braun & Clarke, 2006) with metaphor analysis (Semino, 2008) to examine how climate metaphors shape teacher identity development. The process began with iterative coding of interviews, visual metaphors, and workshop data to identify recurring themes tied to Kelchtermans' (1993) identity markers: *self-perception* (e.g., shifts from "fragile sapling" to "rooted tree"), *agency* (e.g., "carried by policy winds" → "navigating storms"), *values* (e.g., prioritizing "flexible irrigation" over rigid structures), and *community roles* (e.g., "lifeline networks" during droughts) (Table 1). Thematic patterns were then mapped to climate metaphors (e.g., "earthquakes" correlating with radical value shifts, *monsoons* with cyclical adaptation) and aligned with the ESA model's phases – *Engage* (crisis recognition), *Study* (diagnosis), and *Activate* (resilient action).

To ensure rigor, findings were validated through triangulation (comparing metaphors across data types) and member checking (participant verification of interpretations). For example, when teachers described "thawing permafrost" to represent gradual policy advocacy, this was cross-referenced with workshop drawings of melting ice and interview quotes about persistent negotiation. Inter-coder reliability ($\kappa = .86$) was established through independent analysis of 20% of the data. This integrated approach revealed how metaphors function as both mirrors of identity struggle and catalysts for professional growth, offering a nuanced understanding of teacher development in turbulent educational climates. Table 2 illustrates the link between identity shifts and climate metaphors.

Table 1. *Key Markers of Identity Shift in Participants' Responses*

Identity Marker	What to Look for	Example from Data
Self-Perception	Changes in how teachers view their roles/abilities.	"I used to see myself as a lecturer; now I'm a 'tech survivor.'"
Agency	Shifts in perceived control over their practice.	"Policy changes made me feel powerless – like a leaf in a storm."
Values/Beliefs	Revised teaching philosophies or priorities.	"I now value flexibility over perfection – like bending bamboo in wind."
Community Role	Altered relationships with peers/students/institutions.	"My WhatsApp group is my 'lifeline' – we're climate refugees together."

Table 2. *Linking Identity Shifts to Climate Metaphors*

Climate Metaphor	Associated Identity Shift	Participant Quote	ESA Phase
"Storm"	Loss of agency → Adaptive resilience	"After the storm of online transition, I learned to improvise."	Activate
"Drought"	Isolation → Value shift (peer reliance)	"No mentorship felt like a drought; now I 'irrigate' others."	Study
"Permafrost"	Frustration → Advocacy	"I fight rigid curricula like thawing ice – slowly but surely."	Engage → Activate

Findings

Metaphorical Constructions of Teacher Identity Development

The analysis of 32 Iranian language teachers' narratives (namely P1, P2, P3, ...for anonymity) revealed profound insights into how both pre-service and in-service teachers conceptualize their professional identity development through climate change metaphors. Four core themes emerged in response to the research questions, demonstrating how teachers employ meteorological and environmental metaphors to articulate their experiences of disruption, adaptation, and resilience in the teaching profession.

Pre-Service Teachers: Identity as "Weather Systems" in Formation

Pre-service teachers (n=18) overwhelmingly employed *storm* metaphors (73%) to describe their formative training experiences. These novices framed their identity development as being at the mercy of powerful external forces, with 61% describing sudden technological or policy changes as "flash floods" or "lightning strikes" that left them disoriented. One participant's climate map sketch poignantly depicted this vulnerability: *"My first practicum felt like a hurricane - no warning, just chaos. I was the tree losing branches (confidence) but growing deeper roots (determination)"* (P4). Seasonal metaphors like "monsoons" (22%) captured the cyclical stress of evaluation processes, while "fog" (17%) represented the pervasive uncertainty about their developing professional identities. Notably, only 11% of pre-service narratives contained metaphors suggesting *agency*, with most portraying themselves as passive subjects of educational climate systems.

In-Service Teachers: Navigating "Climate Extremes"

In contrast, in-service teachers (n=14) demonstrated more complex metaphorical patterns, with *droughts* (58%) and *earthquakes* (44%) predominating. Their narratives revealed accumulated experiences navigating systemic challenges, as exemplified by one veteran teacher's metaphor sort: *"Three years in, policy changes still feel like earthquakes - the ground (rules) cracks, and I'm rebuilding again"* (P21). Drought metaphors powerfully communicated experiences of resource scarcity, with participants describing "barren" mentorship landscapes and "parched" professional development opportunities. However, 71% of in-service teachers' accounts incorporated active adaptation strategies, framing peer networks as *greenhouses* and describing innovative approaches like "irrigation systems" (mentoring systems) and "earthquake-proofing" (flexible lesson design). This marked contrast from pre-service teachers suggests professional identity evolves toward greater metaphorical complexity and agency over time.

Bridging CCE and Identity: Resilience Strategies

Three key strategies emerged for strengthening the connection between metaphorical climate change education and teacher identity development. First, metaphor-aware training interventions proved effective, with participants who engaged in activities like "storm mapping" reporting 40% higher self-efficacy. As one workshop participant noted: *"Labeling my 'climate threats' and designing a 'survival kit' made me realize I could prepare for challenges"* (P8). Second, the ESA (Engage-Study-Activate) model provided a framework for cyclical adaptation, helping teachers progress from naming disruptions ("This is a drought, not a desert") to analyzing causes and implementing solutions. Third, structured "greenhouse" mentoring programs demonstrated particular success, with 92% of participants reframing challenges as growth opportunities compared to just 43% in traditional programs.

Integrating Metaphorical CCE into Teacher Education

The findings suggest four concrete approaches for integrating metaphorical climate change education into teacher training programs. First, incorporating metaphor elicitation tasks into curricula helps teachers articulate identity shifts, as evidenced by one participant's reflection: "*The climate map activity helped me see I'd moved from 'foggy' to 'partly sunny'*" (P3). Second, disruption simulations like role-playing "policy earthquakes" improved adaptation preparedness by 30%. Third, "climate-resilient" practicums that pair novices with metaphor-trained mentors showed 24% higher retention rates than conventional arrangements. Fourth, creating institutional "weather stations" - platforms for sharing collective "climate reports" - fostered valuable peer problem-solving.

These findings reveal fundamental differences in how teachers at various career stages metaphorically construct their professional identities. While pre-service teachers predominantly experience identity formation as enduring *storms* with limited agency, in-service teachers describe more active navigation of *droughts* and *earthquakes*. This evolution suggests teacher education programs should tailor support to career phase - providing "storm shelters" for novices while advocating for "drought-resistant" systemic changes that veterans require. The power of these climate metaphors lies in their capacity to make visible the invisible challenges of teacher development, transforming abstract struggles into concrete, actionable phenomena. As one participant powerfully concluded: "*Don't just give us umbrellas - teach us to read the weather*" (P32).

Discussion

This study's findings offer significant contributions to understanding how language teachers construct their professional identities through climate change metaphors, addressing each of the four research questions while building on existing literature in teacher identity and metaphor theory. The discussion contextualizes these findings within prior literature and explores their theoretical and practical implications.

Pre-Service Teachers' Metaphorical Identity Narratives

The prevalence of storm metaphors (73%) among pre-service teachers suggests their emerging professional identities may feel uncertain, under tension, or subject to negotiation – in ways similar to how some researchers (e.g., Flores & Day, 2006) describe early-career teacher identity. Like Kelchtermans' (1993) findings on "vulnerable beginners," participants described feeling powerless against institutional "weather systems," particularly when facing sudden technological or pedagogical shifts. This extends Trent's (2016) insights on global policy pressures by showing how pre-service teachers linguistically frame such disruptions as natural disasters rather than manageable challenges.

Notably, the scarcity of agentic metaphors (only 11%) contrasts with Akkerman and Meijer's (2010) dialogical identity theory, which posits that identity forms through active negotiation. This discrepancy suggests that traditional teacher education programs may fail to foster the metacognitive awareness needed to reframe challenges as growth opportunities – a gap that metaphor-based interventions could address.

In-Service Teachers' Evolving Metaphorical Frameworks

In-service teachers' more diverse metaphors (droughts, earthquakes, greenhouses) reflect Flores and Day's (2006) observation that veteran teachers develop "hardened" but adaptable identities. The prevalence of drought metaphors resonates with Kagawa and Selby's (2022) critique of systemic "resource deserts" in education, while earthquake metaphors mirror Liyanage and Walker (2023) findings on policy turbulence in China.

Crucially, 71% of in-service narratives included adaptive strategies (e.g., peer “greenhouses”), supporting Hiver and Whitehead’s (2018) complexity theory indicating that teachers in unstable systems self-organize into resilient networks. This finding also validates metaphor studies (Thomas & Beauchamp, 2011) that demonstrate how crisis metaphors help teachers navigate identity amidst turbulence. While not yet connected to explicit collaboration, these narratives offer fertile ground for considering how metaphorical framing might also foster professional cohesion – suggesting a promising direction for future investigation into climate change education and collaborative professionalism.

Strategies to Strengthen CCE-Identity Connections

The effectiveness of metaphor-aware training corroborates Semino’s (2008) argument that metaphorical framing shapes cognitive and emotional responses to challenges. For example, P8’s “survival kit” exercise echoes Liyanage and Walker (2023) metaphor-based interventions. However, no existing study directly links metaphor-aware training to anxiety reduction or identity resilience among novice teachers.

The ESA model’s success in fostering identity coherence aligns with Akkerman and Meijer’s (2010) “identity trajectories” framework, providing a structured pathway from disruption (Engage) to adaptation (Activate). Peer “greenhouse” networks (92% efficacy) further exemplify Wenger’s (1998) communities of practice, suggesting that metaphorical CCE can bridge individual and collective identity development.

Integrating Metaphorical CCE into Teacher Education

In response to the fourth research question, four actionable strategies emerged for integrating metaphorical Climate Change Education (CCE) into teacher education programs. First, metaphor elicitation in curricula proved a powerful reflective tool. For example, tasks such as “Draw your teaching climate and annotate threats/resources,” adapted from Participant 12’s workshop materials, enabled 78% of trainees to articulate shifts in their professional identity. One participant noted, “I moved from ‘foggy’ to ‘partly sunny’” illustrating how metaphor fosters nuanced self-awareness. Second, disruption simulations – such as role-playing “policy earthquakes” or “tech storms” – enhanced adaptive responses. Participant 17 remarked, “Now I pack an umbrella – backup activities for WiFi failures,” reflecting a 30% improvement in adaptation speed. Third, the implementation of “climate-resilient” practicums, where pre-service teachers were paired with “greenhouse mentors” trained in metaphor reflection, significantly boosted retention rates (85% compared to 61% in traditional placements). Finally, institutional ‘weather stations’ – digital platforms where teachers could post metaphorical “climate reports” (e.g., P24’s “Drought Alert: No PD this term”) – promoted collective problem-solving and normalized expressions of systemic challenge. Collectively, these findings suggest that metaphorical framing can move beyond reflection to function as a scaffold for resilience, professional identity development, and collaborative agency in teacher education.

Theoretical Implications

The study advances metaphor theory (Lakoff & Johnson, 1980) by demonstrating its utility in diagnosing systemic challenges in teacher education. It also expands teacher identity theory (Akkerman & Meijer, 2010) by showing how climatic metaphors mediate between personal experiences and institutional structures.

Practical Recommendations

The study's findings suggest several practical recommendations to enhance teacher education through metaphorical Climate Change Education (CCE). First, curriculum redesign should embed structured metaphor reflection activities – such as *climate journaling* – into teacher training programs to help pre-service teachers articulate and navigate their professional development journeys. Second, policy reform efforts could benefit from leveraging teachers' own metaphors (e.g., describing resource shortages as *droughts*) to advocate more persuasively for equitable resource allocation and support. Finally, leadership training should prioritize preparing mentors to cultivate *greenhouse* networks – supportive, reflective communities that foster professional resilience and collaborative growth. These recommendations bridge individual teacher identity work with broader institutional and policy-level change, underscoring the transformative potential of metaphor-aware approaches.

Limitations and Future Research

The study's focus on Iranian teachers may limit generalizability. Future research could compare metaphors across cultural contexts or track metaphor evolution longitudinally. By treating teachers' climatic metaphors as both data and intervention tools, this study offers a roadmap for climate-resilient teacher education. As P32 urged, the goal is not just to survive educational climate change but to harness its transformative potential – a vision that aligns with UNESCO's (2024) sustainable development imperatives.

Conclusion

This study has illuminated how Iranian language teachers construct their professional identities through climate change metaphors, revealing three core themes that capture their developmental journeys: (1) *Survival to Navigation* (preservice teachers reframing *storms* of uncertainty as manageable weather systems), (2) *Scarcity to Resourcefulness* (in-service teachers transforming *droughts* into opportunities for innovation), and (3) *Fracture to Reconstruction* (veterans treating policy *earthquakes* as catalysts for advocacy). These thematic patterns demonstrate that metaphorical framing serves as both a diagnostic tool for systemic challenges and a catalyst for adaptive growth.

For BRICS nations, where educational systems face unique pressures from rapid development and cultural-political shifts, these findings carry particular significance. The study's emphasis on teacher resilience through collaborative networks *greenhouses* and institutional support systems *irrigation* offers a scalable model for addressing common challenges like resource disparities and policy turbulence across diverse contexts. As Iran and fellow BRICS members work to harmonize educational quality with national development goals, integrating these metaphorical approaches could help bridge the gap between individual teacher empowerment and systemic reform. Ultimately, this research advances a transformative vision for teacher education: one where metaphors transcend descriptive language to become scaffolds for institutional change. As teachers worldwide face escalating educational *climate disruptions*, the findings underscore the urgency of redesigning programs that honor their lived experiences while equipping them to transition from *survivors* of turbulence to *architects* of sustainable pedagogies. The participatory methods and theoretical syntheses employed in this study offer a replicable model for future studies seeking to bridge ecological and educational paradigms, affirming a call for holistic approaches to teacher development in an era of global uncertainty.

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