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Beyond Templates: How AI is Reframing Lesson Planning and Cognitive Load in Preservice Teacher Education

Más allá de las plantillas: Cómo la IA está redefiniendo la planificación de clases y la carga cognitiva en la formación docente en prácticas

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Abstract
This chapter explores how generative AI tools like ChatGPT are reshaping lesson planning and cognitive load in preservice teacher education[1]. Grounded in Cognitive Load Theory and the TPACK framework, it presents two practice-informed tools: an AI-assisted lesson planning template and the A.I.D.E. framework (Align, Investigate, Differentiate, Evaluate). These resources support reflective, student-centered instructional design while positioning AI as a scaffold, not a shortcut. Rather than replacing teacher expertise, AI becomes a cognitive partner that reduces overload and supports pedagogical reasoning. The chapter offers a forward-looking approach to integrating AI in teacher training—one that prioritizes clarity, coherence, ethical use, and professional agency.

Keywords: Artificial Intelligence, Cognitive Load, Lesson Planning, Teacher Education, Reflective Practice, TPACK, ChatGPT.

1 AI-generated content may reflect biases, inaccuracies, or limited cultural responsiveness based on the data used to train the model. Educators must evaluate outputs critically to ensure instructional appropriateness and equity.

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Resumen

Este capítulo explora cómo las herramientas de IA generativa, como ChatGPT, están redefiniendo la planificación de clases y la carga cognitiva en la formación docente en prácticas[2]. En base a la Teoría de la Carga Cognitiva y el marco TPACK, se presentan dos herramientas prácticas: una plantilla de planificación de clases asistida por IA y el marco A.I.D.E. (Alinear, Investigar, Diferenciar, Evaluar). Estos recursos apoyan el diseño instruccional reflexivo y centrado en el estudiante, a la vez que posicionan la IA como un andamiaje, no como un atajo. En lugar de reemplazar la experiencia docente, la IA se convierte en un aliado cognitivo que reduce la sobrecarga y apoya el razonamiento pedagógico. El capítulo ofrece un enfoque innovador para la integración de la IA en la formación docente, priorizando la claridad, la coherencia, el uso ético y la autonomía profesional.

Palabras clave: Inteligencia Artificial, Carga Cognitiva, Planificación de Clases, Formación Docente, Práctica Reflexiva, TPACK, ChatGPT.

Introduction: More Than a Planning Template

Maria is a preservice teacher in her final semester of clinical fieldwork. She's been tasked with designing a third-grade lesson—but as she opens her laptop, she's already overwhelmed. Tabs are open for standards, templates, and activities, yet the screen in front of her remains blank. She knows she must align instruction to standards, differentiate for diverse learners, integrate technology, and develop meaningful assessments. But where should she start? What should she prioritize?

Maria's experience is not unique. Lesson planning is one of the most cognitively demanding and emotionally taxing parts of teacher preparation—especially during clinical practice, when novice teachers must apply theory in real time. In my work as a teacher educator, I've observed many candidates like Maria experience cognitive overload while trying to balance academic expectations with the lived realities of diverse classrooms.

One pattern I've noticed is the tendency for lesson planning to become a compliance task. Candidates often focus on "filling in" required template sections without fully considering what they'll be doing, saying, or modeling in the classroom. This isn't due to a lack of care—it's a symptom of cognitive strain. When overwhelmed by standards, pacing guides, and assessment demands, even dedicated candidates can treat planning as a performance rather than a thoughtful instructional process.

It was in these moments—between intent and execution—that I began asking: *What if we could offer something more than a template?* What if we could guide teacher candidates to think alongside a tool that scaffolds their thinking, prompts reflection, and encourages alignment with student needs?

2 El contenido generado por IA puede presentar sesgos, imprecisiones o una sensibilidad cultural limitada según los datos utilizados para entrenar el modelo. Los educadores deben evaluar los resultados de forma crítica para garantizar la pertinencia y la equidad de la instrucción.

This chapter explores how artificial intelligence (AI)—specifically, generative tools like ChatGPT—might serve as a thought partner in lesson planning. While AI in education is not new, its sudden accessibility has opened new conversations about its role in instructional design. Can AI reduce cognitive overload? Can it support professional decision-making without replacing teacher expertise?

Objective

To explore these questions, I designed a proposed study grounded in both cognitive load theory (Sweller, 2010 and the Technological Pedagogical Content Knowledge (TPACK) framework (Mishra & Koehler, 2006). These theories help illuminate the challenges teacher candidates face—and inform the design of tools that support both thinking and teaching. From this foundation, I developed the A.I.D.E. framework, a reflective model to guide candidates in thoughtfully engaging with AI-generated content as they plan.

Though this study is still in development, the chapter offers a practice-informed, design-oriented contribution to the growing conversation around AI in teacher education. I share the rationale, conceptual foundations, and tools I've developed to support preservice teachers in moving from compliance to cognition—designing lessons that are intentional, responsive, and grounded in pedagogy.

To begin with, we'll explore the purpose of lesson planning and the beliefs, habits, and challenges preservice teachers bring to the planning process before turning to the frameworks and tools that might support them.

Development/Methodology

Purpose of Lesson Planning

Lesson planning is a cornerstone of effective teaching, serving as both a roadmap for instruction and a tool for aligning objectives, strategies, and assessment (Sahin-Taskin, 2017). It helps teachers structure time, integrate standards, and design meaningful learning experiences that meet student needs (Brittin, 2005; Sahin-Taskin, 2017). When done well, lesson planning bridges theory and practice—connecting content, pedagogy, and materials in ways that foster coherence and student engagement.

For novice teachers in particular, well-structured plans offer guidance, reduce uncertainty, and build confidence by clarifying instructional sequences and anticipated student responses (Jensen, 2001). But despite its benefits, lesson planning is also cognitively demanding. It requires teachers to synthesize multiple components—learning goals, instructional strategies, differentiation, and assessment—while remaining flexible and responsive in real time.

These demands highlight why lesson planning should be supported not only with templates, but with tools that promote intentionality, reflection, and coherence—especially for those still developing their instructional judgment.

Teacher Dispositions Toward Lesson Planning

Preservice teachers' approaches to lesson planning are shaped by their beliefs, confidence, and prior experiences. While some view lesson plans as flexible tools for responsive teaching, others see them as rigid scripts or compliance tasks—affecting both the quality and adaptability of their instructional design (Jensen, 2001; Sahin-Taskin, 2017). Candidates who equate teaching with content delivery tend to favor teacher-centered lessons focused on coverage rather than student engagement or inquiry (Estrella, Zakaryan, Olfos, & Espinoza, 2020). In contrast, those who see planning as iterative and student-centered are more likely to incorporate project-based learning, real-time adjustments, and active learning strategies (Parrish & Byrd, 2022).

Confidence in content knowledge also plays a significant role. Preservice teachers who feel underprepared—particularly in STEM—often oversimplify lessons, default to rote methods, or avoid inquiry-based practices altogether (Estrella *et al.*, 2020; Koć-Januchta, Schonborn, Roehrig, Chaudhri, Tibell, & Heller, 2022). Motivation further influences planning: candidates driven to improve their teaching are more likely to reflect, revise, and adapt; those viewing planning as a task to complete often miss opportunities for meaningful differentiation (Ruys, Keer, & Aelterman, 2012).

Research shows that mentorship and peer collaboration can improve planning outcomes, reduce anxiety, and foster reflective habits (Belibi Enama, 2021; Ruys *et al.*, 2012). Supporting adaptive, reflective planning skills is essential to help preservice teachers shift from rigid designs to dynamic, student-centered instruction.

Lesson Planning Approaches

Preservice teachers' approaches to lesson planning are shaped not only by beliefs and confidence but also by external pressures that influence how they navigate classroom realities. While some candidates aspire to student-centered instruction, many find themselves defaulting to teacher-led, scripted formats due to concerns about pacing, classroom management, and curriculum demands (Sahin-Taskin, 2017).

Research shows that novice teachers often prioritize content delivery over student inquiry, fearing that open-ended activities may derail classroom control or leave too little time for standardized expectations (Koć-Januchta *et al.*, 2022; Küth & Scholl, 2024). In high-needs classrooms, in particular, candidates may rely on direct instruction to maintain order, even when it conflicts with their pedagogical ideals (Jalongo, Rieg, & Helterbran, 2007). These tensions are amplified by limited experience with inquiry-based methods and difficulty anticipating student misconceptions (Parrish & Byrd, 2022).

The result is a planning process often shaped more by *perceived constraints* than by instructional vision. To support more adaptive, student-centered design, teacher preparation programs must address not just the what of lesson planning—but the why and how behind instructional decisions. This means understanding the mental demands behind planning itself. To do that, we now turn to two foundational frameworks: cognitive load theory (CLT) and the TPACK model.

Theoretical Framing: The Cognitive and Instructional Demands of Lesson Planning

Lesson planning is not just a logistical task—it's a cognitively demanding process that requires teachers to integrate content knowledge, pedagogy, student needs, materials, assessment, and engagement strategies. For preservice teachers, it often feels like being handed a dozen spinning plates—each representing a critical instructional component—without knowing which one to focus on first. Without scaffolds to support their thinking, these tasks can feel overwhelming, leading candidates to focus on completion rather than coherence.

To better understand the complexity of lesson planning, we turn to two foundational frameworks: CLT and the TPACK model. Together, they help illuminate the challenges teacher candidates face and the types of tools that can support deeper instructional design.

Cognitive Load Theory (CLT)

CLT (Sweller, 2010) explains that working memory has a limited capacity, and instructional design should aim to reduce unnecessary cognitive effort. It identifies three types of cognitive load:

- Intrinsic load relates to the complexity of the content itself. In planning, this appears when candidates struggle to break down abstract concepts into teachable parts. For example, a candidate teaching multi-digit multiplication must ensure students understand place value and regrouping. If this foundational knowledge is assumed rather than explicitly taught, both teacher and student may experience overload (Koć-Januchta *et al.*, 2022; Parrish & Byrd, 2022).
- Extraneous load arises from how information is presented. Disorganized materials, redundant explanations, or cluttered templates can strain a novice teacher's working memory. For instance, a dense diagram paired with a disconnected explanation may split students' attention, reducing their ability to process new ideas (Tekkumru-Kisa & Stein, 2015).
- Germane load supports deep learning and schema building. This type of load is beneficial—but only when cognitive resources aren't already consumed by intrinsic or extraneous demands. Novice teachers often miss this opportunity by defaulting to procedural teaching. A vocabulary lesson may involve reading terms aloud rather than using them in context, missing a chance to foster deeper understanding (Parrish & Byrd, 2022).

CLT clarifies that lesson planning isn't difficult simply because it takes time—but because it involves constant decisions about what to teach, how to teach it, and how to sequence and support learning in ways that don't overwhelm the learner—or the teacher.

TPACK: The Instructional Integration Challenge

If CLT addresses the *mental effort* behind planning, the TPACK framework (Mishra & Koehler, 2006) addresses the *knowledge integration* teachers must achieve. It asks educators to weave together three domains—content, pedagogy, and technology—in a way that results in coherent, student-centered instruction.

- Content knowledge (CK) refers to what teachers know about the subject. Candidates with weak CK may rely on surface-level instruction, limiting opportunities for higher-order thinking or student inquiry (Estrella *et al*., 2020; Parrish & Byrd, 2022).
- Pedagogical knowledge (PK) includes strategies for how students learn best. Without it, lessons can become misaligned, overly teacher-directed, or lack scaffolds for diverse learners (Shulman, 1987).
- Technological knowledge (TK) involves selecting and using digital tools to enhance learning. This is often the most uneven domain for preservice teachers—some are comfortable with tools but unsure how to use them meaningfully; others avoid them altogether (Mouza, Yang, Pan, Yilmaz Ozden, & Pollock, 2017).

Planning through the TPACK lens is like conducting an orchestra—each domain must work in harmony. Yet many preservice teachers feel overwhelmed trying to keep these elements in sync, especially when one domain (e.g., content) dominates or another (e.g., technology) is unfamiliar.

Together, CLT and TPACK offer a fuller picture of the lesson planning challenge: Preservice teachers must make complex decisions while still learning how to think like designers. Yet many of the tools they're given—lesson plan templates and rubrics—prioritize task completion over professional reflection. While well-meaning, these tools often fail to help candidates navigate the layered cognitive and instructional demands they face.

As AI becomes more integrated into education, new possibilities are emerging to address these challenges. AI tools can assist with unpacking standards, generating objectives, suggesting strategies, and aligning materials—all tasks that place heavy demands on working memory. However, the goal isn't to automate thinking but to support it.

This raises a critical question: Can AI tools serve as reflective thought partners—not just content generators—during lesson planning? In the next section, I introduce an AI-assisted lesson planning template designed to scaffold instructional thinking for preservice teachers. I then present the A.I.D.E. framework, a reflective model created to help teacher candidates critically engage with AI-generated content—aligning it with standards, differentiating for learners, and refining instructional intent.

AI-Assisted Lesson Planning Template

One of the central tools developed in this proposed study is a scaffolded, AI-assisted lesson planning template created specifically to support preservice teachers. While traditional templates often emphasize completion and compliance, this version is intentionally designed to promote deep instructional thinking by embedding reflective prompts and AI integration throughout the planning process.

The template invites teacher candidates to engage with each component of lesson design—such as unpacking standards, identifying vocabulary, differentiating for diverse learners, and crafting objectives—while using tools like ChatGPT to generate examples and ideas. Importantly, it doesn't replace the teacher's decision-making but prompts them to think critically and refine their instructional plans based on pedagogical intent.

This design was directly informed by challenges observed during clinical fieldwork. Many preservice teachers expressed confusion about where to start or how to translate standards into clear, differentiated instruction. Others approached lesson planning as a checklist task, focusing on completion rather than instructional coherence. This tool was developed to shift that mindset—from compliance to cognition—by offering support that is both structured and flexible.

Unlike generic plug-and-play formats, the AI-assisted template includes targeted questions and cues that guide users to make instructional decisions with clarity and purpose. For example, candidates are prompted to:

- Paraphrase content standards
- Identify prerequisite skills
- Select vocabulary for explicit instruction
- Brainstorm question stems and engagement strategies
- Plan differentiated tasks for varied readiness levels

Each step encourages candidates to use AI suggestions as starting points, not final answers. By embedding AI at critical junctures in the planning process, the tool reduces the cognitive burden of starting from scratch, while keeping instructional ownership in the teacher's hands.

The design is grounded in CLT and the TPACK framework. CLT informed how prompts reduce extraneous cognitive load—for example, by helping candidates organize information, break down complex concepts, and prioritize key learning outcomes. TPACK informed how the template balances content, pedagogy, and technology, prompting candidates to consider not just *what* to teach, but *how* and *with what tools*.

This intentional structure helps novice teachers manage the mental demands of planning while ensuring alignment between objectives, instruction, and assessment. It also promotes confidence—by providing real-time AI examples that model rigor and responsiveness—without becoming prescriptive.

Although the full template is not included in this chapter due to its role as a research tool, the principles behind its design illustrate how AI can function as both a cognitive scaffold and a pedagogical support system. Rather than replacing human decision-making, it lightens the planning load and enhances candidates' ability to think more clearly, plan more intentionally, and teach more responsively.

Addressing Concerns: AI, Integrity, and Instructional Decision-Making

As promising as AI-assisted tools may be, they also raise critical concerns—especially in teacher preparation. Without explicit guidance, preservice teachers may fall into a copy-and-paste mindset, treating AI-generated content as finished products rather than entry points for instructional thinking. This can result in superficial planning, diminished pedagogical ownership, and lessons that feel disconnected from real student needs.

These risks are compounded by the fact that many teacher candidates are still developing their content knowledge, pedagogical reasoning, and professional confidence. When overwhelmed or unsure, it's tempting to let AI "fill in the blanks"—bypassing the deeper cognitive work that supports high-quality instruction. Overreliance on AI raises ethical and pedagogical questions:

- How much of a lesson can be machine-generated before a teacher's professional judgment is compromised?
- What does it mean to author a lesson in an AI-assisted world?

Another challenge lies in the polished fluency of generative AI tools like ChatGPT. Their outputs can appear instructionally sound, even when they lack nuance, coherence, or developmentally appropriate strategies. For novice teachers—especially those without the experience to critically evaluate suggestions—this can create a false sense of mastery. The very tools meant to support their growth may unintentionally short-circuit it.

If we want AI to serve as a tool for teacher development rather than a shortcut for task completion, we must go beyond templates. Preservice teachers need reflective frameworks that train them to *analyze*, *adapt*, and *own* the instructional decisions behind AI-generated content.

In the next section, I introduce the A.I.D.E. framework—a four-part model designed to help teacher candidates engage with AI not passively, but *professionally*: aligning it with student needs, investigating its validity, differentiating its output, and evaluating it through the lens of instructional intent.

The A.I.D.E. Framework: Partnering With AI Through Intentional Reflection

To support preservice teachers in using AI as a *thought partner* rather than a task manager, I developed the A.I.D.E. framework—a reflective structure that promotes intentional, ethical, and instructionally sound use of AI during lesson planning.

A.I.D.E. stands for:

- Align
- Investigate
- Differentiate
- Evaluate

Rather than accepting AI-generated materials at face value, the A.I.D.E. framework encourages candidates to *pause*, *assess*, and *adapt*. It shifts AI from a passive content provider to an active collaborator in the planning process—transforming automation into inquiry, and suggestion into strategy.

Designed with both CLT and the TPACK framework in mind, A.I.D.E. supports teacher candidates in managing planning overload (by reducing extraneous load), building meaningful schemas (through germane load), and integrating content, pedagogy, and technology with purpose. Each step prompts reflection—not as an afterthought, but as the foundation for professional decision-making.

A – Align: Begin With Standards, Objectives, and Student Needs

The first step, Align, anchors lesson planning in clarity and purpose. Preservice teachers are prompted to begin by understanding what students must know and be able to do. Before turning to AI for ideas, they examine content standards, interpret learning goals, and consider student data.

One of the most common missteps in AI-assisted planning is generating full lessons without grounding them in standards—leading to creative but misaligned instruction. Align addresses this by positioning the teacher candidate as the instructional lead, not the AI.

Candidates are encouraged to paraphrase standards, identify prerequisite skills, and define success criteria. AI can then be used to help unpack complex goals, brainstorm learning targets, or explore scaffolds—but always as a support, not a substitute.

Example: Rather than prompting ChatGPT to “create a third-grade reading lesson,” a candidate might begin with a state standard on character development. After paraphrasing it, they might ask: “What success criteria would show mastery of this skill?” or “What prerequisite understandings are needed to compare character responses in a story?” In doing so, AI becomes a scaffold—not a shortcut—for deeper instructional thinking.

I – Investigate: Question the AI's Suggestions, Don't Just Accept Them

Once planning is grounded in goals, the next step is to Investigate AI-generated content. This step trains candidates to treat AI suggestions with curiosity, not compliance—to analyze whether outputs are instructionally sound, culturally responsive, and appropriate for their specific learners.

Rather than accepting a strategy at face value, preservice teachers ask questions like:

- Does this align with my objective?
- Will it engage all learners, or only a few?
- What prior knowledge does this assume?

This step cultivates pedagogical reasoning and builds schemas (germane load) while strengthening the pedagogical domain of TPACK.

Example: If AI suggests a partner discussion for a reading lesson, a teacher might investigate: "Do my students have the language scaffolds needed for this?" or "Would this format benefit English learners?" This step reframes AI as an idea generator—*not* an instructional designer.

D – Differentiate: Adapt AI Suggestions to Support All Learners

Differentiate reminds candidates that planning must respond to the full range of learners in a classroom. AI may produce structured ideas, but it does not automatically account for varied readiness levels, IEPs, language needs, or cultural backgrounds.

Preservice teachers are encouraged to adapt, extend, and modify AI suggestions to make them more inclusive and equitable. This may include adjusting materials, integrating visuals or sentence stems, or designing multiple access points for learning.

Example: If AI suggests a peer discussion, a candidate might scaffold that task with visual supports, sentence starters, or structured roles for students who need more support.

This step strengthens pedagogical and technological knowledge (TPACK) while reinforcing the importance of planning for equity, not just efficiency.

E – Evaluate: Reflect, Revise, and Take Ownership

The final step, Evaluate, prompts teacher candidates to step back and assess the full lesson:

- Does this plan align with my instructional intent?
- Are all components coherent and responsive to student needs?
- What revisions are needed to ensure clarity, flow, and depth?

This stage encourages metacognition and reflection—essential practices for emerging educators. Preservice teachers consider not only the *what* of their lesson, but also the *why* and *how*. They assess whether AI enhanced or diluted their instructional voice and revise accordingly.

Evaluate reinforces the importance of reflection, ownership, and instructional coherence. It empowers teacher candidates to view AI not as a replacement, but as a reflective planning partner in their development as educators.

Why A.I.D.E. Matters

Together, the four components of the A.I.D.E. framework—Align, Investigate, Differentiate, and Evaluate—form a scaffold that helps preservice teachers use AI responsibly, creatively, and professionally. Each step supports reduced cognitive load, increased instructional coherence, and a stronger sense of pedagogical agency.

As AI becomes increasingly embedded in teacher preparation, we must move beyond *if* we should use it—and ask *how* we can use it well. Frameworks like A.I.D.E. help ensure that preservice teachers don't just plan faster, but plan smarter—with reflection, clarity, and care.

In the final section, I offer reflections and a call to action for the field—challenging us to embrace not just innovation, but intentionality as we shape the future of teacher preparation.

Conclusions: Designing With Intention, Teaching With Integrity

As AI becomes increasingly embedded in education, the conversation must move beyond curiosity to intentionality, responsibility, and vision. For those preparing future teachers, this means offering more than templates and rubrics. It means equipping candidates with tools that support critical thinking, ethical planning, and reflective practice in a world where human insight and artificial intelligence are becoming deeply intertwined.

The AI-assisted lesson planning template and the A.I.D.E. framework offer two entry points into this evolving practice. Together, they scaffold not just lesson construction, but the professional thinking behind it—empowering preservice teachers to manage complexity, reduce overload, and design more coherent instruction.

From the AI-assisted template to the A.I.D.E. framework, it's all about empowering preservice teachers to think, reflect, and decide—not to comply, copy, or perform.

These tools reframe AI not as a shortcut, but as a strategic partner in promoting clarity, connection, and pedagogical confidence.

This work is just beginning. As educators and researchers, we have a unique opportunity to shape how AI is introduced—not as a threat to expertise, but as a partner in professional growth.

What's Next?

As AI capabilities continue to evolve, future research should explore how frameworks like A.I.D.E. can inform the design of AI-powered planning tools that center reflection, equity, and instructional coherence. The goal is not just to generate content but to embed guidance that prompts educators to remain in creative control—planning with purpose, not compliance. By refining and extending the A.I.D.E. framework, we can help ensure that AI supports the development of pedagogical expertise, rather than replacing it.

I invite colleagues and collaborators to explore, challenge, and adapt this work within their own teacher preparation contexts. Together, we can move past hesitation and build a shared vision for AI use—one rooted in ethics, equity, and intentional practice.

So, as AI reshapes the planning process, let's ask: How do we ensure it also deepens, rather than dilutes, teacher agency?

Appendices

Appendix A: Overview of the AI-Assisted Lesson Planning Template

The AI-assisted lesson planning template is a scaffolded planning tool developed to support preservice teachers in designing intentional, standards-aligned, and differentiated lessons. While the complete template is not included here due to its status as part of a proposed study, this appendix provides an overview of its components and their intended function.

- Standards & Learning Objectives: Prompts guide users to paraphrase academic standards, identify prerequisite skills, and articulate clear, measurable objectives.
- Essential Vocabulary: Candidates identify and define key terms students must understand.
- Differentiated Strategies: Prompts support the design of tiered instructional tasks, guided groups, and scaffolds.
- Instructional Modeling: Prompts support users in planning teacher modeling of key skills or strategies.
- Guided Practice: AI-assisted prompts help generate sample questions, tasks, and groupings.
- Assessment: Prompts include suggestions for formative assessment methods aligned with objectives.

Appendix B: The A.I.D.E. Framework

The A.I.D.E. framework is a reflective model designed to support ethical, intentional, and effective use of AI during lesson planning. It encourages preservice teachers to partner with AI tools like ChatGPT while maintaining pedagogical ownership and instructional integrity.

A – Align: Begin with the standards, learning goals, and student needs. Teacher candidates paraphrase standards, identify prerequisites, and define success criteria before consulting AI for instructional suggestions.

I – Investigate: Examine and question AI-generated ideas. Candidates consider the alignment, effectiveness, and developmental appropriateness of suggested content or strategies, and adapt as needed.

D – Differentiate: Modify AI-generated ideas to meet the needs of diverse learners. Prompts encourage planning for ELLs, students with IEPs, and varied readiness levels.

E – Evaluate: Reflect on the overall plan for alignment, instructional coherence, and responsiveness to student needs. Candidates revise and refine their plans to ensure pedagogical soundness and ethical AI use.

Author's Note on Intellectual Property

I declare that there are no conflicts of interest. This work has not been published previously and is not under consideration for publication elsewhere.

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