LEVERAGING SELF-REGULATED LEARNING PRINCIPLES TO ENHANCE INSTRUCTION AND LEARNING OF RESEARCH METHODS

Aprovechando los principios del aprendizaje autorregulado para mejorar la enseñanza y el aprendizaje de los métodos de investigación

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INTRODUCTION: Educational research requires mastering complex skills, such as conducting literature reviews, selecting research designs to address research questions, and collecting and analyzing data. The challenge, however, is that research methods course instructors often have difficulty helping students grasp and apply these skills and concepts. Grounded in self-regulated learning (SRL) theory, this paper delineates an approach for integrating SRL principles into research methods education to improve both teaching practices and student learning. **METHODS:** Using a content analysis approach, we examined instructional strategies aligned with SRL principles to enhance research methods instruction. Specific pedagogical features (Kitsantas et al., 2025) designed to stimulate and promote SRL skills included learning objectives, reflective prompts, takeaway messages, authentic scenarios that contextualize research practices, and sequenced instructional activities, such as *"Let's See It!", "Let's Do It!",* and *"You Do It!"*, that scaffold students from guided demonstrations to independent application. The integration of learning technologies within Learning Management Systems was also reviewed as a tool to support student autonomy and self-directed learning. **RESULTS:** The analysis illustrated that embedding SRL strategies into research methods instruction offers great potential for fostering student engagement, deepening conceptual understanding, and enhancing student confidence in conducting educational research. SRL-guided approaches can also equip students with transferable self-regulation skills that can be applied across teaching contexts. **DISCUSSION:** Applying SRL principles to research methods instruction has the potential to transform both curriculum design and teaching practices. Embedding SRL-enhancing activities and pedagogical practices can enhance students' ability to apply effective learning strategies to their learning as well as their development as critical and discerning consumers of research and long-term professional

growth. The insights gained highlight important implications for curriculum development and point to the need for future research examining the impact of SRL-based instructional models on student learning and research competencies, underscoring the transformative role that SRL can play in advancing research methods education.

Keywords: *Self-Regulated Learning, Research Methods Education, Educational Research, Teacher Development, Student Engagement, Motivation, Teacher Preparation, Challenges Learning Research Methods.*

Leveraging Self-Regulated Learning Principles to Enhance Instruction and Learning of Research Methods

Educational research is the systematic collection and analysis of data aimed at studying teaching and learning (Kitsantas et al., 2025). The research process includes various activities, ranging from conducting a literature review on a specific topic to using complex experimental methods to test the effects of new instructional approaches. This paper focuses on the perspectives of two key stakeholders within the context of educational research: instructors of research methods and the students enrolled in those courses. In this paper, students are broadly defined to include educators such as pre-service and in-service teachers, assessment specialists, school psychologists, school leaders, and other school-based practitioners. When students, regardless of professional role or focus, understand the nature and importance of research methods, they are better equipped to solve problems and address the challenges they will encounter in practice (Earley, 2014). In the context of student preparation, research methods courses equip students with the tools and knowledge needed to understand the purpose and significance of research conducted in educational settings.

In alignment with decades of empirical research, infusing self-regulated learning (SRL) pedagogical principles into educational or instructional contexts, like research methods courses, can profoundly improve teaching practices and enhance student learning outcomes (Bembenutty et al., 2013; Kitsantas & Dabbagh, 2010; Schunk & Greene, 2018; Zimmerman, 2013). In this paper, the authors address emerging challenges faced by instructors when teaching research methods courses and explore how SRL frameworks are ideally suited to empower students to become more planful, strategic, self-aware, and reflective in their learning (Bembenutty et al., 2013; Cleary et al., 2018; Cleary et al., 2022). Specifically, this paper leverages Zimmerman's three-phase cyclical model and four-level development model of SRL competency (Zimmerman, 2000, 2008, 2013) to inform and transform the teaching and learning of research methods in education. It also examines how SRL-promoting instructional strategies, such as learning objectives, reflective prompts, and takeaway messages, along with the inclusion of authentic scenarios, intentional use of structured and developmentally sequenced practice activities, and learning technologies within Learning Management Systems (LMS), can support and foster greater student autonomy and self-direction.

The paper addresses five key objectives: (a) highlight key aspects of educational research and the instructional challenges faced by instructors teaching research methods courses; (b) discuss how the forethought, performance, and self-reflection phases of Zimmerman's (2000) cyclical SRL model can address these challenges and guide the design of effective instructional strategies; (c) describe the utility of a four-level developmental model of SRL competency (Cleary et al., 2021; Zimmerman, 2013) for supporting student learning of research methods concepts; (d) describe

specific and practical SRL-enhancing instructional activities to be used in research methods courses, as reflected in a recently published research methods textbook *Essentials of Research Methods for Educators* (Kitsantas et al., 2025); and (e) discuss the benefits of integrating SRL theory into research methods instruction for enhancing teaching practices and student learning.

Teaching Research Methods to Students: Challenges, Relevance, and the Role of Self-Regulated Learning

Research methods courses are crucial in preparing students for successful careers in educational contexts. These courses equip professionals with the skills to design studies, collect and analyze data, interpret results, and contribute new findings that can improve educational practices. A solid understanding of research methods also enables students (i.e., prospective educators) to critically evaluate educational trends and practices, fostering a more evidence-based and reflective approach to teaching by engaging them in informed decision-making, such as using student performance data to inform instruction, identifying learning gaps, and adjusting their teaching strategies to improve student learning outcomes (Mandinach, 2012). Students can also engage in action research in their own classrooms, which can further contribute to the development of effective teaching practices. Despite the importance of research methods courses, many students find them challenging to understand and difficult to connect to their professional roles. For example, they often struggle to frame classroom-based issues as research questions or to identify appropriate methods for investigating those questions. This gap in connecting research methods concepts to practice can impact their data literacy, their ability to collect, analyze, and interpret data to inform educational decisions, making it harder for them to apply research insights effectively in practice (Mandinach & Gummer, 2016).

Although research concepts are not typically at the forefront of students' minds, educational research is a foundational and important component of effective teaching. Understanding how to conduct and, perhaps more importantly, to interpret published research is an essential skill set for prospective educators to make informed decisions about how to address emerging or critical issues in education. A thorny issue, however, is that research methods courses present unique challenges for both students and instructors (Earley, 2014; Kingsley & Robertson, 2017; Nind et al., 2015).

Student and Instructor Challenges in Research Methods Courses

Generally, students enrolled in research methods courses face several significant challenges. Many of these students may question the relevance of these courses given their perception that research is disconnected from their primary goal of teaching or professional practice (Earley, 2014). The technical jargon and abstract concepts emphasized in most research methods courses, such as hypothesis testing, power analysis, or internal validity, often feel remote from the practical realities of classroom work or professional settings. As a result, students who seek practical skills struggle to see how theoretical research concepts translate into meaningful practice.

Additionally, students frequently lack hands-on experiences to help them apply the concepts they learn, making it difficult for them to recognize the value of research methods for their teaching careers. High levels of anxiety and avoidance further compound these issues, especially among those who associate research methods with complex statistics or mathematics. Past negative

experiences can lead to low confidence, self-doubt, and resistance to engaging deeply with research material (Macheski et al., 2008; Sizemore & Lewandowski, 2009).

Instructors of research methods courses encounter their own set of challenges (Brinthaupt & Ananth, 2018; Ciarocco et al., 2017). A major difficulty lies in making research methods engaging and relevant for students with an educational focus. Many courses rely on hypothetical scenarios or examples disconnected from real educational contexts, preventing students from linking new concepts to their prior knowledge and experiences. Moreover, instructors often struggle to motivate students to engage with content that is abstract and unrelated to their core professional practices, such as lesson planning or classroom management. These perceptions can create barriers to learning and make it harder for instructors to demonstrate how research can inform and enhance practice. Compounding these issues is the limited guidance regarding how instructors can effectively teach research methods content while simultaneously addressing student anxiety, motivation, and autonomy in using research (Brinthaupt & Ananth, 2018; Earley, 2014; Wagner et al., 2011).

Self-Regulated Learning: A Concept for Transformative Change

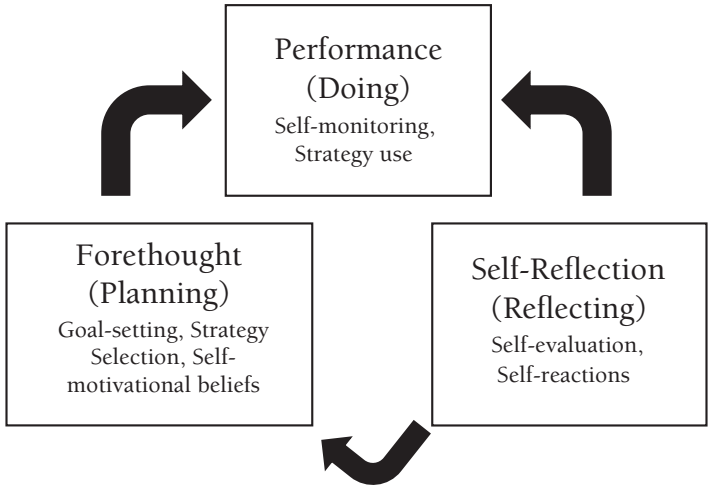
To address the challenges experienced by research methods instructors and the students taking these courses, this paper underscores the value and relevance of centering SRL principles within research methods course materials and instruction. To effectively teach research methods, instructors must recognize the specific concerns of students and adapt their teaching strategies to optimize course activities and assignments. Similarly, students often need prompts, modeling, and guided practice opportunities to independently learn and engage with unfamiliar or complex concepts. Leveraging decades of research illustrating the power of teaching SRL skills in school contexts (Cleary et al., 2022; Kitsantas et al., 2004; Zimmerman & Kitsantas, 2014; DiBenedetto, 2018), this paper emphasizes how viewing research methods activities and lessons as a series of self-regulatory events can strengthen the power of research method pedagogy.

SRL involves a cyclical process of setting goals, monitoring progress, and adjusting strategies, a concept which mirrors the process teachers undergo when refining their practices (Cleary, 2018; Kitsantas & Dabbagh, 2010; Kitsantas et al., 2004; Zimmerman, 2000). By aligning SRL with teaching research methods instruction, students will learn that research is both a skill to master and an integral tool for personal and professional development. Motivated by the idea of continuous improvement, students can learn to evaluate and contribute to the field, using research to address critical issues they encounter in their classrooms.

The central component of this paper is to use theoretically-rich and empirically-validated models of SRL, such as Zimmerman's (2000) three-phase cyclical model and four-level developmental model, to help instructors engage and empower their students taking these research courses to learn in a more self-directed and agentic manner. Using social cognitive principles, Zimmerman (2000, 2002) developed this cyclical model to describe the process through which individuals strategically and intentionally engage in learning activities to perform optimally. He argued that adaptive self-regulated learners engage in three broad phases of regulation during attempts to learn: forethought, performance control, and self-reflection. Learners engage in *forethought*, such as strategic planning and goal setting, before attempting some learning activity. These processes are hypothesized to influence *performance control* processes, such as enlisting strategic control

over one's thoughts, behavior, or environment during task completion, and engaging in self-observation to generate information about performance or the conditions facilitating or constraining one's learning. Finally, during the *self-reflection phase*, learners use self-monitored information or feedback from others to engage in self-reflection. This last phase involves evaluating outcomes and making necessary adjustments (see Figure 1).

Figure 1. The Cycle of the Three Phases of Self-Regulated Learning



A four-level developmental model was proposed (see Zimmerman & Kitsantas, 2005) to explain the process through which students can attain competency and mastery in their capacity to regulate. This developmental sequence emphasizes the role of social influences during the initial phases of SRL development, such as watching models perform a skill (observation) and then engaging in structured practice sessions (emulation). After students become proficient in the target strategy or skill, they shift to a more independent level of practice (self-control) until they reach the most autonomous and self-directed level (self-regulation) (Cleary et al., 2017; Kitsantas et al., 2000; Zimmerman & Kitsantas, 2002).

Zimmerman's models are widely recognized and regarded as highly influential practical frameworks frequently used by researchers and educators alike. In fact, in his review of common SRL theories, Panadero (2017) identified Zimmerman's three-phase cyclical model as the most highly cited model in the literature, perhaps due to its broad applicability to multiple domains and settings, such as education, sports, clinical, and behavioral health. There is also extensive research supporting the utility and mechanisms underlying both models (Cleary et al., 2006; Cleary et al., 2008; Cleary et al., 2017; Kitsantas et al., 2000; Zimmerman & Kitsantas, 2002, 2005). Most relevant to the purposes of the current paper, researchers and practitioners have enjoyed much success in using both models to guide instructional and intervention programs. For example, Cleary and colleagues (Cleary et al., 2008; Cleary et al., 2017) developed an academic remediation program that immersed middle school and high school students in strategic cycles of thinking and action (forethought, performance, reflection) to optimize their capacity to overcome learning challenges in school. During intervention sessions, the SRL coaches modeled key learning strategies, provided students with frequent practice opportunities, and supported their

eventual independence in using these strategies. The current paper leverages and applies these SRL implementation success stories to the design and teaching of research methods courses.

Central to our vision is conceptualizing research methods course content as a series of core pedagogical regulatory events. A core regulatory event is broadly defined in this context as a clear instructional objective with a clear beginning, middle, and end (to mirror the three-phase cyclical loop) and that can be attained using modeling, guided practice, and independent practice (to mirror the four-level model).

The use of SRL skills is most often required when students encounter challenges or barriers to success (Schunk & Greene, 2018; Zimmerman & Schunk, 2011). As noted previously, for many students, learning about or using research methods can be overwhelming and complex (Wagner et al., 2011). By leveraging models of SRL that have been used successfully to positively influence behavioral and learning outcomes, we hope to create empowering pathways for research methods instructors to interact with their students in innovative and potentially transformative ways.

Applying the Three-Phase SRL Model: Illustrative Examples for Teaching Research Methods

As discussed in the prior section, SRL can be viewed as a goal-directed process encompassing forethought (*planning*), performance (*doing*), and self-reflection phases (*reflecting*; Kitsantas et al., 2025). Below, the paper provides illustrative and practical examples of how instructors can leverage the three-phase cycle and the four-level developmental model to optimize their ability to teach research methods.

An advantage of the three-phase SRL model is that it can help instructors identify the key regulatory processes to target as students approach, engage in, and reflect on course activities or assignments. Consider a situation where an instructor, Dr. Mitch Johnson, wishes to teach students in his research methods course about conducting a literature review. The literature review is the task around which he hopes to immerse students in cyclical, regulatory thinking. At the outset, Dr. Johnson would help students break down tasks into component parts (task analysis), which stimulates students to set goals and select strategies to attain those goals. In fact, the goals set during the planning phase often serve as benchmarks for evaluating performance during self-reflection. It is also relevant for Dr. Johnson to foster students' self-efficacy beliefs to carry out their plans and reach their goals. Table 1 illustrates the key planning variables that Dr. Johnson can use to guide his students, like Melissa, in conducting a literature review. Melissa is very interested in learning more about teacher burnout, given its emergence as a critical issue.

Table 1. Teaching Melissa to Engage in Planning while Reviewing the Literature

Goal	Strategy for Reaching Goal	Motivational Beliefs
Conduct a literature review search by using three databases and identify five empirical research articles.	Select specific strategies for database selection, key terms, systematic searching; creating reference lists, etc.	I can handle this; I have a textbook by Kitsantas et al., (2025) from my teacher education program, and Chapter 2 will help me refamiliarize myself with conducting a literature search and develop greater confidence.

After goals and plans are established, Dr. Johnson would shift his focus to helping students enact key strategies (e.g., selecting key search terms systematically, creating a reference list) linked to conducting literature reviews; strategies that were identified during forethought and that emerge during task completion. In this performance control phase, Dr. Johnson would guide students to also monitor or track any successes or challenges during the literature review process. Table 2 illustrates the SRL processes of strategy enactment and self-observation that the instructor would use to help Melissa implement her selected strategies and engage in self-observation while executing her preliminary plans for conducting a literature search.

Table 2. Teaching Melissa to Carry out Her Plans

Strategy Use	Self-Recording
Use specific strategies outlined in the planning phase to search for articles.	Note the databases being used to search and keep track of any filters applied during the search, such as publication date range, peer-reviewed articles, full-text access, etc.

Having Melissa keep track of or notice her challenges and successes when engaged in the literature review activity is crucial to help her evaluate how well she performed, the reasons for her successes or struggles, and adaptations she may need to make to improve. Using his knowledge of how students reflect on their learning, Dr. Johnson helps Melissa think through this process. Table 3 shows how he guides her by asking questions that encourage her to talk about her reflections.

Table 3. Teaching Melissa to Reflect on her Strategic Attempts to Conduct a Literature Review

Self-Evaluation	Self-Reactions	Back to Planning
Did she conduct a comprehensive literature review on teacher burnout?? She located three empirical articles. She has partially met her goal. She attributes her progress to the use of her strategies.	Is she satisfied with her progress? She is somewhat satisfied.	She might need some help and opportunities to adapt in order to fully accomplish her goals.

One of the key aspects of the three phases of SRL (planning, doing, and reflecting) is its cyclical and iterative nature. That is, the information gathered during self-monitoring or feedback from others is used to engage in self-reflection, which in turn guides planning and goal setting in the next cycle of planning, doing, and reflecting. Getting students to think in this cyclical, goal-directed way enables them to become more cognitively and behaviorally engaged to engage in specific learning activities (Graham & Harris, 1993), such as learning research methods (Cleary et al., 2017). Equally important is structuring learning activities so that students can first observe and understand effective research practices before being asked to demonstrate skills in applying them effectively and independently.

Applying the Four-Level Model of SRL Development: Illustrative Examples for Teaching Research Methods

While the three-phase model can help instructors guide students' thinking and actions during research methods tasks, the four-level model informs instructors how to teach strategies and structure

practice opportunities for students. These four developmental levels provide a pedagogical framework for supporting an appropriate progression in teaching regulatory competence within a research methods course. The three-phase cycle model and the four levels of SRL competency complement each other. The phases outline specific processes that enable instructors to offer students a systematic approach to learning research principles and concepts, while the four levels describe the internal processes that help build students' self-efficacy and confidence to conduct research in their professional careers. It is important to recognize that developing SRL competencies is a gradual process requiring multiple and varied practice experiences (Cleary et al., 2018; Kitsantas et al., 2000; Schunk & Zimmerman, 1998). Table 4 outlines each level, with instructional examples to help instructors who are teaching research methods courses to build student SRL and consequently research competency.

Table 4. The Four Levels of Developing Self-Regulated Learning Competency in Beginning to Conduct Research

Level	Student examples	Instructional Examples
Observation	Students learn by watching a model demonstrate an activity (e.g., perform a literature search) or learn by reading or seeing examples in written form.	Instructor will model, step-by-step, how to identify a research topic, perform a literature search, formulate a research question, and conduct a literature review.
	Students likely display low levels of self-efficacy for the learning task in research methods.	Instructor will talk aloud and model their thinking to help build students' understanding and self-efficacy beliefs.
Emulation or Guided Practice	Students emulate what they watched demonstrated under the close supervision of their instructor.	Instructor provides students with different research topics and asks them to formulate research questions and conduct a brief literature review for each topic. Instructor scaffolds students during this in-class activity.
	Students" self-efficacy beliefs are contingent on feedback from the instructor.	Instructor provides constructive and informative feedback to help transition self-efficacy beliefs from social (instructor-based) to internal (student-based).
Self-Control	Students engage in tasks with limited direct supervision of their instructor.	Instructors assign for homework the activity of identifying a research topic, developing research questions, and conducting a brief literature review.
	Students' self-efficacy beliefs are important as they develop a sense of competence.	Instructor feedback needs to be less detailed and frequent as students demonstrate more competency.
Self-Regulated Competency	Students feel competent enough to engage in tasks independent of others.	Instructors are no longer needed but might be contacted if outcomes are not met.
	Students have internalized their feelings of competency and no longer need instructor feedback.	Students feel self-efficacious and competent in successfully completing the task independently.

A Method for Integrating and Teaching SRL into a Research Methods Course

In this section, we discuss and leverage several features and activities emphasized in a recently published textbook (Kitsantas et al., 2025) to illustrate the application of SRL theory and research. An underlying objective of this book is to use pedagogical practices that focus directly on SRL development. The textbook is intentionally structured and designed to use the three-phase

and four-level models to promote adaptive cycles of students' regulatory thinking and action. Specifically, four general categories of SRL-enhancing features are discussed: (a) integration of objectives, metacognitive prompts, and takeaway messages, (b) focus on educational scenarios through using *A Day at Work* scenarios, real-life datasets, and situations commonly experienced in school settings, (c) use of developmentally-sequenced activities to mirror the development of SRL competencies, and (d) use of technological features embedded within LMS and an innovative SAGE Vantage platform.

Integration of Objectives, Prompts, and Takeaway Messages

Each chapter in the Kitsantas et al. (2025) textbook was structured similarly and utilized the same SRL-enhancing features. Three key features that map directly onto the forethought, performance, and self-reflection phases of SRL include *learning objectives* (forethought and reflection), *Stop and Think* prompts (performance and reflection; see Figures 2 and 3), and *Takeaway* messages (performance and self-reflection). Each chapter begins by presenting a set of learning objectives – typically six or more – which are then used as section headers. Thus, when students begin a chapter, they see the entire set of objectives to attain. Because each objective reflects a separate chapter section, and is re-stated as the section begins, learners are continually reminded about the overarching section goal. Using regulatory verbiage, learning objectives represent the goals or standards against which students can self-evaluate their learning progress. By structuring each section as an objective or "measurable standard", students are taught to use the objectives as evaluative benchmarks against which to evaluate and reflect on their learning.

Figure 2. Example Stop and Think Prompt

STOP AND THINK

In reviewing the information presented in Table 5.3, can you identify which features address the issue of an effect and which ones address the causes of that effect?

Figure 3. Example Stop and Think Prompt

STOP AND THINK

What are some reasons for conducting a mixed methods study? Use a practical example to help you think through your answer.

Each chapter also uses *Stop and Think* prompts (as seen in Figures 2 and 3) to enable readers to (a) self-check their understanding of a target concept presented in the chapter (self-evaluation) and (b) enhance their self-awareness about how the target concept links to their personal experiences and perceptions (self-monitoring). The *Stop and Think* feature is a type of metacognitive

prompt designed to enhance student awareness about their learning of core concepts or how such concepts are linked to their role as students. For example, in Chapter 5 on experimental research design, a *Stop and Think* prompt is used to help students self-check their understanding of factors that enable researchers to determine the causes of an observed effect (see *Stop and Think* 5.1, p. 165). In Chapter 7, which addressed mixed methods designs, a *Stop and Think* prompt was used to have readers think about their own professional context relative to collecting quantitative and qualitative data (see *Stop and Think* 7.2, p. 280),

Finally, all chapter sections end with a *Takeaway* message. The *Takeaway* message is designed to serve a monitoring (performance) and evaluative function (reflection). By including clear, declarative summary statements about core research methods principles, students are better able to evaluate and confirm their understanding of the principle. Thus, in a holistic sense, each chapter uses these three features to help readers understand what they are trying to accomplish, increase their awareness about the quality of their learning, and solidify the key principles to be mastered.

Linking Research Methods to Critical Issues: A Day at Work Scenarios, Dialogues, Data Sets

Other features used in the textbook, which include real-world scenarios, dialogues, and data sets, are designed to help students make connections between course content and real-world situations. By making course content more relatable to students, instructors can foster a deeper understanding and retention of core concepts while also helping students experience a higher level of regulatory engagement (DiBenedetto, 2018; Schunk & DiBenedetto, 2022b).

To this end, each chapter begins with an *A Day at Work* scenario—a dilemma or critical issue commonly experienced in schools or related to professional practice. The *A Day at Work* scenarios are derived from the practical experiences of the authors and colleagues, reflect current trends in education, and have several characteristics in common (e.g., an education-related critical issue with no obvious solution; directly related to the content of that particular chapter; frequently referenced throughout the chapter as new concepts are introduced). These characteristics provide a consistent framework for understanding the application of research principles in real-world educational settings. Below, we present an *A Day at Work* scenario from Chapter 10 on sampling and measurement; the title of this scenario is "Measuring the Unique Abilities of Exceptional Learners" (Kitsantas et al., 2025, p. 396).

> *Mrs. Riegler is a second-grade general education teacher in a suburban city who has been teaching at her elementary school for almost 10 years. Her school district places a heavy emphasis on inclusion programs for students who are diagnosed with multiple disabilities. Prior to the start of the school year, Mrs. Riegler was introduced to Myron, a new student in her class. He had been diagnosed with behavior disorder (BD), oppositional defiant disorder (ODD), and attention deficit hyperactivity disorder (ADHD).*
>
> *Myron's Individualized Education Plan (IEP) shows that he was barely meeting grade level in reading, however, he did excel in oral comprehension and mathematics. To find the most developmentally appropriate instruction for Myron, Mrs. Riegler needs to assess and evaluate Myron's current reading level, which has proven to be a challenge due*

> *to his acting out. Many of Myron's previous teachers and counselors are very cautious around him because he has frequent anger and defiant outbursts which include becoming violent or running away. Myron's IEP team wants to develop a plan to help him manage his behavior and to build rapport; however, how do they approach data collection to capture the behavior and needs of this individual student?*

The *A Day at Work* scenarios share three key characteristics. First, they present an education-related critical issue without an obvious solution, such as academic struggles, bullying, diversity challenges like poverty, or co-teaching effectiveness. These scenarios engage students in thinking critically about educational problems and their connection to research, often depicting educators discussing how to address pressing school issues. Through these narratives, students see how research methods can help analyze complex problems and support effective decision-making. Second, each scenario directly relates to the chapter's content and concludes with a thought-provoking question or statement to prompt reflection on the issue in the context of upcoming research concepts. This approach serves as a "hook," sparking curiosity about how research can offer solutions. Third, the scenarios are revisited throughout the chapter as new concepts are introduced, making research ideas more relatable and engaging. This "spiraling" approach allows for deeper analysis and practical application of research methods. Table 5 summarizes examples of the *A Day at Work* scenarios and their related research topics, highlighting the connection between practice and research.

Table 5. Beginning with an A Day at Work Scenario: Connecting Research Methods to Practice

Chapter	A Day at Work Scenario	Research Methods Chapters Connecting A Day at Work Scenarios to Research Methods
1.	*Helping Students Succeed!* – a Day at Work scenario where two teachers disagree on the best instructional approach for struggling students.	*Introduction to Research* – describes the importance of conducting research and the relevance to educational practice.
2.	*Why Learning Doesn't Stick!* - a Day at Work scenario where teachers are frustrated about students not remembering content year to year.	*Reviewing the Literature* – provides an overview of how to conduct a literature review and how it may help students promote retention and learning.
3.	*Implementing Research Design in the Workplace!* – a Day at Work scenario where a superintendent wants to conduct a research study on infusing technology in the classroom and for creating effective mechanisms for home-school communication and collaboration.	*Research Design-The What, When, and How of Research* - outlines the various constructs in conducting research and how research can be conducted in various educational settings.
4.	*My Students Struggle to Manage Things!* – a Day at Work scenario where teachers are interested in exploring the sources of motivation and self-regulation in students.	*Non-Experimental Research Designs* – compares and contrasts various non-experimental research designs such as descriptive, correlational, and comparative and the relevant research questions, sample-related issues, and measurement.
5.	*Does What I do Actually Improve Student Learning?* – a Day at Work scenario where a teacher and her teaching assistant want to know whether a particular reading instructional program is effective or not.	*Experimental Research Designs* - describes true experimental, quasi-experimental, and single-participant experimental designs to help students conduct research that reveals cause and effect.

Overall, the real-world *A Day at Work* scenarios can help students better understand research methods content because they help make the content more relevant and familiar. Instructors can use these scenarios to bridge the gap between theory and practice, allowing their students to see how research methodologies can be used to solve critical issues they are facing or to answer research questions. Importantly, instructors can use the established *A Day at Work* scenarios presented in the textbook, or create similar scenarios that best reflect their students' specific needs or interests. The most essential element is to help make the research methods content more relatable, engaging, and applicable, thus increasing students' ability to grasp complex concepts and fostering a deeper understanding of how research methods can inform their professional practice.

Several chapters also present information in a conversational or dialogue format, enabling students to engage with the material through simulated discussions that mirror real-world conversations among educators, administrators, or researchers. For instance, dialogues might portray two teachers debating how best to interpret assessment data, or a principal and a research consultant discussing strategies for addressing declining student engagement. Such exchanges expose students to multiple viewpoints, practical problem-solving approaches, and the language professionals use when collaborating on educational issues.

This multi-dimensional emphasis on applied and real-world situations caters to diverse learning preferences, making research methods content more accessible and engaging for a broader range of students. Students who thrive on narrative or interpersonal communication may find dialogue formats particularly helpful for absorbing and retaining information. Additionally, this approach breaks up dense, technical content with relatable scenarios, improving overall comprehension and reducing the intimidation often associated with research methods.

Moreover, these applied and conversational elements are intentionally designed to create a dynamic learning experience that encourages active participation, critical thinking, and reflection. By engaging with dialogues, students practice analyzing situations, considering multiple perspectives, and proposing solutions, skills that are invaluable for understanding research methods concepts and for functioning effectively as educational professionals.

The use of data sets is another key feature of the textbook, thoughtfully designed to support SRL by engaging students in applied, active learning exercises. These data sets serve as practical examples that demonstrate how information gathered from authentic school or classroom contexts, such as student achievement scores, survey responses, attendance records, or behavioral data, can be systematically organized, interpreted, and used to guide meaningful decisions that impact both individual classrooms and the broader school community.

By providing an "insider's look" into the processes of collecting, analyzing, and applying data in real educational settings, the textbook equips students with firsthand experience of how research and evidence-based practices inform teaching and leadership decisions. This approach fosters critical SRL processes, including goal setting, strategic planning, monitoring progress, and reflecting on outcomes, enabling students to become more autonomous and intentional learners and practitioners.

Moreover, the textbook addresses common challenges that students encounter when working with data, such as ensuring data accuracy, managing large volumes of information, and translating complex analyses into actionable insights. Through guided activities, students gain practical skills in data cleaning, selecting appropriate analysis techniques, interpreting results, and communicating findings to diverse stakeholders. These experiences are vital for building data literacy skills, which are increasingly essential for self-directed problem-solving and for implementing informed, effective educational practices that respond to the evolving needs of schools and communities.

Let's See It! Let's Do It! and You Do It! Activities

Another prominent feature in the book includes the use of three sequential activities that directly mirror the four-level developmental model: *Let's See It!, Let's Do It!,* and *You Do It!* activities. Teaching students about research methods principles or strategies begins with modeling key behaviors (*Let's See It*!), providing opportunities for guided practice with feedback (*Let's Do It*!), and creating additional opportunities for independent practice (*You Do It*!). In short, this three-activity sequence progresses from demonstration and modeling to independent practice using real-world situations. The sequenced set of activities can be especially helpful when teaching challenging concepts that may take several practice attempts, like understanding internal validity in experimental designs or how to distinguish conceptual and operational definitions. The example below illustrates this *Let's See It! Let's Do It!* and *You Do It!* sequence in action regarding how to distinguish the meaning of a construct or concept (conceptualization) and the specific ways to measure variables that reflect that concept (operationalization). To engage students in this process, we used different research studies to model the targeted skills and then to offer different levels of practice.

Let's See It! (Observation)

Let's See It! activities represent the observation level of the SRL development framework. Thus, they are designed to help students see the essence of a given principle or concept. Table 6 presents a *Let's See It!* activity from the Kitsantas et al. (2025) textbook that helps readers distinguish between the theoretical framework (conceptualization) and the specific measures (operationalization) used to understand the relationship between homework practices, self-regulatory beliefs, and academic achievement.

For conceptual and operational definitions, the instructor can begin by showing a table that explicitly breaks down how a research variable is conceptualized and operationalized within the context of a full research article (see Table 6). For example, the instructor can demonstrate how self-efficacy is conceptualized as a student's belief in their ability to regulate learning, while it is operationalized through a self-efficacy scale with specific items. This "modeling" activity allows students to observe this distinction before practicing it themselves.

Table 6. Observation Level: Let's See It!

Let's See It!

Observation: Identify how Different Variables are Conceptualized and Operationalized in a Research Article

Kitsantas, A., & Zimmerman, B. J. (2009). College students' homework and academic achievement: The mediating role of self-regulatory beliefs. *Metacognition and Learning*, *4*(2), 1556-1623. https://doi.org/10.1007/s11409-008-9028-y

Look at the table below to see how we identified how these variables might be operationalized or measured.

What are the research questions?	Do the quality and quantity of college students' homework predict their academic achievement in an educational psychology class? Do students' self-efficacy and perceived responsibility for learning beliefs mediate the relationship between homework experiences and students' academic achievement in an educational psychology class?
What are the variables of interest?	Self-efficacy for academic learning Perceived responsibility for academic learning Homework quality and quantity Current academic achievement Prior academic achievement
How are these variables conceptualized?	*Self-efficacy for academic learning:* students' beliefs about their abilities to successfully self-regulate their learning activities *Perceived responsibility for academic learning:* students' attributions related to their learning processes and outcomes *Homework quality:* types of positive homework practices in which students engage *Homework quantity:* homework frequency/time spent on homework
How are these variables operationalized?	Self-Efficacy for Learning Form (SELF; 19 items) Perceived Responsibility for Learning Scale (18 items) The Quantity of Homework Scale (2 items) The Quality of Homework Scale (5 items) Educational Psychology course grades (current academic achievement) Entrance scores on the SAT (prior academic achievement)

Let's Do It! (Emulation)

The *Let's Do It!* activity aligns with the emulation or guided practice level of the SRL development model. In these activities, readers are encouraged to actively engage with the target concepts by performing some action and then to self-evaluate using answer keys in the textbook or feedback from instructors. The *Let's Do It*! Activities serve as a bridge between observation and independent practice, allowing students to initially practice and apply what they have learned in a structured, supportive environment. In other words, they help students refine their abilities in a controlled setting, where they can practice the skills before they are expected to master them on their own. Specifically, after the instructor models the concept, students engage in guided practice. The instructor can lead students through exercises where they work together to conceptualize and operationalize other research variables using another empirical study (see example below in Table 7). For example, the class can be given a new variable, like *motivation,* and asked to develop a conceptual definition and an operational definition. Students can practice the skill of

creating their own definitions, making the process even more practical and tangible. The instructor would then provide real-time feedback, correct misconceptions, and guide students toward more accurate definitions. This activity encourages students to apply their learning actively, reinforcing how to translate abstract concepts into measurable terms.

Table 7. Emulation Level: Let's Do It!

Let's Do It!

Guided Practice: Practice Identifying how Different Variables are Conceptualized and Operationalized in a Research Article

Read the article listed below and answer the questions in the table to help you understand how variables are operationalized or measured in research, following the example above.

Kitsantas, A., Winsler, A., & Huie, F. (2008). Self-regulation and ability predictors of academic success during college: A predictive validity study. *Journal of Advanced Academics (Special Issue)*, *20*(1), 42-68. https://doi.org/10.4219/jaa-2008-867

What are the research questions?	Does students' prior ability, self-regulatory processes and motivational beliefs during the first year of college predict their academic performance at the end of the first and second years of college?
What are the variables of interest?	Self-regulation (metacognitive and time management strategies) Motivational beliefs (task value, self-efficacy, and test anxiety) Student's prior ability Academic performance
How are these variables conceptualized?	*Self-regulation:* "the degree to which students are metacognitively, motivationally, and behaviorally active participants of their own learning process" (p. 42) *Task value:* attainment value (personal importance), interest value (personal enjoyment), and utility value (personal usefulness) *Self-efficacy:* students' beliefs about their abilities to successfully accomplish a certain task *Test anxiety:* a cognitive, emotional, physiological, or behavioral response that results from the anticipation of negative testing outcomes

You Do It! (Self-Control)

As part of *You Do It!* activities, which correspond to the self-control level of the SRL development model, students demonstrate their understanding independently, without relying initially on instructor support or feedback. At this level, students are expected to apply the strategies and SRL processes learned in previous activities to complete a more complex task on their own. The *You Do It!* activities are designed to stimulate students' use of self-regulation skills, as they must plan, execute, observe, and reflect on their behaviors to successfully and independently apply what they have learned. Students might be tasked with reading a research article (see Table 8 below) and identifying how the authors conceptualized and operationalized different variables. They can also be asked to design their own study with clearly defined variables. Students take full responsibility for defining concepts and operationalizing them. This can be challenging, but it allows for deep personal engagement with the material.

Table 8. Self-Control Level: You Do It!

You Do It!	
Independent Practice: Practice Identifying how Different Variables are Conceptualized and Operationalized in a Research Article	
Read the article listed below and answer the questions in the table to help you understand how variables are operationalized or measured in research, following the example above.	
Sundre, D. L., & Kitsantas, A. (2004). An exploration of the psychology of the examinee: Can examinee self-regulation and test-taking motivation predict consequential and non-consequential test performance? *Contemporary Educational Psychology*, *29*(1), 6-26. https://doi.org/10.1016/s0361-476x(02)00063-2	
What are the research questions?	Does students' self-regulation and test taking motivation predict test performance in a personality psychology course under consequential and non-consequential testing conditions?
What are the variables of interest?	Students' self-regulation strategies Test taking motivation Test performance in a personality psychology course
How are these variables conceptualized?	*Self-regulation:* students' abilities to regulate their thoughts and behaviors towards the accomplishment of self-determined learning goals (i.e., SRL) *Test taking motivation:* willingness and/or desire to put forth the necessary effort required to succeed on tests
How are these variables operationalized?	Interview based on the Self-Regulated Learning Interview Schedule (SRLIS; self-regulation strategies) Student Opinion Scale (SOS; test taking motivation) Personality psychology course tests (multiple choice items and an essay)

In sum, the *Let's See It!, Let's Do It!,* and *You Do It!* features reflect a sequenced set of activities designed to enhance the development of strategic and regulatory skills of readers as they learn course content. This sequenced approach embodies the premise that students often need to first observe a strategy and how it works, and then receive frequent practice and feedback before they can independently complete an activity. In a sense, this feature is designed to reduce the extent to which students feel overwhelmed, thereby enhancing their confidence in learning complex research concepts (e.g., internal validity, sampling, qualitative research analyses).

Teaching and Learning Research Methods through an LMS

The abstract and unfamiliar nature of research methodology often makes it challenging for students to learn and apply (Earley, 2014). Additionally, poor pedagogical design, inadequate learning materials, and a lack of practical examples contribute to these challenges. As Nind et al. (2015) pointed out, there has been a relatively minimal scholarly focus on how to effectively teach research methods. Incorporating **digital platforms** and **learning analytics** through LMS features can significantly enhance the learning experience by supporting student self-regulation (Kitsantas et al., 2019; Kitsantas & Dabbagh, 2010). By providing students with tools for goal setting, time management, and progress monitoring through learning technology tools in LMS platforms can help foster a sense of ownership over the learning process (Kitsantas, 2014). Simultaneously, learning analytics give instructors the ability to track progress, identify learning

gaps, and provide personalized feedback, ensuring that every student receives the support they need to succeed. This integrated approach to learning ensures that students apply what they learn in real-world scenarios while continuously improving through data-driven insights.

Learning analytics could be represented by charts, graphs, or dashboards, showing how student progress is tracked. For example, a teacher might have access to an analytics platform like the SAGE Vantage platform displaying real-time data about a student's performance (e.g., completion of tasks, quiz scores, time spent on assignments). For example, the interactive features of Vantage, such as quizzes and auto-graded assessments, provide instructors with the ability to track student progress (Kitsantas et al., 2025). Furthermore, artificial intelligence (AI) tools can also offer insights into learning challenges, such as identifying students who are struggling with specific concepts or tracking overall progress. Teachers can use these insights to adjust their teaching methods or provide personalized support to students. For example, an instructor might be reviewing student data on a digital device, making annotations, or offering tailored feedback. The instructor could then recommend specific resources or activities based on the analytics, showing the role of feedback loops in personalized learning.

Discussion

This paper underscores the importance of infusing SRL principles and concepts within the context of research methods courses. It focused on two commonly used SRL frameworks (three-phase cyclical model; four-level developmental model) as the conceptual basis for the various pedagogical practices and features. The use of specific SRL-enhancing and related pedagogical practices, highlighted in Kitsantas et al. (2025), demonstrates the feasibility and value of this integrative and empowering approach for both instructors and students.

Instructor Benefits of Integrating SRL into Research Methods Teaching

For instructors, SRL is not merely a pedagogical consideration; rather, it is a foundational framework for enhancing students' ability to handle the significant challenges of learning research. Research methods courses often elicit anxiety and self-doubt, particularly for those who are less familiar with scientific methodologies, statistical tools, and the rigor used in academic research (Kitsantas et al., 2025). Many pre-service and in-service teachers taking research methods courses, often approach these courses with hesitation, often due to poor self-efficacy, limited research experience, or skepticism about its relevance to teaching. SRL-enhanced pedagogical practices address these personal challenges by promoting self-efficacy, goal setting, and strategic planning, allowing students to see their progress and take ownership of their learning (Zimmerman et al., 2015, 2017). Research consistently highlights how self-efficacy, which is the belief in one's ability to perform specific behaviors, plays a central role in sustaining students' engagement and learning despite challenges (Bembenutty et al., 2013; Schunk & DiBenedetto, 2022a, 2022b). Self-efficacy and the cyclical process of SRL are reciprocally related. As students engage in the iterative phases of planning, performance, and reflection, they learn optimally and enhance their success. As emphasized in Kitsantas et al. (2025), when learners begin to experience small wins through clearly defined and achievable goals, such as mastering a research design concept or successfully conducting a data analysis, they develop a stronger belief in their ability to execute

those research-related behaviors. As self-efficacy beliefs increase, students are more likely to display greater persistence, curiosity, and investment in learning. Such motivational gains are fundamental to building long-term academic resilience and self-directed learning, both of which are essential skills for students engaging in evidence-based practice (Cleary et al., 2018; Zimmerman & Schunk, 2011).

Further, SRL provides instructors with tools to scaffold learning effectively. For example, as demonstrated in Kitsantas et al. (2025), initial instruction might focus on guided practice—where instructors model how to apply research methods and solve problems—followed by opportunities for independent practice with structured feedback. Over time, students internalize these strategies, becoming more adept at managing their learning processes and confidently designing, conducting, and analyzing research independently. This, in turn, enhances their persistence, motivation, and engagement in future efforts to regulate their learning.

The Kitsantas et al. (2025) textbook reinforces this premise by offering applied activities and strategies that help instructors embed SRL principles into their teaching, making the learning process more structured, strategic, and student-centered. Reflection questions and quizzes in digital platforms like Vantage allow instructors to differentiate instruction and understand student needs more effectively. These features provide important insights into the concepts students grasp well and where they are struggling, which enables instructors to adjust lesson plans, revisit challenging topics, or offer targeted support to specific individuals or groups. For example, if quiz results reveal that many students are confused about selecting appropriate statistical tests, the instructor can plan additional guided practice or create supplementary resources to reinforce those skills.

Similarly, instructors can use *Let's See It!* activities to model key concepts, use "*Let's Do It!*" activities for guided practice, and *You Do It!* activities for independent work. This gradual progression towards independent practice is key for complex, multi-step tasks, such as designing and conducting research. For example, an instructor might first demonstrate how to create a research question and outline a study (*Let's See It!*), then guide the class in drafting research questions together (*Let's Do It!*), and finally have students independently practice creating research questions (*You Do It!*), ensuring they apply each step of the research process.

Overall, for instructors, the SRL frameworks discussed in this paper offer guidance for designing more effective and engaging teaching practices. Implementing SRL principles in research methods instruction is expected to significantly enhance students' motivation and engagement by promoting self-efficacy, goal setting, and strategic planning (Zimmerman et al., 2015, 2017).

Student Benefits of SRL in Learning Research Methods

The purpose of embedding SRL principles in instruction is to benefit both instructors and students. When taking research methods courses, many students are asked to engage in complex and often abstract tasks, such as designing research studies, analyzing data, and interpreting results. By embedding SRL principles as central features of course activities and materials, students will have a greater chance of engaging with, refining, and applying course content to their personal and lived experiences.

SRL helps students set meaningful goals, such as breaking a research project into manageable steps and creating timelines for activities like literature reviews, data collection, and analysis. It enables strategic planning and organization by helping students anticipate obstacles and choose appropriate methods in advance, avoiding last-minute confusion. SRL also supports active engagement during research tasks; for example, students might use visualizations or tables to interpret data trends while working with datasets. It also fosters flexibility and adaptability, allowing students to shift to alternative methods confidently when their initial analysis techniques do not work as expected.

Moreover, SRL encourages students to monitor their own progress and make real-time adjustments, such as using checklists or digital tools to identify when additional review or support is needed. It promotes deep reflection and continuous improvement, as students can assess feedback on a research report to pinpoint strengths and areas for growth. SRL also cultivates critical thinking and problem-solving skills by guiding students to evaluate whether their chosen research designs effectively answer their questions, rather than simply following a set of steps. Ultimately, deploying SRL-enhancing pedagogy can build students' confidence and persistence, as successfully navigating challenging tasks strengthens their belief in their abilities and motivates them to tackle even more complex research projects in the future. Together, these benefits make SRL an essential component in helping students master the demands of research methods courses.

Beyond the classroom, SRL-infused instruction offers significant long-term benefits for students' professional development. An anticipated outcome of embedding SRL into research methods instruction is the development of stronger strategic thinking and applied research competence. Zimmerman's cyclical model of SRL promotes active planning, monitoring, and reflection, which are directly transferable to the stages of conducting research. As students engage in forethought activities such as setting goals, anticipating challenges, and choosing strategies, they become more adept at planning research projects and aligning them with educational goals. During the performance phase, students learn to self-monitor their understanding of research procedures, adjust their approach when needed, and seek timely support. The self-reflection phase fosters critical evaluation of their strategic processes and outcomes, enabling students to learn from setbacks and refine their methods. These outcomes reflect Zimmerman's developmental model of SRL, where learners gradually internalize self-regulation processes. Kitsantas et al. (2025) show how hands-on activities support students in internalizing skills progressively, enabling them to handle increasingly complex research tasks. As a result, students emerge with greater competence and self-efficacy in designing, conducting, and interpreting research.

Further, students trained through an SRL lens are not just learning about research—they are learning about themselves as researchers. Enhancing student metacognitive awareness fosters lifelong learning and reflective practice. Students who regulate their research-related learning are more likely to engage in reflective inquiry, use data to inform instruction, and evaluate program effectiveness in their classrooms or schools (DiBenedetto, 2018). Moreover, by internalizing SRL strategies, students are better equipped to teach these same strategies to their students, creating a ripple effect that enhances self-directed learning across K–12 and higher education (Cleary et al., 2017). As Kitsantas et al. (2025) emphasize, SRL not only supports student success in research methods courses, but also empowers them to become critical thinkers, problem solvers, and change agents in their professional or educational communities.

In summary, a SRL pedagogical approach guides students to engage in strategic, goal-directed learning and supports their development as self-regulated learners within research methods contexts. By immersing SRL-focused principles and activities in research methods courses, instructors will naturally provide students with opportunities to better manage their learning beyond the classroom, developing habits that help them continuously refine and apply their research skills. However, while this discussion provides general recommendations and a potentially useful framework for integrating SRL into research methods instruction, there remains a clear need for empirical research to examine how SRL strategies can meaningfully impact the teaching and learning of research methods.

References

Bembenutty, H., Cleary, T. J., & Kitsantas, A. (Eds.) (2013). *Applications of self-regulated learning across diverse disciplines: A tribute to Barry J. Zimmerman*. Information Age Publishing.

Brinthaupt, T. M., & Ananth, P. (2018). Teaching students to speak "fluent" research. *Scholarship of Teaching and Learning in Psychology, 4*(4), 258–270. https://doi.org/10.1037/stl0000128

Ciarocco, N. J., Strohmetz, D. B., & Lewandowski, G. W., Jr. (2017). What's the point? Faculty perceptions of research methods courses. *Scholarship of Teaching and Learning in Psychology, 3*(2), 116–131. https://doi.org/10.1037/stl0000085

Cleary, T., Kitsantas, A., Pape, S., & Slemp, J. (2018). Integration of socialization influences and the development of self-regulated learning (SRL) skills: A social-cognitive perspective. In G. A. Liem & D. M. McInerney (Eds.), *Big theories revisited 2* (pp. 269–295). Information Age Publishing.

Cleary, T. J., Kitsantas, A., Peters-Burton, E. E., Lui, A., McCleod, K., Slemp, J., & Zhang, X. (2022). Self- regulated learning professional development: Shifts and variations in teacher outcomes and approaches to implementation. *Teaching and Teacher Education, 111*, Article 103619. https://doi.org/10.1016/j.tate.2021.103619

Cleary, T. J., & Platten, P. (2013). Examining the correspondence between self-regulated learning and academic achievement: A case study analysis. *Education Research International, 2013*, Article 272560. https://doi.org/10.1155/2013/272560

Cleary, T. J., Platten, P., & Nelson, A. (2008). Effectiveness of the Self-Regulation Empowerment Program with urban high school students. *Journal of Advanced Academics, 20*(1), 70–107. https://doi.org/10.4219/jaa-2008-866

Cleary, T. J., Velardi, B., & Schnaidman, B. (2017). Effects of the Self-Regulation Empowerment Program on middle school students' strategic skills, self-efficacy, and mathematics achievement. *Journal of School Psychology, 64*, 28–42. https://doi.org/10.1016/j.jsp.2017.04.004

DiBenedetto, M. K. (Ed.) (2018). *Connecting self-regulated learning and performance with instruction across high school content areas*. Springer.

DiBenedetto, M. K., & Schunk, D. H. (2021). Motivating students and their teachers through self-regulated learning and reframing assessment language. In S. L. Nichols & D. Varier (Eds.), *Teaching on assessment* (pp. 57–82). Information Age Publishing.

Earley, M. A. (2014). A synthesis of the literature on research methods education. *Teaching in Higher Education, 19*(3), 242–253. https://doi.org/10.1080/13562517.2013.860105

Graham, S., & Harris, K. R. (1993). Self-regulated strategy development: Helping students with learning problems develop as writers. *The Elementary School Journal, 94*(2), 169-181.

Kingsley, B. E., & Robertson, J. M. (2017). Exploring reticence in research methods: The experience of studying psychological research methods in higher education. *Psychology Teaching Review, 23*(1), 4–19.

Kitsantas, A. (2002). Test preparation and test performance: A self-regulatory analysis. *Journal of Experimental Education, 70*(2), 101–113. https://doi.org/10.1080/00220970209599501

Kitsantas, A. (2014). Fostering student self-regulation with learning technologies. *Hellenic Journal of Psychology, 10*, 235–252.

Kitsantas, A., Baylor, A. L., & Hiller, S. E. (2019). Intelligent system support to optimize performance: Augmenting cognitive capacity and supporting self-regulation of critical thinking skills in decision making. *Cognitive Systems Research, 58*, 387–397. https://doi.org/10.1016/j.cogsys.2019.09.003

Kitsantas, A., Cleary, T., DiBenedetto, M. K., & Hiller, S. (2025). *Essentials of research methods for educators*. Thousand Oaks, CA: SAGE Kitsantas, A., & Dabbagh, N. (2010). *Learning to learn with integrative learning technologies (ILT): A practical guide for academic success*. Information Age Publishing.

Kitsantas, A., Reiser, B., & Doster, J. (2004). Goal setting, cues, and evaluation during acquisition of procedural skills: Empowering students' learning during independent practice. *Journal of Experimental Education, 72*(4), 269–287.

Kitsantas, A., Winsler, A., & Huie, F. (2008). Self-regulation and ability predictors of academic success during college: A predictive validity study. *Journal of Advanced Academics, 20*(1), 42–68. https://doi.org/10.4219/jaa-2008-867

Kitsantas, A., & Zimmerman, B. J. (2009). College students' homework and academic achievement: The mediating role of self-regulatory beliefs. *Metacognition and Learning, 4*(2), 155–162. https://doi.org/10.1007/s11409-008-9028-y

Kitsantas, A., Zimmerman, B. J., & Cleary, T. (2000). The role of observation and emulation in the development of athletic self-regulation. *Journal of Educational Psychology, 92*(4), 811–817. https://doi.org/10.1037/0022-0663.92.4.811

Macheski, G. E., Lowney, K. S., Buhrmann, J., & Bush, M. E. L. (2008). Overcoming student disengagement and anxiety in theory, methods, and statistics courses by building a community of learners. *Teaching Sociology, 36*(1), 42–48.

Mandinach, E. B. (2012). A perfect time for data use: Using data-driven decision making to inform practice. *Educational Psychologist, 47*(2), 71–85. https://doi.org/10.1080/00461520.2012.667064

Mandinach, E. B., & Gummer, E. S. (2016). *Data literacy for educators: Making it count in teacher preparation and practice*. Teachers College Press.

Nind, M., Kilburn, D., & Luff, R. (2015). The teaching and learning of social research methods: Developments in pedagogical knowledge. *International Journal of Social Research Methodology: Theory & Practice, 18,* 455– 461. http://dx.doi.org/10.1080/13645579.2015.1062631

Panadero, E. (2017). A review of self-regulated learning: Six models and four directions for research. *Frontiers in Psychology*, *8*, 422. http://dx.doi.org/10.3389/fpsyg.2017.00422

Schunk, D. H., & DiBenedetto, M. K. (2022a). Academic self-efficacy. In M. J. Furlong, R. Gillman, & E. S. Huebner (Eds.), *Handbook of positive psychology in the schools* (3rd ed., pp. 268–282). Routledge.

Schunk, D. H., & DiBenedetto, M. K. (2022b). Self-efficacy and engaged learners. In A. L. Reschly & S. L. Christenson (Eds.), *Handbook of research on student engagement* (2nd ed., pp. 155–170). Springer Nature.

Schunk, D. H., & Greene, J. A. (Eds.) (2018). *Handbook of self-regulation of learning and performance* (2nd ed.). Routledge.

Schunk, D. H., & Zimmerman, B. J. (Eds.) (1998). *Self-regulated learning: From teaching to self-reflective practice*. Guilford Publications.

Sizemore, O. J., & Lewandowski, G. W., Jr. (2009). Learning might not equal liking: Research methods course changes knowledge but not attitudes. *Teaching of Psychology, 36*(2), 90–95.

Sundre, D., & Kitsantas, A. (2004). An exploration of the psychology of the examinee: Can examinee self-regulation and motivation predict consequential and non-consequential test performances? *Contemporary Educational Psychology, 29*(1), 6–26. https://doi.org/10.1016/S0361-476X(02)00063-2

Wagner, C., Garner, M., & Kawulich, B. (2011). The state of the art of teaching research methods in the social sciences: Towards a pedagogical culture. *Studies in Higher Education, 36*(1), 75–88. https://doi.org/10.1080/03075070903452594

Zimmerman, B. J. (2000). Attaining self-regulation: A social cognitive perspective. In M. Boekaerts, P. R. Pintrich, & M. Zeidner (Eds.), *Handbook of self-regulation* (pp. 13–39). Academic Press.

Zimmerman, B. J. (2008). Investigating self-regulation and motivation: Historical background, methodological developments, and future prospects. *American Educational Research Journal, 45*(1), 166–183. https://doi.org/10.3102/0002831207312909

Zimmerman, B. J. (2013). From cognitive modeling to self-regulation: A social cognitive career path. *Educational Psychologist, 48*(3), 135–147. https://doi.org/10.1080/00461520.2013.794676

Zimmerman, B. J., & Kitsantas, A. (2002). Acquiring writing revision and self-regulatory skill through observation and emulation. *Journal of Educational Psychology, 94*(4), 660–668. https://doi.org/10.1037/0022-0663.94.4.660

Zimmerman, B. J., & Kitsantas, A. (2005). The hidden dimension of personal competence: Self-regulated learning and practice. In A. J. Elliot & C. S. Dweck (Eds.), *Handbook of competence and motivation* (pp. 204–222). Guilford Press.

Zimmerman, B. J., & Kitsantas, A. (2014). Comparing the predictive power of self-discipline and self-regulation measures of learning. *Contemporary Educational Psychology, 39*, 145–155. https://doi.org/10.1016/j.cedpsych.2014.03.004

Zimmerman, B. J., & Schunk, D. H. (Eds.) (2011). *Handbook of self-regulation of learning and performance*. Routledge. https://doi.org/10.4324/9780203839010

Zimmerman, B. J., & Schunk, D. H. (2012). Motivation: An essential dimension of self-regulated learning. In D. H. Schunk & B. J. Zimmerman (Eds.), *Motivation and self-regulated learning: Theory, research, and applications* (pp. 1–30). Routledge.

Zimmerman, B. J., Schunk, D. H., & DiBenedetto, M. K. (2015). A personal agency view of self-regulated learning: The role of goal setting. In F. Guay, R. Craven, H. Marsh, & D. McInerney (Eds.), *Self-concept, motivation and identity: Underpinning success with research and practice* (pp. 83–114). Information Age Publishing.

Zimmerman, B. J., Schunk, D. H., & DiBenedetto, M. K. (2017). Role of self-efficacy and related beliefs in self-regulation of learning and performance. In A. Elliot, C. Dweck, & D. Yeager (Eds.), *Handbook of competence and motivation* (2nd ed., pp. 313–333). Guilford Press.

Resumen

Aprovechando los principios del aprendizaje autorregulado para mejorar la enseñanza y el aprendizaje de los métodos de investigación

INTRODUCCIÓN: La investigación educativa requiere dominar habilidades complejas, como realizar revisiones de la literatura, seleccionar diseños de investigación apropiados para abordar preguntas de investigación y la recopilación y el análisis de datos. Sin embargo, el reto radica en que los instructores de cursos de métodos de investigación a menudo tienen dificultades para ayudar a los estudiantes a comprender y aplicar estas habilidades y conceptos. Basado en la teoría del aprendizaje autorregulado (AAR), este artículo presenta un enfoque para integrar los principios del AAR en la formación en métodos de investigación con el fin de mejorar tanto las prácticas docentes como el aprendizaje de los estudiantes. **MÉTODO**: Utilizando un enfoque de análisis de contenido, examinamos estrategias de instrucción alineadas con los principios del AAR para mejorar la enseñanza de los métodos de investigación. Las características pedagógicas específicas (Kitsantas et al., 2025) diseñadas para estimular y promover las habilidades de AAR incluyeron objetivos de aprendizaje, preguntas de reflexión, mensajes clave, escenarios auténticos que contextualizan las prácticas de investigación y actividades de instrucción secuenciadas, como "*¡Veámoslo!*", "*¡Hagámoslo!*" y "*¡Hazlo tú!*», que guían a los estudiantes desde las demostraciones guiadas hasta la aplicación independiente. También se revisó la integración de tecnologías de aprendizaje en los Sistemas de Gestión del Aprendizaje (LMS) como herramienta para fomentar la autonomía y el aprendizaje autodirigido del estudiante. **RESULTADOS**: El análisis mostró que la integración de estrategias de AAR en la enseñanza de métodos de investigación ofrece un gran potencial para fomentar la participación estudiantil, profundizar la comprensión conceptual y aumentar la confianza de los estudiantes en la investigación educativa. Los enfoques guiados por el AAR también pueden proveer a los estudiantes de habilidades de autorregulación transferibles que se pueden aplicar en diversos contextos de enseñanza. **DISCUSIÓN:** La aplicación de los principios del AAR a la enseñanza de métodos de investigación tiene el potencial de transformar tanto el diseño curricular como las prácticas docentes. Incorporar actividades y prácticas pedagógicas que fomenten el AAR puede mejorar la capacidad de los estudiantes para aplicar estrategias de aprendizaje efectivas, así como su desarrollo como consumidores críticos y analíticos de la investigación y su crecimiento profesional a largo plazo. Los conocimientos obtenidos destacan importantes implicaciones para el desarrollo curricular y señalan la necesidad de futuras investigaciones que examinen el impacto de los modelos de instrucción basados en el AAR en el aprendizaje y las competencias de investigación de los estudiantes, subrayando el papel transformador que el AAR puede desempeñar en el avance de la enseñanza de métodos de investigación.

Palabras clave: *Aprendizaje autorregulado, Educación en métodos de investigación, Investigación educativa, Desarrollo docente, Participación estudiantil, Motivación, Formación del profesorado, Desafíos en el aprendizaje de métodos de investigación.*

Résumé

Exploiter les principes de l'apprentissage autorégulé pour améliorer l'enseignement et l'apprentissage des méthodes de recherche

INTRODUCTION: La recherche en éducation nécessite de la maîtrise de compétences complexes, telles que la réalisation de revues de littérature, le choix de méthodologies de recherche pour répondre aux questions de recherche, ainsi que la collecte et l'analyse de données. Cependant, les enseignants en méthodes de recherche ont souvent du mal à aider les étudiants à maîtriser et à appliquer ces compétences et concepts. Fondé sur la théorie de l'apprentissage autorégulé (AAR), cet article présente une approche permettant d'intégrer les principes de l'AAR à l'enseignement des méthodes de recherche afin d'améliorer les pratiques pédagogiques et l'apprentissage des étudiants. **METHODES:** L'utilisation de l'approche d'analyse de contenu, nous a permis d'examiner les stratégies pédagogiques utilisées qui sont conformes aux principes de l'AAR afin d'améliorer l'enseignement des méthodes de recherche. Parmi les dispositifs pédagogiques spécifiques (Kitsantas, et al., 2025) conçus pour stimuler et promouvoir les compétences en AAR, on compte des objectifs d'apprentissage, des pistes de réflexion, des messages à retenir, des scénarios authentiques contextualisant les pratiques de recherche et des activités pédagogiques séquencées, telles que « Regardons-le ! », « Faisons-le ! » et « Fais-le ! », qui guident les étudiants depuis les démonstrations guidées jusqu'à l'application autonome. L'intégration des technologies d'apprentissage aux systèmes de gestion de l'apprentissage a également été étudiée comme un outil favorisant l'autonomie et l'apprentissage autodirigé des étudiants. **RESULTATS:** L'analyse a montré que l'intégration de stratégies d'AAR dans l'enseignement des méthodes de recherche offre un potentiel considérable pour favoriser l'engagement des étudiants, approfondir leur compréhension conceptuelle et renforcer leur confiance dans la conduite de recherches en éducation. Les approches guidées par l'AAR peuvent également doter les étudiants de compétences d'autorégulation transférables dans différents contextes d'enseignement. **DISCUSSION:** L'application des principes de l'AAR à l'enseignement des méthodes de recherche pourrait transformer la conception des programmes et des pratiques pédagogiques. L'intégration d'activités et de pratiques pédagogiques favorisant l'AAR peut améliorer la capacité des étudiants à appliquer des stratégies efficaces à leur apprentissage, ainsi que leur développement en tant qu'utilisateurs critiques de la recherche et leur développement professionnel à long terme. Les connaissances acquises mettent en évidence des implications importantes pour l'élaboration des programmes et soulignent la nécessité de futures recherches examinant l'impact des modèles pédagogiques basés sur l'AAR sur l'apprentissage des étudiants et leurs compétences en recherche, mettant en évidence le rôle transformateur que l'AAR peut jouer dans l'avancement de l'enseignement des méthodes de recherche.

Mots-clés : *Apprentissage autorégulé, Méthodes de recherche en éducation, Recherche en éducation, Développement des enseignants, Engagement des étudiants, Motivation, Préparation des enseignants, Défis des méthodes de recherche en apprentissage.*

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