Advances in Vocational and Technical Education (2025)
Clausius Scientific Press, Canada

DOI: 10.23977/avte.2025.070220
ISSN 2523-5834 Vol. 7 Num. 2

The 5E-Role Dual-Loop Model: A Theoretical Reconstruction of Educational Psychology Curriculum

Xiwen Yuan[a], Songyu Zhang[b], Xiaokang Lin[c,*]

Guangzhou Huashang College, Guangzhou, Guangdong, China
[a]1952915349@qq.com, [b]3347707971@qq.com, [c]744599537@qq.com

Keywords: 5E Instructional Model, Educational Psychology, Role-Play, Primary Education Majors

Abstract: This study proposes the 5E-Role Dual-Loop Model to address the persistent disconnect between theory and practice in educational psychology for primary education majors. Integrating the 5E instructional model with role-play, the approach engages students in dual-role simulations-alternating between teacher and child-to foster embodied understanding of psychological concepts. This process supports the development of instructional strategies aligned with children's developmental needs, improves professional judgment, and enhances the applicability of theoretical knowledge. The model not only strengthens core competencies in educational psychology but also demonstrates potential for integration into other areas of teacher education.

1. Introduction

Educational Psychology, as a core course of the Elementary Education program, plays a fundamental and bridging role in the professional growth of teacher trainees. The course not only systematically explains the cognitive, emotional and social development of children, but also focuses on the key issues of learning motivation, classroom management and differentiated teaching. Compared with general education theories, educational psychology emphasizes the dynamic interaction between the internal psychological mechanisms of individuals and teaching practice, providing a theoretical fulcrum for teachers to understand their students accurately. Especially in elementary school, where there are significant individual differences in children's developmental levels, educational psychology can guide future teachers to understand how learning occurs and how to tailor teaching to students' needs, and help them to judge and choose appropriate teaching strategies in contexts, supporting them to form professional judgments and to develop empathy and reflective practice. However, the current curriculum is characterized by fragmentation of knowledge and decontextualization of teaching, which makes it difficult for teacher trainees to apply the concepts in real classrooms even though they have mastered them. Therefore, it is imperative to promote the teaching reform of educational psychology, which not only helps to realize the integration of "knowledge" and "practice", but also better serves the achievement of the training goals of elementary school teachers in the new era.

2. Current Challenges in Educational Psychology Instruction

Despite the fact that educational psychology is a foundational course for elementary education students, there are a series of long-standing structural problems with the way it is currently taught. These problems can be broadly categorized as three key disconnects between theory and practice, learners and pedagogy, and assessment and standards[1,2].

2.1 Disconnection between Theory and Practice

One of the primary challenges in educational psychology instruction is the disconnection between theoretical knowledge and the realities of primary school teaching. Instruction in higher education often emphasizes conceptual memorization over contextualized application, resulting in a limited transfer of knowledge to actual classroom settings. For example, while normal university students may be able to articulate Vygotsky's theory of the "zone of proximal development," they often struggle to design appropriate scaffolding strategies in subjects such as reading instruction to support pupils' developmental progress [3].

This theory-practice gap is further compounded by the structural separation between coursework and practicum in many teacher education programs[2]. Courses are frequently delivered in isolation from practical teaching experience, and the case materials used in instruction tend to be abstract or decontextualized, lacking alignment with real-life elementary school environments[1]. As a result, students often find themselves inadequately prepared to translate theoretical frameworks into effective teaching practices once they enter actual classrooms.

2.2 Disconnection between Teaching and Child Development

Another critical issue lies in the disconnect between instructional approaches in teacher education and the developmental characteristics of children aged 6 to 12. Many training programs adopt a standardized, one-size-fits-all model that fails to account for the cognitive and emotional needs of younger learners. Empirical evidence indicates that only 23% of lesson plans in primary education programs explicitly consider the developmental stage of the target student group[4] .

For instance, in moral education, normal university students often rely on abstract, didactic approaches that do not align with the developmental level of early-grade students as described by Piaget's cognitive stages and Kohlberg's theory of moral development[5]. Moreover, university faculty frequently model generalized pedagogical strategies that, when replicated in elementary settings, may lead students to default to classroom management tactics centered on behavioral control rather than employing age-appropriate motivational strategies[6]. This misalignment ultimately undermines instructional effectiveness and the development of responsive, learner-centered teaching practices.

2.3 Disconnection between Assessment and Professional Competency Development

A further limitation concerns assessment practices that fail to reflect the professional competencies expected of primary school teachers. Current evaluation systems rely heavily on closed-book examinations that prioritize factual recall over applied skills. These assessments often overlook essential teaching competencies such as child observation, developmentally appropriate instructional planning, and individualized support-all critical for effective primary school teaching [7]. As a result, the evaluation of student performance remains fragmented and insufficiently aligned with the practical demands of the profession.

These three disconnections have led to three corresponding capability gaps among normal

university students: difficulty translating psychological theory into pedagogical strategies, inability to design developmentally appropriate lessons based on child development principles, and misalignment between curriculum outcomes and professional benchmarks. Ultimately, these gaps create a "knowing but not doing" dilemma-normal university students may be well-versed in theoretical models but are ill-equipped to apply them in the complex, responsive environments of real primary classrooms [3,8].

3. Reconstructing the Teaching Model: Integrating the 5E Framework with Role-Play

3.1 Conceptual Foundation of the Model

According to sociocultural theory[9], cognitive development is mediated by social interaction and cultural tools such as language, norms, and roles. Supporting this, research in embodied cognition has demonstrated that action-based simulation can enhance conceptual understanding by as much as 37% [10]. From a constructivist perspective, knowledge is actively constructed through the process of solving real-world problems.

In response to the persistent gap between knowledge and action in teacher preparation, the 5E instructional model-comprising Engage, Explore, Explain, Elaborate, and Evaluate-offers a scaffolded approach to problem solving. It reframes learning not as passive knowledge acquisition but as an iterative cognitive cycle driven by inquiry. Within this context, role-play serves as a bridge between theory and practice. By introducing realistic scenarios into the classroom, role-play activates embodied simulation and problem-solving processes. This allows normal university students majoring in primary education to connect abstract psychological theories with concrete teaching experiences. Simulated primary school classroom environments serve not only as contextual triggers for exploration but also as cognitive anchors for integrating theory into practical understanding. Through the synthesis of role-based embodied experience and the 5E learning framework, the model fosters deep, experiential learning. Rather than viewing theory and practice as separate domains, this approach facilitates their convergence-transforming theoretical knowledge into lived educational competence.

3.2 The 5E-Role Dual-Loop Model

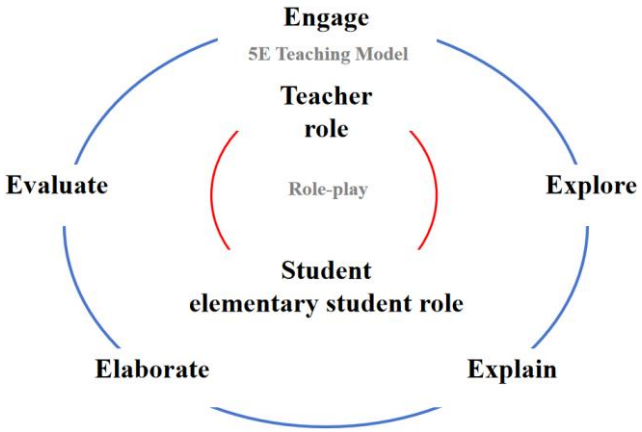

Figure 1: The 5E-Role Dual-Loop Model

Drawing on constructivist learning theory, sociocultural perspectives [9], and embodied cognition research [10], this study proposes the 5E-Role Dual-Loop Model to address the prevalent disconnection between theory and practice in educational psychology instruction. The model

integrates two mutually reinforcing components: an outer loop based on the 5E instructional sequence (Engage, Explore, Explain, Elaborate, and Evaluate), and an inner loop utilizing role-play as an embodied cognitive mechanism. The 5E - Role Dual-Loop Model is shown in Figure 1.

The outer loop, grounded in Bybee's[11] 5E model, serves as a scaffold for simulating the cognitive trajectory of expert teachers. It guides normal university students through a structured process of inquiry and reflection, beginning with the activation of prior knowledge and culminating in the evaluation of learning outcomes. Within this framework, the inner loop situates students in realistic primary school scenarios through dual-role participation. Each student assumes the role of both a child and a teacher at different stages of instruction. In the child role, they engage in embodied simulations of developmental behaviors typical of 6-12-year-old learners, encouraging them to shift from adult-centric perspectives and reconstruct cognitive schemas aligned with children's developmental needs. In the teacher role, students are immersed in instructional design and classroom decision-making, fostering deeper professional identity and experiential understanding of theoretical knowledge.

This dual-loop structure allows role-play activities to be embedded within each phase of the 5E model. For instance, during the Engage phase, contextualized case discussions rooted in real primary school situations are used to stimulate interest and activate relevant knowledge. In the Explore phase, students collaborate to analyze teaching and learning behaviors within the scenarios, mapping them to relevant psychological theories. The Explain phase introduces the role-play activity itself, where students are divided into teacher, student, and observer groups to simulate and critique classroom responses. These insights are carried forward into the Elaborate phase, where students rotate roles and apply revised strategies in new but related scenarios, promoting knowledge transfer and adaptive thinking. Finally, in the Evaluate phase, students consolidate their learning through group presentations and complete individual reflective tasks-including child-role diaries, teacher response plans, and dual-role reflection journals-to facilitate metacognitive monitoring and cross-role comparison, in line with the core mechanisms of metacognition proposed by Flavell [12].

By integrating embodied role-play within the established 5E cognitive framework, the model provides both a theoretical foundation and a practical method for bridging the gap between psychological knowledge and teaching practice in primary education training.

4. Reform Value and Pedagogical Innovation

4.1 Theoretical Solution to the “Triple Disconnection” Problem

The proposed 5E-Role Dual-Loop Model offers a viable solution to the long-standing problem of “triple disconnection” in educational psychology instruction-namely, the disjunction between theory and practice, instruction and child development, and evaluation and professional standards. First, the model translates abstract theories into embodied and operable symbols. For instance, role-playing a disruptive child makes the theoretical construct of aggressive behavior observable and actionable. Second, the model enables students to reconstruct their understanding of children's cognition by engaging in embodied simulations-such as squatting to match a child’s height or using simplified language-which dismantles adult-centric thinking and rebuilds age-appropriate cognitive schemas. Compared with traditional case-based teaching, this role-based approach has been shown to improve the accuracy of age-appropriate lesson design by 52% [4]. Furthermore, the dual-loop structure provides a more comprehensive framework for evaluating student competence than conventional closed-book examinations, aligning assessment more closely with professional teaching competencies.

4.2 A Triple Breakthrough in Disciplinary Paradigm

Beyond a methodological innovation, the 5E-Role Dual-Loop Model marks a structural paradigm shift in how educational psychology is conceptualized and delivered. Traditional curricula often present psychological theories as static, decontextualized bodies of knowledge-such as memorizing Piaget's stages of cognitive development or reciting Vygotsky's theoretical constructs-resulting in fragmented understanding and limited applicability. This disconnection renders theoretical learning inert, especially when students are unable to transfer these concepts into the realities of primary school classrooms.

In contrast, the dual-loop model redefines educational psychology as a dynamic, experiential domain by embedding embodied role-play within the cognitive framework of the 5E model. Through situated participation in both teacher and child roles, students actively reconstruct psychological principles within context-rich, simulated environments. For instance, when students act as teachers to design scaffolds aligned with Vygotsky's Zone of Proximal Development, theoretical knowledge is mobilized as a diagnostic tool for cognitive assessment. Similarly, adopting the role of a child to experience object permanence transforms Piaget's abstract developmental stages into concrete, emotionally resonant insights-such as understanding the roots of separation anxiety in early learners.

This recursive engagement deepens students' understanding of psychological concepts by encouraging reflection-in-action and reflection-on-action throughout the learning process. As students shift between the roles of teacher and learner, they begin to internalize theoretical constructs not only as academic content but as pedagogical tools embedded in decision-making, emotional attunement, and classroom responsiveness. Furthermore, by grounding abstract theory in embodied, emotionally salient experience, the model fosters the development of pedagogical empathy-a crucial but often underemphasized competency in teacher training. Ultimately, the 5E-Role Dual-Loop Model repositions educational psychology as a living curriculum: one that grows out of the reciprocal interplay between theory, action, and reflection, and equips future teachers with the adaptive expertise needed to navigate the complexities of real-world primary education.

4.3 Cognitive Transformation in Teacher Professional Development

The 5E-Role Dual-Loop Model not only enriches educational psychology instruction but also holds significant promise for integration across the broader curriculum of teacher education. By embedding dual-role participation into inquiry-based learning cycles, the model provides a transferable, theoretically grounded framework applicable to various domains such as inclusive education, classroom management, curriculum design, and teaching practicums. In these contexts, normal university students alternate between the roles of learners and educators, allowing them to internalize pedagogical principles from both experiential and instructional perspectives.

For example, in inclusive education modules, students can role-play both as children with diverse learning needs and as teachers crafting adaptive responses-thereby fostering differentiated instruction strategies and empathy-driven teaching. In classroom management contexts, students simulate real-time behavioral challenges and rehearse evidence-based interventions under the guidance of developmental psychology. These experiences not only enhance metacognitive awareness and professional decision-making but also externalize diagnostic reasoning processes, reinforcing students' abilities to respond flexibly and responsibly in varied classroom scenarios.

By extending the model beyond a single course, teacher education programs can cultivate interdisciplinary professional competencies and support the formation of responsive, reflective teaching identities. The model's flexibility thus facilitates its integration into a cohesive,

practice-oriented teacher preparation system-bridging theory and practice across the full spectrum of teacher development.

5. Conclusion

This study directly addresses the persistent challenge faced by normal university students in primary education programs-namely, the disconnect between theoretical understanding and practical application. To bridge this gap, the 5E-Role Dual-Loop Model was developed as a means to transform the instructional paradigm of educational psychology. By engaging in embodied experiences as children, students bring abstract psychological theories to life. Through assuming the role of teachers, they convert theoretical knowledge into pedagogical wisdom grounded in practice. This model not only offers a theoretical solution to the entrenched "triple disconnection" dilemma but also opens a new pathway for cultivating students' practical teaching competencies.

Looking forward, further research is needed to enhance the alignment between this dual-loop model and broader teacher education curricula. Such efforts will contribute to the structural transformation of teacher professional development ecosystems, fostering a new generation of educators equipped with both deep theoretical insight and robust instructional capacity.

References

[1] Darling-Hammond, L. (2017). Teacher education around the world: What can we learn from international practice? European Journal of Teacher Education, 40(3), 291-309.

[2] Grossman, P., Hammerness, K., & Mcdonald, M. (2009). Redefining teaching, re-imagining teacher education. Teachers & Teaching, 15(2), 273-289.

[3] Santrock, J. W. (2022). Educational psychology (7th ed.). McGraw-Hill.

[4] Wang, M., & Liu, Y. (2023). The gap between theory and practice in primary school teaching: Evidence from Chinese classrooms. Teaching and Teacher Education, 121, 103456.

[5] Kohlberg, L. (1984). The psychology of moral development. Harper & Row.

[6] Zeichner, K. (2012). The turn once again toward practice-based teacher education. Journal of Teacher Education, 63(5), 376-382.

[7] Hattie, J. (2012). Visible learning for teachers: Maximizing impact on learning. Routledge.

[8] Darling-Hammond, L. (2022). Preparing teachers for deeper learning. Harvard Education Press.

[9]Vygotsky, L. S. (1978). Mind in society: The development of higher psychological processes (Vol. 86). Harvard university press.

[10] Glenberg, A. M., Gutierrez, T., Levin, J. R., Japuntich, S., & Kaschak, M. P. (2004). Activity and imagined activity can enhance young children's reading comprehension. Journal of Educational Psychology, 96(3), 424-436.

[11] Bybee, R. W. (1997). Achieving scientific literacy: From purposes to practices. Heinemann.

[12] Flavell, J. H. (1979). Metacognition and cognitive monitoring: A new area of cognitive-developmental inquiry. American Psychologist, 34(10), 906-911.