

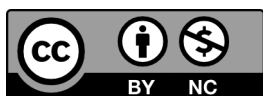
Effective Lesson Planning: A Pathway to Promoting Teacher Professional Development and High-Quality Teaching

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Abstract: Lesson preparation serves as the foundational starting point and critical phase of teaching, underpinning the creation of effective classrooms. Effective preparation enhances instructional quality and fosters teacher professional growth. Traditional research on lesson preparation often remains at a macro level, lacking detailed, practical guidance for frontline teachers, leading to a disconnect between “preparation” and “teaching”. This paper proposes the “Five-Stage Framework for Effective Lesson Preparation”, integrating cutting-edge educational concepts and innovative methodologies. It provides concrete, actionable guidance encompassing content reconstruction, determining instructional content and depth, selecting appropriate teaching methods, meticulously designing the instructional process, thorough preparation, and post-lesson reflection. The framework aims to elevate the effectiveness and innovativeness of lesson preparation, thereby promoting teacher professional development and enhancing teaching quality.

Keywords: Effective Lesson Preparation; Teaching Reform; Five-Stage Framework; Teacher Professional Development; High-Efficiency Teaching



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Lesson preparation, as the starting point and core activity of teaching, forms the basis for constructing effective classrooms. Richards (2017) emphasizes that systematic lesson preparation is crucial for ensuring teaching quality. However, amidst the deepening implementation of new curriculum reforms, advancements in artificial intelligence (AI), and the continuous evolution of educational philosophies, the limitations of traditional lesson preparation models in practical application are increasingly evident. Grounded in the current educational landscape, this paper constructs a “Five-Stage Framework for Effective Lesson Preparation” strategy, merging practical wisdom with forefront ideas, aiming to provide teachers with an actionable pathway for professional development

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1 Practical Dilemmas in Lesson Preparation

Research on traditional lesson preparation can be characterized as strong on macro principles but weak on practical details. While insightful, broad guidance like Sukhomlinsky's (2022) notion of "preparing lessons with one's life" in *Advice for Teachers*, or the common directives to "prepare the teaching materials, prepare the students, prepare the teaching methods", often lacks concrete translation into actionable steps. Shulman's (1986) Pedagogical Content Knowledge (PCK) theory underscores the organic integration of subject knowledge and pedagogy. Yet, many teachers lack operational guidelines to translate such theory into specific preparation behaviors, resulting in a disconnect between the prepared design ("preparation") and its implementation ("teaching").

Empirical studies reveal alarming trends: compulsory education teachers in China average 13.75 work hours daily, with over half exceeding 12 hours (Xue & Zhang, 2024). The "Double Reduction" policy has intensified demands on teachers' time for homework design and after-school services, leaving minimal time for lesson planning. Consequently, 60% of teachers rely on template-based planning, resulting in homogenized instruction that neglects individual student needs (see Table 1).

Table 1 Comparative analysis of teachers' daily work hours (adapted from Xue & Zhang, 2024)

Variables	Teaching affairs		Total	Non-teaching affairs
	Classroom teaching	Teaching support and management		
Whether to participate in after-school services				
Participated	2.97	9.82	12.79	1.14
Did not participate	3.10	7.57	10.67	0.79
Test result	$t=1.05$	$t=-7.77$	$t=-6.40$	$t=-3.31$
	$p=0.295$	$p=0.000$	$p=0.000$	$p=0.001$
Gender				
male	2.74	9.19	11.93	1.33
female	3.04	9.79	12.83	1.06
Test result	$t=-3.79$	$t=-3.30$	$t=-4.37$	$t=-4.21$
	$p=0.000$	$p=0.001$	$p=0.000$	$p=0.000$
Teaching stage				
Primary school	3.0	9.41	12.48	1.12
Junior high school	283	10.02	12.85	1.11
Test result	$t=3.58$	$t=-3.97$	$t=-2.10$	$t=0.22$
	$p=0.000$	$p=0.000$	$p=0.036$	$p=0.823$
Whether to be a head teacher or not				
Head teacher	2.90	10.39	13.29	1.20
Non-head teacher	3.03	9.22	12.25	1.07
Test result	$t=-1.84$	$t=7.56$	$t=5.90$	$t=2.39$
	$p=0.065$	$p=0.000$	$p=0.000$	$p=0.017$
Region				
City	3.00	9.66	12.66	1.13
Rural area	2.94	9.75	12.69	1.14
Test result	$t=0.93$	$t=-0.59$	$t=-0.16$	$t=-0.21$
	$p=0.352$	$p=0.554$	$p=0.874$	$p=0.829$

Currently, we are in the AI era, where AI-assisted lesson preparation is becoming increasingly prevalent. However, it is foreseeable that AI preparation will also be a double-edged sword. While significantly reducing teachers' preparation workload, it may also diminish teachers' patience with the preparation process and their internalization of knowledge. There is a risk that teachers may over-rely on technology, neglecting the enhancement of their own professional capabilities.

Therefore, there is an urgent need to explore an effective lesson preparation methodology that meets the demands

of modern teaching while providing teachers with concrete, step-by-step guidance.

2 The Five-Stage Framework for Effective Lesson Preparation

In light of the aforementioned challenges, this paper proposes the “Five-Stage Framework for Effective Lesson Preparation”, integrating forefront educational concepts to enhance the effectiveness and practicality of preparation, thereby promoting teacher professional development.

2.1 Content Reconstruction

The first stage is content reconstruction, which precedes determining “what to teach”, “how to teach”, and “how to assess”. Only then can the principle of “teaching with the textbook, not just teaching the textbook” (Ye, 2015) be truly realized. Content reconstruction involves the teacher’s personalized understanding and internalization of the textbook materials and is also key to implementing advanced concepts like large-unit teaching and project-based learning (Mao, 2024). Traditional preparation often focuses on textbook understanding and goal setting at later stages. In contrast, content reconstruction helps teachers deeply grasp the materials, teach with greater confidence, ensure content coherence and practicality, and avoid fragmented instruction.

2.1.1 Deep Textbook Analysis Integrating Advanced Concepts

Teachers must thoroughly study the textbook, familiarize themselves with knowledge points and organizational features, understand the compilers’ intent, and accurately identify the core concepts. Simultaneously, they should actively integrate advanced concepts like project-based learning (PBL) and large-unit teaching into their instruction. For instance, integrating knowledge points into large thematic units promotes deep learning and enhances students’ comprehensive abilities. Instructional content should be analyzed from dimensions like “Large Unit -> Lesson -> Sub-section” (Lyu, 2024). Moving beyond superficial traditional approaches, “content reconstruction” demands deep interpretation and internalization of the textbook, fostering innovation and helping teachers develop unique teaching styles.

2.1.2 The “Three-Pass Preparation” Method

Relying solely on teaching references leads to a lack of personal understanding and hinders effective teaching. Post-curriculum reform textbook updates necessitate content reconstruction by teachers. To avoid the “ready-made approach”, the “Three-Pass Preparation” method is recommended:

First Pass - Independent Study: Analyze the textbook without relying on teaching references, using one’s own knowledge and understanding of the students. Grasp the intent, contemplate how to integrate new concepts, and design teaching activities at a macro level.

Second Pass - Reference and Optimization: Building on the first pass, consult teaching references, exemplary lesson plans, and current research. Utilize AI tools (like DeepSeek, Wenxin Yiyan) to delve deeper into the materials, pinpoint integration points for new concepts, and optimize the preparation approach.

Third Pass - Expansion and Reorganization: Boldly reorganize and expand the textbook content. Reconfigure lessons based on practical needs, design projects or large-unit teaching that connect to students’ lives, and attempt interdisciplinary integration.

2.1.3 Determining Content Reconstruction Methods

Bruner's (1961) theory of discovery learning posits that learners construct knowledge through active exploration; teaching should stimulate intrinsic motivation and promote active learning. During preparation, teachers need a profound understanding of the materials to design activities that guide student exploration and knowledge construction. Constructivist learning theory views knowledge as actively constructed by learners through interaction with their environment. Vygotsky's (1978/2018) "Zone of Proximal Development" (ZPD) emphasizes the importance of social interaction and guidance. Teachers should consider how to design activities that scaffold student development within their ZPD during preparation.

Content reconstruction bridges the textbook and students' life experiences, enhancing practicality and engagement, aspects often overlooked in traditional methods. How can one confirm successful reconstruction?

Explain to a Layperson: Imagine explaining the lesson content to someone completely unfamiliar with the field. If you can make them understand it clearly, it demonstrates deep comprehension.

Simplify Complex Concepts: If explanation proves difficult, return to the source material or seek help. After re-examining the concept, articulate complex ideas in simple, accessible language.

2.2 Determining Instructional Content and Depth

Following content reconstruction, teachers must deeply consider "what to teach" and "to what depth". Textbooks contain vast content, but classroom time is limited. Teachers must select the most appropriate material for their students. Traditional methods often involve broad coverage based on the textbook. The Five-Stage Framework emphasizes precisely determining content and depth based on reconstruction, curriculum standards, and analysis of the student learning context.

2.2.1 Study Curriculum Standards to Define Content and Objective

Teachers should meticulously study the curriculum standards, breaking down broad course goals into specific lesson objectives. Clearly define the knowledge students need to understand, concepts to master, skills to develop, and values/attitudes to cultivate. This addresses "what to teach" and "to what level". Referencing the Teacher's Guide and considering student realities helps pinpoint teaching priorities, increasing focus and reducing ambiguity or arbitrariness in objectives.

2.2.2 Analyze Student Learning Context for Relevance

Preparation requires a thorough understanding of students' prior knowledge, cognitive abilities, and interests. This informs the selection of appropriate content, avoiding material that is too difficult or too easy, making instruction more relevant to students' lives and stimulating interest. Methods include questionnaires and classroom questioning.

In the AI era, teachers can leverage big data analytics tools to quantify student performance, precisely gauging appropriate difficulty and depth. Tracking data like assignment submission, test scores, and class participation helps identify weaknesses in specific knowledge areas, enabling targeted strategy adjustments. For example, a school implementing a classroom big data analysis system collects data on participation, responses, and assignment completion, generating reports on lesson overview, interaction, and cognitive engagement. This helps teachers identify weaknesses and students' needs. Adjusting preparation based on this data enhances teaching quality by making context analysis more precise and strategies more effective.

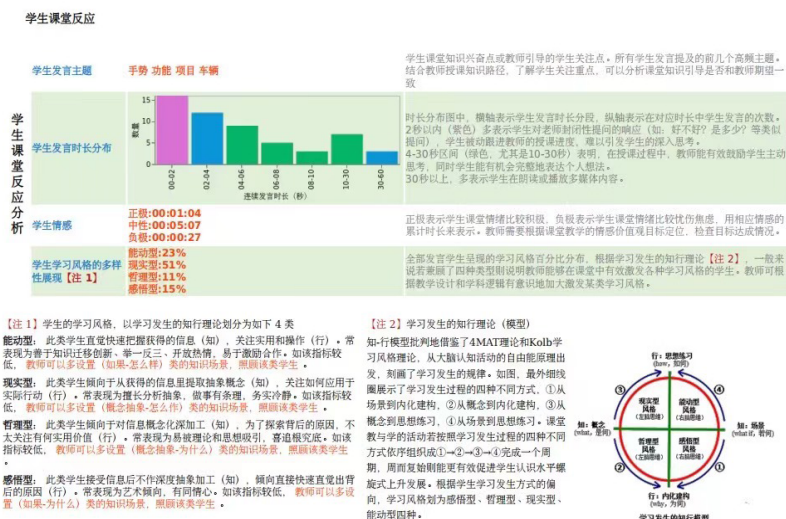


Figure 1 Example of classroom big data analysis: student response patterns

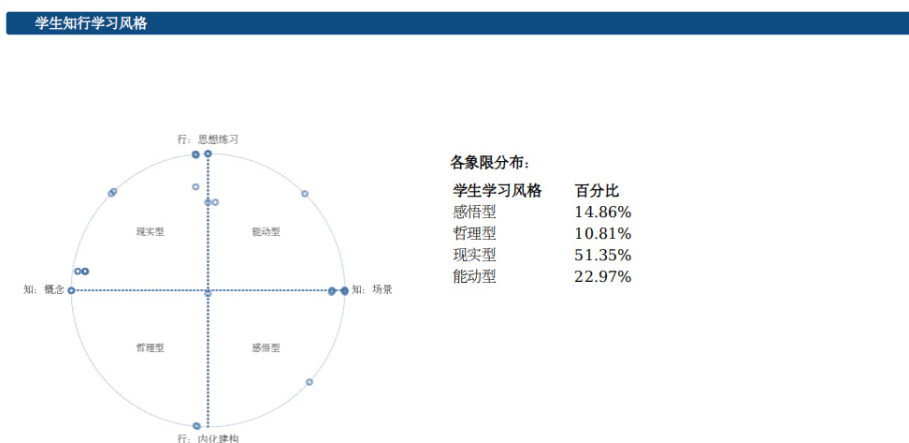


Figure 2 Example of classroom big data analysis: student learning styles

课堂互动质量		分值	参考范围	指标说明
指标				
S-T 模型			根据学习阶段和课程类型,教师设定和控制	S-T 记录了整个课堂师生对话的顺序和时长,直观呈现师生互动的时序,当曲线倾斜角小于45度时,表示老师活动占多数;倾斜角大于45度时,学生活动占多数。当某段倾斜角约45度时,表示在此段时间内老师学生互动充分。
弗兰德斯互动分析	弗兰德斯互动图		参考图片的橙色线条。	弗兰德斯互动分析,分析互动的质量,面积越大,互动质量越好。某个维度取值越高,表示该方面做的越好,参考P16
	激励学生主动参与互动	15.22%	大于10%	用教师接纳学生情感、称赞、接受学生想法、发出提问(弗兰德斯类1, 2, 3, 4)的时间片段占比来衡量,参考P21
	老师讲话总时长	00:17:10	15-28分钟	
	学生发言总时长	00:06:39		
	师生交互总次数	116	150-300	师生交互总次数,师生教和学行为互相转换的总次数,包括并不限于语言交互。
	师生问答次数	23		教师问问题且学生回答的总次数。
	教师提问 IRE	三种提问类型的分布 2:4:0	总量: 4-13	教师提问-学生回答-评价模式 (IRE) 分析,分为简单型、追问型、学生思考讨论再答型(次数),参考P12
	单个学生发言时长	最长(秒) 54.90 平均(秒) 7.27	10-30	
	课程结构设计的四维清晰度	103	大于102	具有四何典型特征的知识传递方式,包括提问或启示:用四何的总数来度量
	引发学生思考	启发性 0.30	大于0.42	弗兰德斯分析I/D: 教师开放型问答与命令型问答讲授的比值来衡量,反映了两种问答方式的相互竞争关系,数值越高表示越引起学生创造性思考,参考P21

Figure 3 Example of classroom big data analysis: quality of classroom interaction

2.2.3 Identifying Teaching Foci and Difficulties

Gagné's (1992/1999) hierarchy of learning outlines eight levels, from signal learning to problem-solving, emphasizing that instruction should progress from simple to complex based on students' cognitive level and readiness. Based on clear objectives and student context analysis, teachers should align goals with students' learning levels to determine the lesson's key focus (what is essential) and anticipated difficulties. For students at lower levels (e.g., concept learning, rule learning), the focus should be on understanding core concepts and basic rules; difficulties might lie in grasping abstract ideas, requiring teachers to use concrete examples or visuals. For higher-level students (e.g., problem-solving), the focus should guide them to synthesize knowledge to solve real problems; difficulties might involve complex applications, requiring the design of challenging scenarios or projects to cultivate analytical and problem-solving skills. Crucially, the teaching focus represents core content students must master, while difficulties are potential obstacles in understanding. Teachers need to design effective strategies to help students overcome these bottlenecks. Applying Gagné's hierarchy optimizes instructional design and effectiveness.

2.2.4 Integrating Curriculum Standards and Student Context Analysis

Curriculum standards provide the macro framework for content and objectives, while student context analysis allows for micro-adjustments based on actual learner capabilities and interests. Combining both ensures instructional content meets educational requirements while being suited to students' learning abilities and interests, thereby enhancing effectiveness. For example, preparing a math lesson: first, define knowledge points and objectives based on standards. Then, context analysis reveals that students struggle with spatial understanding of geometric shapes. Consequently, during content reconstruction, the teacher incorporates more hands-on manipulation and practical activities with geometric shapes, ensuring students grasp spatial concepts to the depth required by the standards.

2.3 Selecting Appropriate Teaching Methods

Having defined content and depth, teachers must address "how to teach". Method selection should center on student learning, aiming to stimulate initiative, enthusiasm, and cultivate self-directed learning abilities. This requires choosing methods based on content characteristics, student realities, and forefront educational concepts to achieve "teaching determined by learning".

2.3.1 Flexible Application of Diverse Methods

Classroom instruction relies on specific pedagogies. During preparation, teachers should comprehensively consider content, conditions, student context, and their own strengths to flexibly select methods, avoiding treating them as superficial formalities. Different lesson types, content, and student groups call for varied approaches: lecture, case analysis, discussion, inquiry-based learning, etc. For instance, teaching "Borrowing Arrows with Straw Boats" (Grade 5 Chinese), role-playing could be used where groups re-enact characters like Zhuge Liang, Zhou Yu, and Lu Su, deepening understanding of character traits and plot.

Furthermore, teachers should actively employ innovative methods like Project-Based Learning (PBL) or Problem-Based Learning. For example, designing authentic science projects where students learn by solving real problems. Depending on context, "Gamification" (designing content as games) or "Virtual Reality (VR) Teaching" (using VR for immersive environments) can be explored. In geography, VR could allow students to "visit" global landscapes,

enhancing the learning experience.

2.3.2 Emphasizing Student-Centeredness

Modern teaching philosophies emphasize student-centered approaches. Teachers should create opportunities for active participation through group discussions, cooperative learning, etc., fostering teamwork and critical thinking. New curriculum standards advocate for independent inquiry and collaborative learning. This requires teachers to utilize diverse organizational forms to cultivate students' inquiry and self-directed learning skills. For content focused on developing emotions, attitudes, and values, inquiry-based teaching is often more effective for understanding students' perspectives and guiding them towards sound values.

2.3.3 Utilizing Modern Information Technology

Constructivist learning theory posits that learning occurs through interaction within a context and social meaning-making. Educational technology theory suggests that deep integration of IT with curriculum fosters pedagogical innovation and improves efficiency and quality. AI, as a key driver of new-generation IT, is profoundly impacting education. Teachers can enrich instruction using multimedia, online resources, and AI, enhancing visual appeal, engagement, and efficiency. Example: Teaching "Food" in elementary English, a teacher could pre-record a video of themselves preparing food in the kitchen, naming ingredients in English. In class: "Can you name the foods in the video?" Then, using an interactive whiteboard, display food images that play the corresponding English word when clicked. Students engage visually, auditorily, and verbally, leading to deeper memorization.

2.4 Meticulously Designing the Instructional Process

Designing the instructional process is the core of preparation, directly impacting classroom teaching quality. Teachers must carefully plan each phase based on objectives, content, and student context, ensuring coherence and effectiveness. This stage integrates the previous steps and is vital for achieving teaching goals.

2.4.1 Independent Design Reflecting Individuality

Teachers should first conceptualize independently, designing a lesson plan based on their understanding of the materials and students, incorporating their style, forefront concepts, and innovation. This leverages teacher creativity and professionalism, prevents over-reliance on pre-made plans, and fosters unique teaching characteristics.

2.4.2 Referencing Materials to Optimize

Building on their independent design, teachers can consult the Teacher's Guide, exemplary lesson plans, and other resources, extracting valuable elements to optimize their plan. Learning from others' successes helps identify weaknesses and refine the process, but adaptation and innovation based on one's specific context are crucial—avoid direct copying.

2.4.3 Logical Sequencing and Flow Optimization

The instructional sequence should follow students' cognitive patterns. Steps like "Introduction -> Presentation -> Practice -> Application -> Extension -> Summary" should be arranged scientifically for progressive learning. Allocate time reasonably to each phase to avoid imbalance affecting effectiveness. Include buffer time for unforeseen classroom

situations. The design must highlight core knowledge, clarify key points and difficulties, and structure activities around them to help students overcome obstacles and achieve objectives.

2.4.4 Anticipation and Flexibility

Teachers should anticipate possible student reactions and questions, designing strategies to respond flexibly to actual classroom dynamics. Anticipation is a key part of design, aiding smooth progression. However, classrooms are dynamic; student responses may exceed expectations. Teachers need keen observation and adaptability to adjust plans based on student input, seizing opportunities for deep learning that arise spontaneously. Example: Teaching “Stepping Stones”, the teacher anticipates student unfamiliarity and prepares background material. If a student shares relevant experience, the teacher can adjust, inviting them to explain and facilitating interaction, enriching the atmosphere and deepening understanding.

2.5 Simulation, Preparation, and Continuous Improvement

Thorough preparation is key to teaching success. The often-overlooked steps of simulation and material readiness significantly enhance classroom efficiency and promote holistic student development (Fan & Wu, 2024).

2.5.1 Simulating the Teaching Process

Simulation is a vital preparation step. By rehearsing, teachers can anticipate student questions, misconceptions, and interaction dynamics, identify flaws in their design, optimize the flow, and improve classroom coherence and fluency. Practicing introductions, questioning techniques, discussion facilitation, and summarization builds confidence for handling the actual lesson smoothly.

2.5.2 Engaging in Educational Research

Sustained engagement in educational research is essential for teacher professional growth and effective preparation. Amidst deepening reforms and rapid knowledge updates, teachers face challenges and opportunities. Continuous research helps teachers understand pedagogical principles, enhance professional competence, and drive innovation in practice. Through research, teachers solve practical problems, reflect on experiences, develop unique styles, stay abreast of educational trends, and apply new ideas/technologies in the classroom, fostering student creativity and comprehensive abilities. Therefore, encouraging teachers to persist in research and continuous learning is vital for adapting to the times, improving educational quality, and achieving professional development.

2.5.3 Timely Teaching Reflection

Reflection is crucial for effective preparation and professional growth. Darling-Hammond (2006) notes that reflective practice enhances teacher professionalism. Each reflection involves scrutinizing practice and analyzing issues. Continuous reflection helps teachers clearly identify weaknesses for targeted improvement. After each lesson, promptly review the process, reflecting on goal achievement, method effectiveness, and student learning outcomes. Analyze successes and shortcomings. Student feedback is crucial; gather insights through observation, informal chats, or feedback forms to understand their experience and grasp of content. Pay attention to their questions and difficulties to adjust strategies and meet learning needs.

2.5.4 Learning from Master Teachers

Teachers can learn by observing master teachers (live or via recordings), studying their philosophies, methods, and techniques. Pay particular attention to how they integrate advanced concepts and AI, guide students, handle spontaneous classroom moments, and address teaching challenges. Actively participate in teaching research activities and conferences, exchanging ideas with peers and experts, seeking advice, and identifying gaps in one's own philosophy, methods, or expertise to clarify improvement paths and elevate teaching standards. Additionally, AI can be used to analyze student classroom performance or assignment data, providing objective insights for reflection (Peng & Feng, 2024). For instance, AI could analyze student attentiveness patterns, helping teachers identify potential teaching issues.

Based on reflection and insights gained from others, teachers can formulate specific improvement plans, experiment with innovative methods, and courageously practice and explore, continuously adapting to changes in the educational environment. Through persistent effort, teachers will steadily enhance their professional level, providing students with higher-quality education.

3 Conclusion and Outlook

Effective lesson preparation is pivotal for achieving high-efficiency classrooms and improving teaching quality. The “Five-Stage Framework for Effective Lesson Preparation” proposed in this paper aims to provide teachers with a systematic and actionable pathway. By integrating forefront educational concepts, teachers can systematically enhance the effectiveness and practicality of their preparation across the stages of content reconstruction, determining content and depth, selecting methods, designing the process, thorough preparation, and post-lesson reflection. This fosters their professional development and ultimately leads to effective classrooms and the holistic development of students.

Future research and practice could delve deeper into the following areas: First, expanding the scope of application by implementing the framework across more subjects and educational stages to verify its generalizability. Second, conducting in-depth mechanism studies to explore the intrinsic mechanisms and influencing factors of how the Five-Stage Framework impacts teacher professional development and reveals its specific effects on enhancing teaching outcomes. Third, tracking long-term effects through longitudinal studies to observe the framework's sustained impact on teacher growth and student development.

In conclusion, as educational reforms deepen and information technology rapidly advances, innovation and effectiveness in lesson preparation methods are paramount. It is hoped that this research offers valuable insights for teacher professional development and practice, inspiring more educators to explore and implement effective preparation strategies, collectively driving progress in education and teaching.

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