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Development Of The DJOR Model For Personalized Learning In Teacher Education

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Abstract

The increasing diversity of learners and rapid technological developments have prompted higher education institutions to reconsider conventional instructional approaches. Teacher education programs, particularly in elementary teacher preparation, require pedagogical models that foster adaptive learning, reflective thinking, and self-regulated learning. However, many instructional practices in teacher education remain dominated by standardized teaching approaches that do not adequately address learner variability. This study proposes the Draft–Judge–Own–Reflect (DJOR) Personalized Learning Model as an instructional design framework aimed at enhancing personalized learning experiences for teacher candidates. The model integrates principles from cognitive learning theory, social constructivism, self-regulated learning, and metacognition into a systematic instructional structure. Using a design-based research approach, the study develops and evaluates the DJOR model in the context of an elementary teacher education program. The model consists of four iterative phases: Draft, Judge, Own, and Reflect, each designed to support progressive knowledge construction, collaborative evaluation, personal internalization, and metacognitive reflection. Preliminary findings indicate that the DJOR model promotes higher levels of learning engagement, reflective thinking, and self-regulated learning among teacher candidates. The model also demonstrates potential for integrating learning analytics and artificial intelligence to support adaptive learning pathways. This study

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contributes to the literature by proposing a theoretically grounded personalized learning model specifically designed for teacher education contexts. The findings provide implications for instructional design, teacher professional development, and future research on personalized learning in higher education.

Keywords: Instructional design, metacognition, personalized learning, self-regulated learning

INTRODUCTION

Higher education institutions worldwide are facing increasing demands to design learning environments that accommodate the diversity of learners. The traditional instructional paradigm, which often assumes a uniform learning pace and identical learning strategies among students, is increasingly challenged by the recognition of learner variability.

Teacher education programs are particularly affected by this challenge. Future teachers must not only master disciplinary knowledge but also develop the ability to design responsive learning environments for diverse students. Therefore, teacher education should provide learning experiences that reflect pedagogical practices aligned with contemporary theories of learning (Dewey, 1938).

Despite the growing emphasis on learner-centered education, many instructional practices in teacher education programs remain teacher-dominated and content-focused. Students frequently experience passive forms of learning where they receive knowledge rather than actively constructing it. Such approaches may limit opportunities for developing self-regulated learning, metacognitive awareness, and reflective thinking, which are essential competencies for professional educators.

In recent years, personalized learning has emerged as an important paradigm in educational innovation. Personalized learning emphasizes adapting learning experiences to the needs, interests, and learning characteristics of individual learners. However, much of the literature on personalized learning focuses on technological solutions such as adaptive learning platforms and artificial intelligence-driven systems.

While technological tools play an important role, personalized learning should also be understood as a pedagogical design approach that empowers learners to actively regulate their learning processes. In this perspective, personalization involves not only adaptive content delivery but also the development of learner autonomy, metacognitive reflection, and collaborative

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knowledge construction.

Within teacher education, implementing personalized learning has a dual benefit. First, it supports teacher candidates in developing their own learning capacities. Second, it provides experiential insight into how personalized learning environments can be designed for future classrooms.

To address these needs, this study proposes the Draft–Judge–Own–Reflect (DJOR) Personalized Learning Model, a pedagogical framework designed to integrate personalized learning principles with collaborative and reflective learning processes.

The primary objective of this study is to develop and conceptually validate the DJOR model as an instructional framework for teacher education programs.

LITERATURE REVIEW

Personalized Learning in Higher Education

Personalized learning has emerged as one of the most influential paradigms in contemporary education, particularly in response to increasing learner diversity and rapid technological transformation. Traditional instructional models often assume a standardized learning process in which all students receive identical content, learning pace, and instructional strategies. However, such approaches frequently fail to accommodate individual differences in learners' prior knowledge, cognitive abilities, motivations, and learning preferences.

Personalized learning seeks to address this challenge by designing learning environments that adapt to the unique characteristics of individual learners. In personalized learning environments, learners are given greater control over aspects of their learning process, including learning pathways, learning pace, and strategies for knowledge acquisition (Bandura, 1997). Rather than positioning students as passive recipients of information, personalized learning encourages active participation in constructing learning experiences.

Recent studies indicate that personalized learning can significantly enhance student engagement, learning motivation, and academic performance. When learners perceive that instructional activities align with their needs and interests, they are more likely to demonstrate deeper cognitive engagement and persistence in learning tasks.

In higher education contexts, personalized learning is increasingly supported by digital technologies such as learning management systems, adaptive learning platforms, and artificial intelligence–driven learning analytics (Dede, 2014). These technologies enable educators to monitor learners' progress and provide individualized feedback and recommendations.

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However, scholars emphasize that personalization should not be limited to technological adaptation alone. Effective personalized learning requires pedagogical designs that encourage learners to actively regulate their learning processes and reflect on their learning experiences. In this sense, personalization involves not only adapting content delivery but also fostering learner autonomy and metacognitive awareness.

Furthermore, personalized learning environments often integrate collaborative learning processes, recognizing that individual learning development occurs within social contexts. Through collaborative dialogue, learners can explore multiple perspectives, refine their ideas, and develop deeper conceptual understanding.

Personalized Learning in Teacher Education

The relevance of personalized learning becomes particularly significant in teacher education programs. Teacher candidates are expected to develop competencies that enable them to design responsive and inclusive learning environments for diverse students. Consequently, teacher education programs should provide learning experiences that reflect these pedagogical principles.

According to Linda Darling-Hammond, effective teacher preparation programs emphasize active learning, collaborative inquiry, and reflective practice. These approaches allow teacher candidates to engage deeply with pedagogical concepts while simultaneously developing professional judgment and decision-making skills.

Personalized learning in teacher education offers several important benefits. First, it allows teacher candidates to explore pedagogical concepts at a pace that corresponds to their learning readiness. Second, it encourages them to take responsibility for their learning processes. Third, it provides opportunities for reflective inquiry into their developing professional identities.

Research suggests that teacher candidates who experience learner-centered and personalized learning environments are more likely to adopt similar pedagogical practices in their future classrooms. Thus, personalized learning in teacher education has the potential to influence teaching practices beyond the university context.

Nevertheless, implementing personalized learning in teacher education also presents challenges. Many teacher education programs still rely on conventional lecture-based instruction due to curriculum constraints and limited institutional resources. As a result, teacher candidates may have limited opportunities to engage in personalized and inquiry-based learning experiences.

These challenges highlight the need for instructional models that systematically integrate

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personalized learning principles into teacher education programs.

Self-Regulated Learning

Self-regulated learning (SRL) is widely recognized as a foundational component of personalized learning. SRL refers to learners' ability to actively control their cognitive, motivational, and behavioral processes in pursuit of learning goals.

According to Barry J. Zimmerman (2002), self-regulated learners engage in a cyclical process consisting of three main phases: forethought, performance, and self-reflection. During the forethought phase, learners set goals and plan learning strategies. In the performance phase, learners implement strategies and monitor their progress. Finally, in the self-reflection phase, learners evaluate learning outcomes and adjust strategies for future learning tasks.

Research indicates that students who demonstrate strong self-regulated learning skills tend to achieve higher academic performance and show greater persistence in learning. Self-regulated learners are also more capable of adapting to complex and unfamiliar learning tasks.

In higher education contexts, SRL becomes particularly important because students are expected to manage their learning processes with increasing independence. Instructional designs that support SRL often include opportunities for goal setting, strategic planning, self-monitoring, and reflective evaluation.

Within teacher education programs, the development of SRL has additional significance. Teachers play a critical role in fostering self-regulated learning among their students. Therefore, teacher candidates must first develop these competencies themselves before they can effectively facilitate them in classroom contexts.

Instructional models that incorporate iterative learning cycles, feedback mechanisms, and reflective activities are considered particularly effective in promoting SRL development.

Metacognition and Reflective Learning

Metacognition refers to individuals' awareness and regulation of their own cognitive processes. It includes knowledge about learning strategies as well as the ability to monitor and control thinking during problem-solving and learning activities (Jonassen, 2011).

Metacognitive skills are often categorized into two main components: metacognitive knowledge and metacognitive regulation. Metacognitive knowledge involves understanding how learning processes work, while metacognitive regulation involves planning, monitoring, and evaluating learning strategies.

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Reflective learning practices are closely related to metacognition. Reflection enables learners to examine their experiences, analyze their thinking processes, and identify strategies for improvement.

In teacher education contexts, reflective practice is widely regarded as an essential component of professional learning. Reflective teachers continuously analyze their instructional decisions and consider how these decisions affect student learning outcomes.

Reflective learning activities may include reflective journals, peer dialogue, portfolio assessment, and structured reflection prompts. These activities encourage learners to connect theoretical knowledge with practical experiences.

Research suggests that structured reflection can significantly enhance learners' metacognitive awareness and promote deeper conceptual understanding. When learners engage in reflection, they become more conscious of their learning strategies and better able to regulate their learning processes.

Social Constructivism and Collaborative Learning

The theoretical foundations of personalized learning are closely related to social constructivist perspectives on learning. Social constructivism emphasizes that knowledge is constructed through interaction with others and engagement in meaningful learning activities.

From this perspective, learning is not simply the transmission of information from teacher to student. Instead, learning involves active participation in dialogue, problem-solving, and collaborative meaning-making.

Collaborative learning environments provide opportunities for learners to share perspectives, challenge assumptions, and co-construct knowledge. Through collaborative dialogue, learners develop deeper understanding and critical thinking skills.

Peer feedback is particularly valuable in collaborative learning contexts. When learners evaluate each other's work, they gain insights into alternative approaches and refine their conceptual understanding.

Collaborative critique also encourages learners to articulate their reasoning and justify their ideas. These processes contribute to the development of higher-order thinking skills.

However, collaborative learning does not diminish the importance of individual learning processes. Instead, effective instructional designs balance individual exploration with collaborative interaction. This balance allows learners to develop personal understanding while benefiting from social learning processes.

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Instructional Design for Personalized Learning

Instructional design plays a crucial role in translating theoretical principles into effective learning experiences. Personalized learning environments require systematic design frameworks that integrate learner autonomy, collaborative learning, and reflective practice.

Several instructional design models have been widely used in educational contexts, including ADDIE, design-based research approaches, and iterative design frameworks. These models emphasize systematic analysis of learner characteristics, learning objectives, instructional strategies, and evaluation methods.

Contemporary instructional design research increasingly highlights the importance of adaptive and learner-centered design approaches (Collins et al, 2004). Such approaches prioritize flexibility, learner agency, and iterative improvement of learning environments.

Within personalized learning contexts, instructional design should address several key elements:

- Learner variability
- Adaptive learning pathways
- Feedback and assessment mechanisms
- Opportunities for reflection and self-regulation
- Instructional models that integrate these elements are more likely to support meaningful and sustainable learning outcomes.

Research Gap and Conceptual Position of the DJOR Model

Although the literature on personalized learning has expanded significantly, several gaps remain in current research.

First, much of the existing research focuses on technological solutions for personalization, such as adaptive learning platforms and AI-based recommendation systems. While these technologies provide valuable tools, they often overlook the pedagogical processes through which personalization occurs.

Second, relatively few instructional models explicitly integrate personalized learning with collaborative evaluation and reflective learning processes. Yet these elements are essential for developing higher-order thinking and professional competence among teacher candidates.

Third, there is limited research on personalized learning models specifically designed for teacher education contexts. Teacher education requires instructional approaches that not only support individual learning but also cultivate pedagogical reflection and professional identity

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development.

The Draft–Judge–Own–Reflect (DJOR) Personalized Learning Model is proposed as a response to these gaps. The model integrates several key theoretical principles:

- Self-regulated learning cycles
- Collaborative knowledge construction
- Metacognitive reflection
- Personalized learning pathways

By combining these elements into a coherent instructional framework, the DJOR model aims to provide a pedagogically grounded approach to personalized learning in teacher education.

The model emphasizes iterative learning processes in which learners first construct initial ideas, then engage in collaborative critique, internalize feedback, and finally reflect on their learning experiences. This cycle supports both individual and social dimensions of learning while promoting metacognitive awareness and learner autonomy.

Consequently, the DJOR model contributes to the growing body of research on personalized learning by offering a theoretically integrated instructional design framework specifically tailored for teacher education programs.

The DJOR Personalized Learning Model

The Draft–Judge–Own–Reflect (DJOR) model is proposed as an instructional framework designed to integrate personalized learning with collaborative and reflective learning processes in higher education. The model responds to the increasing need for learning environments that recognize learner variability and support active engagement in knowledge construction. In contrast to traditional instructional approaches that emphasize uniform learning experiences, the DJOR model encourages learners to actively shape their learning process through iterative cycles of exploration, feedback, revision, and reflection. This design aligns with contemporary perspectives on learner-centered education and self-regulated learning, as discussed by scholars such as Barry J. Zimmerman (2002) and John Hattie (2012). By combining individual inquiry with collaborative critique and reflective practice, the DJOR model seeks to create a dynamic learning environment that supports deeper conceptual understanding and learner autonomy.

The DJOR model consists of four interconnected phases: Draft, Judge, Own, and Reflect. These phases represent an iterative learning cycle in which learners progressively refine their understanding through both individual and social learning processes. Rather than functioning as rigid steps, the phases operate as a flexible structure that allows learners to move between

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independent exploration and collaborative dialogue while continuously reflecting on their learning progress.

The first phase, Draft, focuses on initial knowledge exploration and construction. In this phase, learners independently engage with learning resources in order to develop preliminary ideas about the topic under study. Activities may include reading scholarly literature, examining digital learning materials, constructing concept maps, writing initial reflections, or generating tentative solutions to a given problem. The goal of this stage is not to produce a final or fully developed answer but to stimulate exploratory thinking and activate prior knowledge. This phase supports personalized learning because it allows students to approach the learning topic according to their own interests, prior experiences, and learning strategies. Learners are encouraged to develop their own perspectives and interpretations before engaging in collaborative discussion. By promoting independent inquiry, the Draft phase establishes the foundation for deeper engagement in subsequent stages of the learning process.

The second phase, Judge, involves collaborative evaluation of ideas. After developing their initial drafts, learners present their preliminary work to peers and instructors for feedback. Through peer review, group discussions, and guided critique, students examine the strengths and weaknesses of their ideas. This phase is grounded in social constructivist perspectives that emphasize the importance of dialogue and interaction in knowledge construction. When learners encounter alternative viewpoints and critical questions from others, they are encouraged to reconsider their assumptions and refine their conceptual understanding. Peer feedback also allows learners to identify gaps or misconceptions in their initial reasoning. In this way, the Judge phase creates a collaborative learning environment in which knowledge is co-constructed through critical dialogue and shared inquiry.

The third phase, Own, focuses on the internalization and reconstruction of knowledge. After receiving feedback during the Judge phase, learners revisit their initial drafts and revise their ideas accordingly. This stage emphasizes self-regulated learning processes, including monitoring comprehension, revising strategies, and integrating new insights into existing knowledge structures. Learners are encouraged to take ownership of their learning by synthesizing feedback and transforming it into improved understanding. Rather than simply accepting external evaluation, students actively interpret and incorporate feedback into their own conceptual framework. This process strengthens learner autonomy and supports the development of independent thinking skills.

The final phase, Reflect, emphasizes metacognitive reflection on the learning experience.

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In this stage, learners analyze how their understanding has evolved throughout the learning process. Reflection activities may include maintaining learning journals, writing reflective essays, or responding to structured reflection prompts provided by the instructor. Through reflection, learners become more aware of their cognitive strategies, learning challenges, and conceptual growth. Metacognitive reflection enables students to evaluate the effectiveness of their learning approaches and identify areas for improvement in future learning tasks.

Overall, the DJOR model represents an integrated approach to personalized learning that combines independent inquiry, collaborative evaluation, knowledge internalization, and reflective practice. By structuring learning around these four interconnected phases, the model aims to foster deeper learning engagement, strengthen self-regulated learning skills, and promote reflective thinking among learners. Such an approach is particularly relevant in teacher education contexts, where future educators must develop both conceptual understanding and reflective professional practice.

METHODS

This study adopts a design-based research (DBR) approach to develop and refine the Draft–Judge–Own–Reflect (DJOR) Personalized Learning Model in the context of teacher education. Design-based research is widely used in educational research as a methodological framework that integrates the development of innovative learning interventions with the generation of theoretical knowledge. Unlike traditional experimental approaches that focus primarily on testing predetermined hypotheses, design-based research emphasizes iterative cycles of design, implementation, evaluation, and refinement within authentic educational settings. Scholars such as Ann Brown and Jan van den Akker have highlighted that DBR is particularly suitable for developing instructional models because it allows researchers to examine how pedagogical innovations function in real learning environments while simultaneously improving their design.

The use of a design-based research approach in this study is motivated by the need to construct a pedagogically grounded personalized learning model that can be applied in teacher education programs. The DJOR model aims not only to introduce a new instructional strategy but also to provide theoretical insights into how personalized learning, collaborative learning, and reflective learning processes can be integrated within a coherent instructional framework. Through iterative design and evaluation, the research seeks to ensure that the model is both theoretically sound and practically applicable.

The research process consists of three main stages: conceptual analysis and model design,

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prototype development, and pilot implementation. These stages reflect the iterative nature of design-based research, in which each stage informs subsequent refinement of the instructional model.

The first stage, conceptual analysis and model design, focuses on identifying theoretical foundations and design principles that underpin the DJOR model. During this stage, an extensive review of the literature on personalized learning, self-regulated learning, metacognition, and collaborative learning was conducted. The insights derived from this literature analysis were used to formulate the conceptual framework of the DJOR model and to define its key instructional components. The purpose of this stage is to ensure that the model is grounded in established learning theories and addresses the pedagogical challenges faced in teacher education.

The second stage, prototype development, involves translating the conceptual framework into a practical instructional design. At this stage, the DJOR model was operationalized into a prototype learning design that includes learning activities, instructional guidelines, and reflection tasks aligned with the four phases of the model: Draft, Judge, Own, and Reflect. The prototype also specifies the roles of students and instructors, learning resources to be used, and assessment strategies to evaluate learning outcomes. The development of the prototype aims to create a structured yet flexible instructional model that can support personalized learning while facilitating collaborative interaction among learners.

The third stage, pilot implementation, involves testing the prototype model in an authentic learning environment (Herrington, 2013). The purpose of this stage is to examine how the DJOR model functions in practice and to identify potential areas for improvement. Pilot implementation also allows the researcher to evaluate the extent to which the model supports learning engagement, self-regulated learning, and reflective thinking among participants.

The participants in this study consist of students enrolled in an elementary teacher education program. These students represent prospective elementary school teachers who are preparing to design and implement effective learning environments for diverse learners. Their participation in the study provides valuable insights into how personalized learning models can be applied within teacher education contexts.

To obtain comprehensive data on the implementation of the DJOR model, multiple data collection methods are employed. These methods include classroom observations, student perception surveys, learning outcome assessments, and reflective interviews. Classroom observations are conducted to document how learning activities unfold during the implementation of the DJOR model and to capture patterns of student engagement and

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interaction. Student perception surveys are used to gather information about learners' experiences and perceptions of the personalized learning process. Learning outcome assessments are administered to measure students' conceptual understanding of the course material. In addition, reflective interviews are conducted to explore students' learning experiences in greater depth, particularly their perceptions of the reflective and collaborative aspects of the DJOR model.

The collected data are analyzed using both quantitative and qualitative techniques. Quantitative data obtained from surveys and learning outcome assessments are analyzed using descriptive statistical methods to identify patterns in student responses and performance. Meanwhile, qualitative data obtained from observations and reflective interviews are analyzed using thematic analysis to identify recurring themes related to student engagement, self-regulated learning, and reflective learning processes.

Through the integration of quantitative and qualitative data, this methodological approach provides a comprehensive understanding of how the DJOR Personalized Learning Model functions in practice and how it may contribute to the improvement of learning experiences in teacher education.

FINDINGS AND DISCUSSION

Findings

The initial implementation of the Draft–Judge–Own–Reflect (DJOR) Personalized Learning Model produced several promising outcomes in terms of student engagement, collaborative learning processes, and the development of metacognitive awareness among participants. The results were derived from multiple data sources, including classroom observations, student perception surveys, learning outcome assessments, and reflective interviews conducted during the pilot implementation of the model in an elementary teacher education program. These data sources allowed the researcher to examine how the DJOR model influenced students' learning experiences and how the different phases of the model contributed to their cognitive and reflective development.

One of the most noticeable outcomes of the implementation was the increase in student engagement during collaborative learning activities. Observational data indicated that students participated more actively in discussions compared to traditional lecture-based learning sessions. The collaborative nature of the Judge phase played a significant role in encouraging students to articulate their ideas, defend their reasoning, and respond to feedback from peers. When students presented their preliminary drafts and received comments from their classmates, they became

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more involved in the learning process because their work was subject to discussion and evaluation. This interactive environment helped students recognize that learning is not merely about producing correct answers but also about engaging in meaningful dialogue and critical inquiry.

Survey responses also revealed that students perceived peer discussion as an important factor in deepening their understanding of the learning materials. Many participants reported that hearing alternative viewpoints helped them reconsider their assumptions and expand their perspectives on the topic being studied. Through the process of collaborative critique, students were able to identify weaknesses in their initial ideas and refine their arguments. These findings align with social constructivist perspectives on learning, which emphasize the role of dialogue and interaction in the construction of knowledge. The Judge phase thus functioned as a key mechanism for promoting critical thinking and collaborative learning among students.

In addition to increased engagement during collaborative activities, the implementation of the DJOR model also supported the development of reflective learning practices. The Reflect phase encouraged students to examine how their understanding evolved throughout the learning process. Through structured reflection activities, such as reflective journals and guided reflection prompts, students were asked to analyze their learning strategies, identify conceptual challenges, and describe how feedback from peers and instructors influenced their thinking.

Analysis of students' reflective writings indicated that many participants became more aware of their cognitive processes during learning. For instance, students reported recognizing how their initial assumptions changed after engaging in peer discussions and how revising their drafts helped them clarify their conceptual understanding. This reflective process contributed to the development of metacognitive awareness, which refers to learners' ability to monitor and regulate their own thinking processes. Scholars such as Barry J. Zimmerman (2002) has emphasized that metacognitive awareness plays a crucial role in self-regulated learning because it enables learners to evaluate their strategies and make adjustments when necessary.

Furthermore, qualitative data from reflective interviews suggested that students appreciated the iterative structure of the DJOR model. Participants noted that the sequence of drafting, receiving feedback, revising ideas, and reflecting on the learning process allowed them to gradually refine their understanding rather than attempting to produce perfect answers in a single step. This iterative approach reduced the anxiety often associated with assessment and encouraged students to view learning as a continuous process of improvement.

Overall, the preliminary findings indicate that the DJOR Personalized Learning Model has

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the potential to enhance learning engagement, promote collaborative knowledge construction, and foster metacognitive reflection among teacher education students. These outcomes suggest that the integration of personalized learning principles with structured collaborative and reflective activities can create a more dynamic and meaningful learning experience in higher education contexts.

DISCUSSION

The findings of this study suggest that the Draft–Judge–Own–Reflect (DJOR) model demonstrates strong potential as a pedagogical framework for implementing personalized learning in teacher education. The model integrates individual learning autonomy, collaborative knowledge construction, and reflective practice within a structured instructional process. These elements are particularly important in higher education contexts, where students are expected to develop not only conceptual knowledge but also professional competencies and reflective thinking skills required for their future roles as educators.

One of the key contributions of the DJOR model lies in its emphasis on learner agency. Many approaches to personalized learning in recent years have focused heavily on technological solutions such as adaptive learning systems and artificial intelligence–driven learning analytics. While these technologies offer valuable opportunities for customizing instructional content and pacing, they sometimes risk positioning learners as passive recipients of algorithmically determined learning pathways. In contrast, the DJOR model places students at the center of the learning process by encouraging them to actively construct knowledge, evaluate ideas collaboratively, and reflect on their learning experiences. This approach aligns with the learner-centered paradigm in education, which emphasizes the importance of autonomy, motivation, and active engagement in meaningful learning processes.

The Draft phase of the DJOR model supports personalized learning by allowing students to explore learning materials and generate initial ideas according to their prior knowledge, interests, and learning preferences. Instead of prescribing a single pathway for all learners, this phase provides space for individual exploration and conceptual development. Such flexibility is important in teacher education programs because preservice teachers often bring diverse academic backgrounds and experiences that influence how they approach new knowledge. By allowing students to develop preliminary drafts of their ideas, the model encourages them to take ownership of their learning and engage in inquiry-based exploration.

The Judge phase introduces a collaborative dimension that strengthens the learning

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process. Through peer discussion and feedback, students are exposed to alternative perspectives and critical evaluations of their work. This stage reflects principles of social constructivism, particularly the idea that knowledge is constructed through dialogue and interaction with others. Educational theorists such as Lev Vygotsky (1978) have emphasized that social interaction plays a crucial role in cognitive development because it allows learners to refine their understanding through shared inquiry and negotiation of meaning. In the DJOR model, the Judge phase creates a structured environment where students critically examine their ideas and develop deeper conceptual understanding through collaborative engagement.

Another important feature of the DJOR model is the Own phase, which emphasizes self-regulated learning. After receiving feedback from peers and instructors, students revise their initial ideas and internalize their understanding. This process encourages learners to monitor their comprehension, evaluate the effectiveness of their strategies, and make adjustments when necessary. According to research on self-regulated learning by scholars such as Barry J. Zimmerman (2002), the ability to plan, monitor, and regulate one's learning strategies is essential for developing independent learners. By integrating this process into the structure of the model, the DJOR framework supports the development of reflective and autonomous learning behaviors among teacher education students.

The final Reflect phase further strengthens the pedagogical value of the model by promoting metacognitive awareness. Reflection activities encourage students to examine how their thinking evolved during the learning process, identify the strategies that were effective, and consider how they might improve their learning in future tasks. Reflective practice is widely recognized as a core component of professional teacher development. Scholars such as Donald A. Schön (1983) argues that effective professionals continually reflect on their actions and experiences in order to improve their practice. By embedding structured reflection into the learning process, the DJOR model helps preservice teachers develop habits of reflective inquiry that are essential for lifelong professional learning.

Overall, the integration of personalized exploration, collaborative evaluation, self-regulated learning, and reflective practice makes the DJOR model particularly relevant for contemporary teacher education. The model not only supports the acquisition of academic knowledge but also fosters the development of critical thinking, reflective judgment, and professional learning skills that future teachers need in rapidly changing educational environments.

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Implications for Teacher Education

The implementation of the Draft–Judge–Own–Reflect (DJOR) Personalized Learning Model offers several important implications for teacher education programs, particularly in the context of preparing future teachers to navigate complex and dynamic learning environments (Brown, 1992). As educational systems increasingly emphasize learner-centered instruction, reflective practice, and the integration of digital technologies, teacher education institutions are challenged to design instructional models that not only deliver content knowledge but also cultivate adaptive and reflective professionals. The DJOR model contributes to this goal by providing a structured framework that integrates personalized learning, collaborative inquiry, and metacognitive reflection within teacher preparation programs.

First, the DJOR model provides a systematic approach for integrating personalized learning into instructional design within teacher education. In many higher education settings, personalized learning is often interpreted primarily as technological customization through digital platforms. However, the DJOR model demonstrates that personalization can also be implemented through pedagogical structures that empower learners to actively construct their own learning pathways. In the Draft phase, students engage in independent exploration of learning resources and generate initial ideas based on their prior knowledge and interests. This phase supports learner variability and acknowledges that teacher candidates enter preparation programs with diverse academic experiences and learning preferences. By allowing flexibility in how students explore and interpret learning materials, the model creates opportunities for individualized meaning-making and deeper conceptual engagement.

Second, the DJOR model promotes reflective practice and the development of metacognitive awareness among teacher candidates. Reflection is widely recognized as a fundamental component of professional teacher learning (Hattie, 2012) because it enables educators to critically examine their teaching practices and continuously improve their instructional strategies. The Reflect phase of the DJOR model encourages students to analyze their learning experiences, evaluate the effectiveness of their learning strategies, and consider how feedback from peers and instructors influenced their understanding. This process supports the development of reflective practitioners, a concept strongly associated with the work of Donald A. Schön (1983), who emphasized that professional competence emerges through continuous reflection on practice. By embedding structured reflection within the learning process, the DJOR model helps teacher candidates cultivate habits of inquiry that are essential for their future roles as educators.

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Furthermore, the collaborative dimension of the model strengthens the professional learning culture within teacher education programs. The Judge phase facilitates peer evaluation and constructive dialogue, allowing students to examine multiple perspectives and refine their ideas through discussion. This collaborative process reflects sociocultural perspectives on learning, particularly the theory of social constructivism proposed by Lev Vygotsky (1978), which highlights the role of social interaction in cognitive development. Through peer critique and collaborative inquiry, teacher candidates learn to articulate their pedagogical reasoning, evaluate instructional decisions, and engage in professional dialogue—skills that are essential in real educational settings where teachers often work collaboratively with colleagues.

Third, the DJOR model has strong potential to be integrated with digital learning technologies (Siemens, 2005) such as learning analytics and artificial intelligence (AI). Although the model itself is fundamentally pedagogical rather than technology-driven, its structure can be enhanced through technological tools that support adaptive learning pathways. For example, learning analytics systems could be used to monitor students' progress during the Draft phase, identify patterns in their learning behaviors, and provide personalized feedback. Similarly, AI-supported platforms could assist instructors in analyzing peer feedback during the Judge phase or generate reflective prompts that guide students during the Reflect phase (Kirschner, 2006). These technological integrations would allow the model to maintain its learner-centered orientation while leveraging data-driven insights to support more responsive and adaptive learning environments.

Overall, the DJOR model offers a comprehensive framework for strengthening teacher education by combining personalized learning, collaborative knowledge construction, and reflective practice. By preparing teacher candidates to become reflective, adaptive, and self-regulated learners, the model contributes to the development of educators who are capable of designing meaningful learning experiences for diverse student populations in contemporary educational contexts.

CONCLUSION

This study proposes the Draft–Judge–Own–Reflect (DJOR) model as a personalized learning framework designed to support meaningful learning processes in teacher education contexts. The model responds to the growing need for instructional approaches that not only deliver academic knowledge but also foster learner autonomy, collaborative inquiry, and reflective thinking among teacher candidates. In contemporary higher education environments,

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especially within teacher preparation programs, students are expected to develop the capacity to think critically, regulate their own learning processes, and continuously reflect on their professional growth. The DJOR model offers a structured pedagogical approach that supports these learning goals through an integrated sequence of exploration, evaluation, internalization, and reflection.

Conceptually, the DJOR model integrates several key theoretical perspectives in learning science. The model is grounded in constructivist learning principles (Jonassen, 1999) that emphasize the active construction of knowledge through exploration and interaction. During the Draft phase, learners construct preliminary understandings based on their prior knowledge and learning experiences. The Judge phase introduces collaborative dialogue and peer feedback, reflecting the importance of social interaction in learning as emphasized by scholars such as Lev Vygotsky (1978). The Own phase supports the development of self-regulated learning, enabling students to revise and internalize knowledge through reflection and strategic adjustment of their learning approaches. Finally, the Reflect phase encourages metacognitive awareness by guiding students to analyze their learning processes and identify strategies for improvement.

By integrating these learning principles into a systematic instructional structure, the DJOR model contributes to the development of reflective and autonomous learners. This is particularly relevant in teacher education, where future educators must learn not only disciplinary knowledge but also how to evaluate their instructional practices and adapt to diverse classroom contexts. The model encourages teacher candidates to engage in iterative cycles of idea development, peer evaluation, and reflective learning, which mirror the professional practices of effective educators.

Although the conceptual design and initial implementation of the DJOR model demonstrate promising potential, further empirical research is needed to examine its effectiveness across different educational settings. Future studies could investigate how the model influences learning outcomes, student engagement, and the development of professional competencies among teacher candidates. Additionally, researchers may explore how the DJOR framework can be integrated with emerging educational technologies (Dziuban et al, 2018) such as learning analytics and artificial intelligence to support adaptive and data-informed learning pathways. Through continued research and refinement, the DJOR model has the potential to contribute to the advancement of personalized and reflective learning practices in teacher education.

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