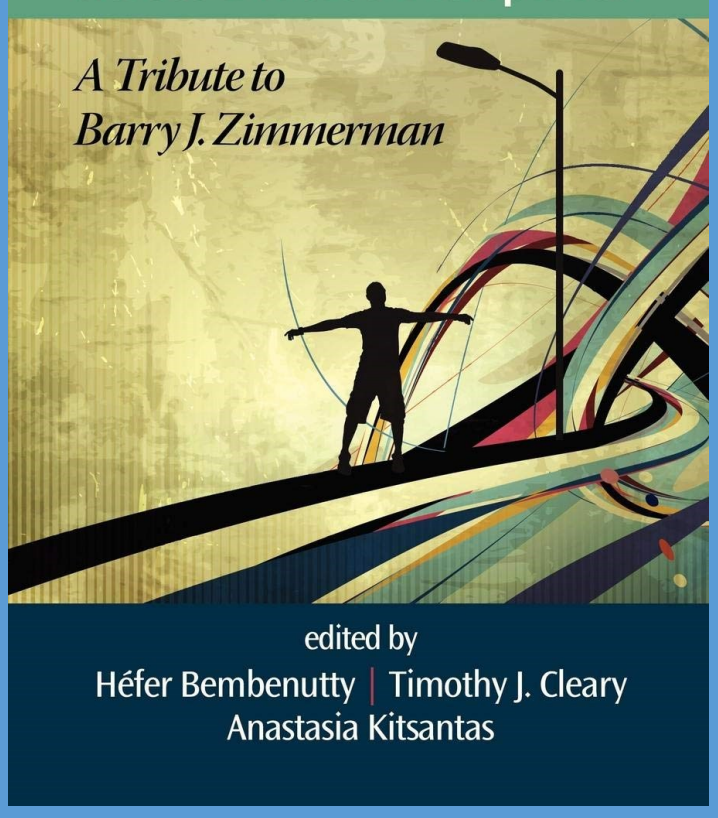
AERA SIG
Studying and Self-Regulated Learning

AERA SSRL SIG TIMES MAGAZINE

Vol 3
Issue 8
August, 2020

Self-Regulated Learning in Japan



Reflections of the Japanese Translation of

Applications of Self-Regulated Learning across Diverse Disciplines: A Tribute to Barry J. Zimmerman

Edited by

Héfer Bembenutty, Timothy J. Cleary, & Anastasia Kitsantas

Guest Editors
Motoyuki Nakaya & Takamichi Ito

> **"Barry Zimmerman is one of the most distinguished psychologists in the world. His work on self-regulated learning has been pioneering. He has not only influenced psychology; he has also had a significant effect upon teaching and learning in higher education generally, sport, health, and music. This book and its applications of self-regulated learning across diverse disciplines is an appropriate recognition of his contributions. The editors and contributors of this book have set the bar very high for students, educators, and researchers interested in the discipline of self-regulated learning."**
>
> **Wilbert J. (Bill) McKeachie**

Pamela F. Murphy (Senior SIG Chair)
Héfer Bembenutty (Editor-in-Chief, Content & Graphic Editor)

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TIMES MAGAZINE

Vol 3
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Book Review of the Japanese Translation of *Applications of Self-Regulated Learning across Diverse Disciplines: A Tribute to Barry J. Zimmerman*

Motoyuki Nakaya (*Nagoya University*) & Takamichi Ito (*Kyushu University*)
Guest Editors

In 2020, the COVID-19 pandemic is widespread globally, and we are confronting these severe health, educational, and economic problems. All teachers, educators, and educational researchers must understand the problem and cope with this adversity to ensure a better education for the next generation.

Although the situation is challenging, the self-regulated learning (SRL) framework should work in various educational settings because the models and concepts of SRL can enhance the success and mastery of students' learning.

The book, *Applications of Self-Regulated Learning Across Diverse Disciplines: A Tribute to Barry J. Zimmerman*, edited by Héfer Bembenutty, Anastasia Kitsantas, and Timothy J. Cleary can support educators who are facing difficulties in their teaching careers.

CONTENTS OF THE REVIEW

The book is a tribute to the prominent achievement of Professor Barry J. Zimmerman. The book provides a platform for scholars interested in applying self-regulation principles to diverse domains. It is a highly valuable and inspiring book for many Japanese educational and psychological researchers. The book consists of 15 chapters, covering a wide variety of disciplinary fields, such as education, psychology, information technology, higher education, and medicine.

In this special issue of the American Educational Research Association (AERA) Studying and Self-Regulated Learning (SSRL) Special Interest Group (SIG) *Times Magazine*, we select and review ten of the book chapters. Emerging and senior Japanese scholars wrote reflections on each chapter of the translation of the book. We are honored to have this opportunity to share our reflections and thoughts with educators and learners interested in self-regulated learning worldwide.

In the book, diverse fields and topics pertaining to SRL are discussed, and recent research trends and applications of these fields are described. The chapters focused on topics as distinct as mathematics education (Chapters 2 and 5), writing (Chapter 3), homework (Chapter 6), strategic learning (Chapter 7), help-seeking (Chapter 8), metacognition (Chapter 10), learning technologies (Chapter 11), chronic diseases (Chapter 14), and mentoring (Chapter 15).

RECENT RESEARCH RELATED TO SRL IN JAPAN

During the last ten years, many SRL studies in diverse fields have been conducted in Japan. These studies are focused on cooperative and peer learning (Chapter 2), writing and literacy (Chapter 3), struggles of students in the postsecondary school (Chapter 5), homework completion (Chapter 6), help-seeking in classrooms (Chapter 8), meta-cognition instruction (Chapter 10), and mentoring (Chapter 15). In this review, each reviewer introduces some research in Japan related to each chapter's contents.

CHANGES, CHALLENGES, AND SRL

Like many other countries, Japan closed almost all schools in many areas because of the pandemic. From primary to secondary schools, classes were suspended from March to May 2020, and regular classroom instruction and student learning were hindered. During this period, the importance of homework and online instruction has been highlighted, and teachers and educators faced significant changes and challenges in terms of learning and instruction. Not only students but also teachers had to adapt to this change.

It seems that everyone's self-regulation is crucial to coping with and adapting to this unpredicted pandemic situation. We are confident that self-regulation will help our well-being and ability to flourish.

Motoyuki Nakaya, PhD, is a professor of Graduate School of Education and Human Developmental Sciences, Nagoya University. His research field is mainly on educational psychology, and his interest is on academic and social motivation, peer learning, and classroom environments.

"We are confident that self-regulation will help our well-being and ability to flourish."

Takamichi Ito, PhD, is an associate professor at the Graduate School of Human-Environment Studies at Kyushu University, Japan. His primary research interest is on teaching and learning processes in educational psychology.

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TIMES MAGAZINE

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"Barry Zimmerman has been at the forefront of motivational research over the past few decades, making seminal contributions to research on the antecedents, processes, and consequences of self-regulation in human behavior. This book encapsulates many of Dr. Zimmerman's advances in understanding human agency and is a major tribute to his legacy by colleagues, students, and friends."

Moshe Zeidner
***University of Haifa,* Israel**

"I really commend the editors for bringing together these highly esteemed international scholars to discuss the educational implications of Zimmerman's social cognitive theory of self-regulated learning. The chapter authors provide a convincing testimony that his ideas are pedagogically essential and viable. As such, this book is a must-read not only for teachers and researchers concerned with promoting self-regulated learning in others, but also for those seeking to become better self-regulated learners themselves."

Ivar Bräten
***University of Oslo*, Norway**

AERA SSRL SIG
TIMES MAGAZINE

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Preface of the Japanese Translation of *Applications of Self-Regulated Learning across Diverse Disciplines: A Tribute to Barry J. Zimmerman*

Self-regulated learning is characterized as a dynamic, fluid process through which individuals seek to manage and control their thoughts, feelings, and actions as they strive to attain personal goals. Highly self-regulated learners are characterized as proactive, goal-directed individuals who exhibit high levels of motivation, strong metacognitive skills, and an expansive knowledge base and skill in using task-specific and regulatory strategies.

During the past few decades, professionals across diverse fields have increasingly come to recognize the critical role that self-regulated learning skills can have on an individual's academic success, social-emotional functioning, and overall well-being. Self-regulated learning is a vital component of most academic endeavors and has been studied in the context of human development and learning, and across different cultures, contexts, and settings, such as K-12 schools, colleges, clinics or medical settings, athletics, and online environments.

It is virtually impossible to discuss self-regulated learning without referencing many of the seminal contributions made by Professor Barry J. Zimmerman. His theoretical and empirical work continues to be highly cited by researchers throughout the world, and has served as the foundation for many of the landmark applications and innovations in self-regulation observed across academic, athletics, health, technology, and music domains.

Applications of Self-Regulated Learning across Diverse Disciplines: A Tribute to Barry J. Zimmerman is a celebration of the teaching, theories, research, and the unique impact Professor Zimmerman has made to education and psychology in general, and self-regulated learning in particular. The translation of this book from English to Japanese represents yet another attempt among scholars and practitioners to apply Professor Zimmerman's seminal research and models within a multi-cultural and sociocultural lens. From our perspective, Professor Zimmerman is a pioneer and visionary who set the standard of excellence in self-regulated learning research and theory.

Professor Zimmerman developed a cyclical model of self-regulated learning with three phases: forethought, performance, and self-reflection. He also formulated a developmental model of self-regulated learning with four levels: observation, emulation, self-control, and self-regulated learning.

He also developed a cyclic model of self-regulated learning academies describing how a teacher might help students' learning by converting the classroom into an academy for teaching self-regulatory processes with five essential academic skills: (a) planning and using study time more effectively, (b) understanding and summarizing text material better, (c) improving methods of note taking, (d) anticipating and preparing better for examinations, and (e) writing more effectively. Applications of these theoretical models to diverse disciplines are unmistakably described in this volume.

Professor Zimmerman's high standards of scholarship have inspired scholars to follow his paths in their research applications. The contributors to this volume have borrowed one or more aspects of Professor Zimmerman's pivotal work and applied to their research agenda. The contributors recognize the undeniable impact that Professor Zimmerman has in their careers, and this volume is a tribute to him.

Through this volume, in which we as editors are alphabetically listed, we also honor Professor Zimmerman as our incredible mentor, teacher, role model, and as an unequaled human being.

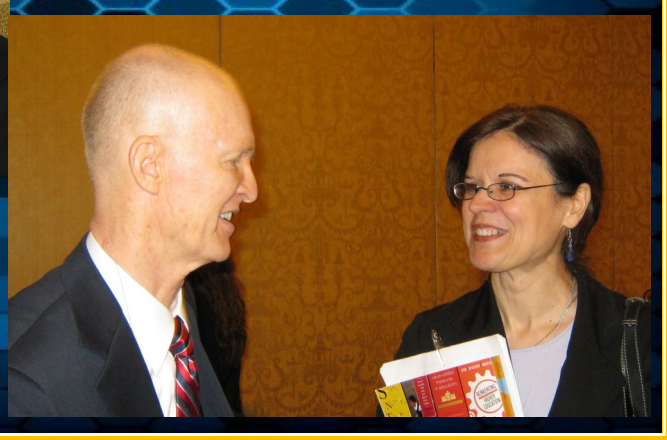
We extend our sincere appreciation to all our Japanese colleagues who took the initiative to translate *Applications of Self-Regulated Learning across Diverse Disciplines: A Tribute to Barry J. Zimmerman*. We recognize that with their research and teaching, they are not only expanding Professor Zimmerman's scholarly work, but they are also making their unique contributions and are impacting schools, colleges, universities, diverse communities, and sports and research centers. We commend them for their laudable work and are excited about the prospect and dissemination of self-regulated learning in Japan.

We hope that the translation of this volume will open new discussions about the vital role self-regulation plays in academic and other forms of learning. We also hope that new applications of self-regulated learning will be generated, specifically in areas such as neuroscience, exceptionality, psychopathology, addiction and related disorders, cyber-slacking, and bullying.

Finally, we hope that readers across the world recognize the personal and professional transformational influence Professor Zimmerman has had on preeminent scholars in SRL and related fields. We believe that this volume is an important research for graduate students, educators, and researchers interested in learning about the mechanisms underlying human agency, self-direction, and strategic goal-directed behaviors.

Héfer Bembenutty, Timothy J. Cleary, & Anastasia Kitsantas

Professor Barry J. Zimmerman with Timothy J. Cleary, Anastasia Kitsantas, & Héfer Bembenutty



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Barry J. Zimmerman: A Brief Biography and Testimonials

Barry J. Zimmerman is an emeritus and distinguished professor of Educational Psychology at the Graduate School and University Center of the City University of New York. He is a Thorndike Award winner (2011) from Division 15 (Educational Psychology) of the American Psychological Association. He served as president of Division 15 of the American Psychological Association (1996–1997).

Professor Zimmerman has received countless other honors and awards, including Senior Scientist Award from the American Psychological Association, Division 16 (School Psychology) and the Sylvia Scribner Award from the American Educational Research Association for exemplary research in learning and instruction.

Professor Zimmerman has received grants from the U.S. Department of Education and the Institute of Education Sciences to develop applied interventions in academic contexts to enhance the self-regulation, motivation, and academic success of highly at-risk students. He has also conducted research on families' self-regulation of children's asthma funded by grants from the National Institutes of Health. Professor Zimmerman received the New York City Department of Health Award for preventive care of childhood asthma and was elected chair of the Behavioral Science Assembly of the American Thoracic Association and council member of the American Lung Association.

Professor Zimmerman is a prolific scholar and author. He has published over 200 journal articles and book chapters and is a member of numerous editorial boards. Of particular note were his collaborations with Ted Rosenthal in publishing *Social Learning and Cognition* (Academic Press, 1978) and with Grover Whitehurst in producing the edited volume *Functions of Language and Cognition* (Academic Press, 1979).

Professor Zimmerman has authored, with Bonner and Kovach, *Developing Self-Regulated Learners, Beyond Achievement to Self-Efficacy* (American Psychological Association, 1996) and has edited five highly influential books with Dale H. Schunk on self-regulated learning, with the most recent volume, *Handbook of Self-regulation of Learning and Performance* (Rutledge), published in 2011.

"As I neared the completion of my dissertation, I was having difficulty writing the final chapter. Dr. Zimmerman opened the conversation by stating he had a similar problem when he began to publish. Dr. Zimmerman modeled how to rewrite the first paragraph. I was then encouraged to emulate his style of sentence structure. As I received feedback on subsequent drafts, I gained self-control of my writing skills."
Linda Sturges

"I interacted with Dr. Zimmerman in various mentoring roles such as advisor, teacher, researcher, and dissertation chair. I associated with him in the classroom, office, "laboratory," and at professional meetings. Despite his eminent status in the field, he was always approachable and receptive. In each one of these settings his support and feedback were consistently available with the intent of modeling and developing independence and self-regulatory competence in his student ."
Adam Moylan

"The highlight of my doctoral personal experience was when Dr. Zimmerman actually arrived at the data collection site where I had the opportunity to observe a researcher articulate what he was doing as he collected the data. It was an uplifting and a very motivating shared experience, which served as a source of self-efficacy for me to conduct research in the future."
Anastasia Kitsantas

"Zimmerman's model is a prescriptive model of adequate self-regulatory behavior for performing learning tasks in general. According to Zimmerman, learners should prepare themselves before actually engaging in the execution of a task." "Zimmerman pointed out to me that the application of metacognitive skills is not strictly linear, but rather appears in repeated loops."
Marcel V. J. Veenman

"When I received my first set of revisions for an article I submitted for publication, it was quite long and detailed. I emailed Dr. Zimmerman stating that the challenge of completing the revisions was overwhelming. His support and reference to previous work I had accomplished enhanced my belief that I was capable of revising the article. After two sets of revisions, the article was accepted for publication in a peer reviewed journal."
Darshanand Ramdass

"We owe a debt of gratitude to Professor Barry Zimmerman for paving the way for our intervention work with his highly accessible theories and innovative insights into human behavior. We are also deeply appreciative of having been mentored by a man who has dedicated his personal and professional life to one of quality, genuineness, and integrity. He was clearly an exemplary model who has forever changed our lives."
Timothy J. Cleary & Andju S. Labuhn

"Zimmerman's seminal work on self-regulation and motivation has had a profound effect on education and psychology as well as in other fields such as sports, health, and music. Learning from and collaborating on research with Zimmerman has been exciting and rewarding… From Zimmerman's work on self-regulation, it is evident that the cultivation of self-efficacy and self-regulation through proximal and specific goals leads to the acquisition of knowledge and skills that will have a lasting effect at the personal level as well as in our educational system in homework in particular."
Hefer Bembenutty

"Our meetings were focused and quite challenging. Dr. Zimmerman was as enthusiastic as I was about getting to the next step. He set the highest standards, and I was challenged to give my very best—he read every word I wrote, fixed it, then we revised it again and again; and when Dr. Zimmerman finally said, 'OK'—we set up a defense."
Rajkumari Wesley

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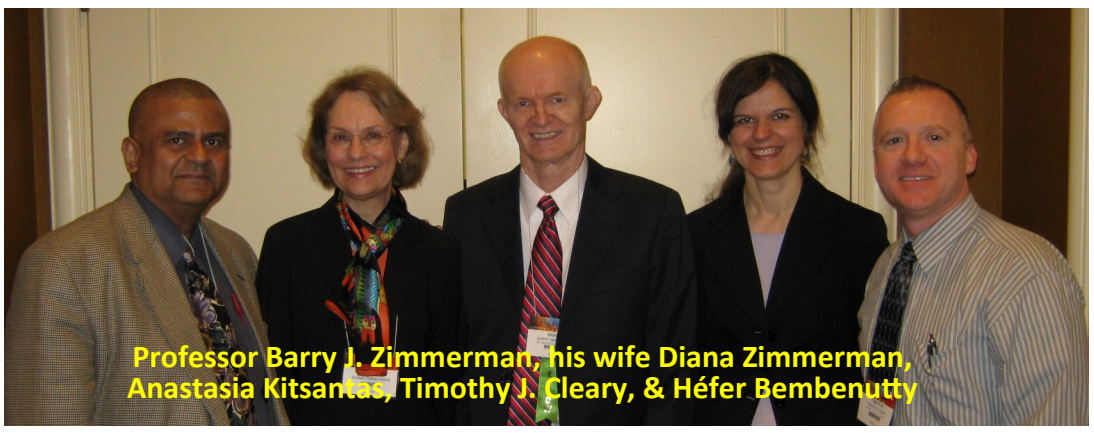
Japanese Translation of *Applications of Self-Regulated Learning across Diverse Disciplines: A Tribute to Barry J. Zimmerman*

Héfer Bembenutty, Timothy J. Cleary, & Anastasia Kitsantas
Book Editors

Our scientific and educational communities have experienced significant challenges with the impact of the COVID -19 pandemic. The implications for teachers and learners have potentially immeasurable consequences. The world has been plunged into into the tempestuous streak of health, social, emotional, and economic undertakings. At the same time, a group of Japanese scholars sustained glimmers of hope and optimism by preserving their conviction that self-regulated learning (SRL) principles would be most helpful for students to learn as they complete specific tasks.



Professor Barry J. Zimmerman, his wife Diana Zimmerman, Anastasia Kitsantas, Timothy J. Cleary, & Héfer Bembenutty

Under the remarkable and charismatic leadership of Motoyuki Nakaya, a professor at Nagoya University, and Takamichi Ito, an associate professor at Kyushu University, a group of Japanese scholars took on the laudable task of reviewing ten chapters of the Japanese translated book entitled A*pplications of Self-Regulated Learning across Diverse Disciplines: A Tribute to Barry J. Zimmerman* (Bembenutty, Cleary & Kitsantas, 2013).

The edited book focuses on intervention programs designed to optimize teaching, learning, and performing under the umbrella of Barry J. Zimmerman's self-regulatory models. The book's contributors show that through SRL, it is possible to sustain motivation and maximize human agency and practices across diverse disciplines. In the book, educators and learners could find self-regulated strategies for developing writing and mathematics skills for struggling students. They will also learn about comprehensive intervention programs that address cyclical thinking and action in various content areas, such as science-based education (Cleary, 2018).

Readers of the book will also find support for managing homework challenges through the learning academy model of self-regulation. In reading this book, educators will discover methods to help college students become more strategic, autonomous help-seekers, technologically savvy, and self-regulated learners in areas as diverse as physical education and sport contexts, health, and music. After translating the book, our Japanese colleagues reviewed the chapters of the book and discussed those translated chapters in relation to learning and performance in Japan. They concluded their reviews by recommending educational practices to Japanese educators and learners.

In her review, Haruna Tachibana described interventions that improved students' mathematics self-regulated skills. Besides, she reviewed studies with commonalities with the SRL phases, such as activating prior knowledge and understanding of the task and self-reflecting on collaborative learning.

Takashi Fukutomi discussed research trends and challenges in teaching self-regulation strategies for writing in Japan. Apart from Takashi, Ryo Okada described SRL in postsecondary education in Japan. He also suggested that it is crucial to understand that students with academic difficulties lack self-regulation and that it is essential to provide them support to make up for this deficiency.

Daisuke Akamatsu showed that homework is an essential part of school life in Japan. He invited Japanese teachers and students to discover the potentials of self-regulation of homework completion. Takatoyo Umemoto supported the notion that learning strategy instruction did enhance self-efficacy for strategy use. He cautioned that merely describing learning strategies did not cause learners to use them. Instead, he argued that it is necessary to devise strategies to provide multifaceted support.

Akie Hayashi argued that the support of the educational environment is crucial for developing help-seeking skills and enhancing SRL and achievement. Further, Masaki Kera discussed metacognitive skills training and research in Japan. Furthermore, Ito Takamichi supported the creation of a technology-oriented learning environment to support and promote SRL.

Finally, Yasushi Matsuyama shared his views about the associations between Japanese medicine and SRL in the post-COVID-19 world. He also advocated for a *doctor-centered* approach to deal with chronic illness. Kanako Terao consistently reflected on the impact on learners' psychological development, growth, and motivation in Japan. Additionally, she considered the importance of mentoring between faculty members and graduate students in doctoral programs.

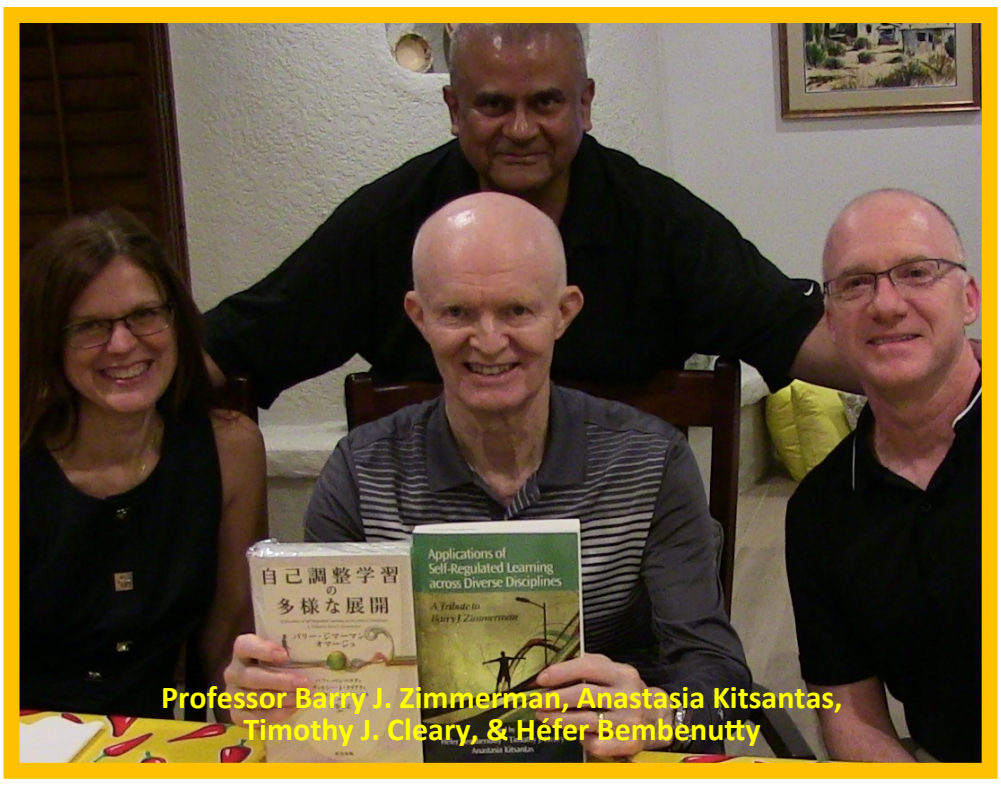
The reviews of our Japanese friends and colleagues, together with the commentaries of the authors of the chapters, illustrate the critical influences of self-regulated learning health functioning, school achievement, motivation, and the importance of homework, mathematics and writing, technology, mentoring, and adaptive help-seeking across diverse disciplines.

The book's translation renders another way in which editors, authors of the chapters, and the Japanese scholars who translated and reviewed the book express our gratitude to our highly esteemed Professor Barry J. Zimmerman. We are grateful to Professor Zimmerman for his forefront research on self-regulation and for being an exemplary mentor to us and many others around the world and across disciplines.

We, the book's co-editors, express our appreciation and gratitude to our colleagues who have contributed to this special issue of *Times Magazine* for their attention, commitment, and kindness. We are confident that their contributions advance how self-regulation might serve as a catalyst for transforming unskilled learners and performers into agents of self-directed learning. It has been an honor collaborating with them all.

The status of SRL research is bright, and its future would be more hopeful for all of us seeking to expand our frontiers of SRL for ourselves and those we teach and serve. The Pape, Bell, and Yetkin-Özdemir's macro and micro model of SRL in mathematics, Harris, Graham, and Santangelo's SRSD instructional process levels, and Moylan's cyclical feedback approach are just some of the exemplary intervention models represented in this book. As this issue of *Times Magazine* pictures, we need additional intervention models for effective practices and applications across diverse disciplines.

References are listed on Page 17.



Professor Barry J. Zimmerman, Anastasia Kitsantas, Timothy J. Cleary, & Héfer Bembenutty

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TIMES MAGAZINE

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Chapter 2, *Sequencing Components of Mathematics Lessons to Maximize Development of Self-Regulation: Theory, Practice, and Intervention*: Intervention Studies of Mathematics Lessons in Japan

Haruna Tachibana (*Nagoya University*)

GENERAL REVIEW TO CHAPTER 2

Growing attention has been made on instructions for supporting and developing self-regulated learning (SRL) in mathematics education. Zimmerman developed two self-regulated models. The three -phase cyclical phase model of self-regulation involves the forethought, performance, and self-reflection phases (Zimmerman, 2000). The four levels in SRL development involve observation, emulation, self-control, and self-regulation (Zimmerman, 2000).

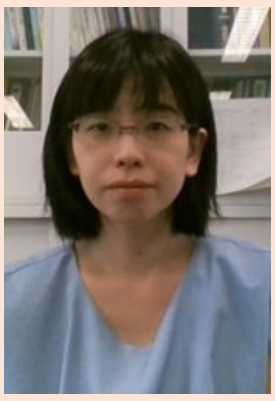
In Chapter 2, *Sequencing Components of Mathematics Lessons to Maximize Development of Self-Regulation: Theory, Practice, and Intervention*, Stephen J. Pape, Clare V. Bell, and Iffet Elif Yetkin-Özdemir have extended the work of Zimmerman by suggesting the need to consider the interaction between SRL phases and the developmental level in instructions for developing SRL.

Chapter 2 focuses on educational interventions for supporting the development of SRL and mathematical understanding. The intervention was based on the SRL phases perspective and conducted according to the SRL development level. The latter half of this chapter provides vignettes of SRL instructions used in two mathematics lessons. These vignettes illustrate the teacher's role in promoting SRL and the SRL situation of students during these lessons and the cyclical nature of the intervention.

An essential aspect of this chapter is exploring SRL at the micro and macro levels. At the macro, or lesson-level, intervention lessons were segmented into three phases as frames for considering a lesson's structure:

1. Setting up the task (forethought phase)
2. Supporting student's engagement (performance phase)
3. Supporting students to examine their strategies and understanding (self-reflection phase)

At the micro-level, the authors propose that teachers engage the students in iterative cycles of forethought, performance, and self-reflection within each phase of the lesson. This chapter also emphasizes that teachers' instructional behaviors or levels of support within each phase should take the students' level of SRL development into consideration. Teachers need to vary and adjust the intensity of instructional support as students advance through developmental levels of SRL. The authors also suggest that teachers must be aware of the variability of students' developmental levels.



Haruna Tachibana, PhD, works at the Admissions Division of the Department for Quality Assurance in Higher Education at Nagoya University. Her research interests include educational psychology, especially children's learning processes.

INTERVENTION STUDIES OF MATHEMATICS LESSONS IN JAPAN

Often, students learning together and teachers have significant effects on each student's learning process through instructional practices. In Japan, collaboratively learning, including mathematics, has been emphasized, and intervention studies on mathematics have also been conducted in educational psychology.

Machi and Nakaya (2014), for instance, examined the effects of a reciprocal teaching intervention and the interaction between reciprocal teaching and prosocial goals on group learning of mathematics. The results indicated that structuralizing discussions through reciprocal teaching improved students' academic achievement and positive cognition of group learning through group involvement and deepening understanding of the learning contents.

The results also indicated that utterances unrelated to learning were reduced, and positive cognition of group learning (involvement/understanding) increased through an intervention for children with low prosocial goals due to their interaction with children with high prosocial goals. These interactions promoted learning when children with low prosocial goals made utterances unrelated to learning.

Intervention studies have also been conducted to deepen students' understanding by integrating knowledge through inquiry learning. Fujimura (2012) proposed promoting Collaborative Inquiry Learning (CIL) through practical collaborative research with teachers. CIL aims to deepen students conceptual understanding through the processes of individual and collaborative inquiry.

Approaches and tasks that activate and integrate prior knowledge of students and the expressions of their thinking processes are essential in inquiry settings. For instance, common and different aspects of different solutions are compared and discussed in inquiry learning, and reasons for the efficacy of solutions are discussed in class. Moreover, each student's understanding is deepened by individual inquiry that follows collaborative inquiry. It is shown that the conceptual understanding of an individual is deepened by collaborative inquiry learning of different subjects, including mathematics and science (Fujimura, 2012).

These studies are not directly based on SRL theory advocated in Chapter 2. However, there are many commonalities when the above studies are conceived from the perspective of SRL phases. These include activating prior knowledge and understanding of the task, which increases in the forethought phase; actively expressing the thinking processes in classes and groups, and providing opportunities for modeling and discussion in the performance phase; and each student reflecting on collaborative learning and checking his or her understanding of conditions in the self-reflection phase. It would be useful to examine methods of modifying teachers' support and inquiry settings from the perspective of interactions between the self-regulation phases and the level of SRL development.

References are listed on Page 17.

Commentary on Tachibana's Review of Chapter 2, *Sequencing Components of Mathematics Lessons to Maximize Development of Self-regulation*

Stephen J. Pape & Clare V. Bell

We, the authors of Chapter 2, titled *Sequencing Components of Mathematics Lessons to Maximize Development of Self-regulation* in Bembenutty, Cleary, and Kitsantas (2013), thank Haruna Tachibana for reviewing our chapter. Dr. Tachibana's review starts by concisely outlining Zimmerman's (2000) phases of self-regulated learning (SRL), the developmental phases of SRL, and the essential aspects of our suggestions sequencing components of mathematics lessons.

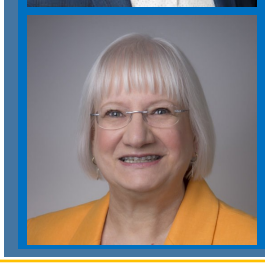
At the macro-level, our sequencing components of mathematics lessons focus on the lesson structure, which includes setting up the task (forethought), supporting student engagement (performance), and examining mathematical and strategic thinking (self-reflection). At the micro-level, we focus on the cyclical phases of SRL—forethought, performance, and self-reflection—within each phase of the lesson structure.

In her review of the chapter, Tachibana points out the connections between SRL and two categories of teaching and learning processes—reciprocal teaching and collaborative inquiry learning. The processes of reciprocal teaching, as developed for reading instruction by Palincsar and Brown (1984), and the processes of collaborative inquiry learning, as developed for science by Lawson (1988), can be likened to cyclical and developmental phases of SRL. The development of thinking skills and knowledge construction are fundamental to both of these approaches to teaching and learning specific disciplinary principles and concepts.

While the development of SRL skills may be implicit within these two approaches, we agree that connections could be made more explicit during instructional interactions with students. Raising teachers' awareness of connections between the different labels that we attach to learning processes (e.g., reciprocal teaching, inquiry learning, and others) could take various forms. To illustrate, Pape had worked with a non-profit organization to design a professional development program for middle school teachers. The participants are supported to be sensitive to students' SRL level of development and to adjust their instructional strategies to engage learners' cognitive functions as they focus on each phase of SRL.

References are listed on Page 17.

Stephen Pape, PhD, is a professor of education and former director of the Doctor of Education program at the Johns Hopkins School of Education. His research focuses on technology-enhanced classroom contexts that foster mathematical understanding and the development of strategic behaviors.



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AERA SSRL SIG
TIMES MAGAZINE
Vol 3
Issue 8
August, 2020

Chapter 3, *Self-Regulated Strategies Development in Writing: Development, Implementation, and Scaling Up*. Self-Regulation Strategies for Writing in Japan

Takashi Fukutomi (*Keio University*)

HIGHLIGHTS OF MAJOR SIGNIFICANT POINTS OF THE CHAPTER

Writing is a complex task. According to Hayes and Flower (1980), the writing process requires cognitive processes such as planning, translating, and reviewing and metacognitive processes that monitor and control progress toward one's goals.

Some learners who are poor at writing have difficulty performing these complex processes. Such learners need a teaching method that makes them aware of the cognitive and metacognitive processes necessary for writing and helps them acquire learning strategies promoting their active involvement. In recent years, the Self-Regulated Strategies Development model (SRSD) has attracted attention as such a teaching method.

Chapter 3, *Self-Regulated Strategies Development in Writing: Development, Implementation, and Scaling Up*, written by Karen R. Harris, Steven Graham, and Tanya Santangelo, provides an overview of and outlook for SRSD. SRSD is an instructional model of writing that focuses on the processes of planning, translating, reviewing, and the motivation to use strategies.

In the SRSD model, learners clarify the necessary strategies through discussions with a teacher and learn them in six stages:

1. Develop background knowledge
2. Discuss it (purpose and steps of the writing strategy)
3. Model it (writing strategies)
4. Memorize it (the strategy steps)
5. Support it (students practice using the writing strategy)
6. Independent performance (use the writing strategy independently)

Various meta-analyses have shown the effectiveness of SRSD interventions for various learners, including those with disabilities (Graham & Harris, 2003, 2018).

The following two points are considered essential in SRSD. First, both learners' metacognition and motivation are taken into consideration. It has been shown for many self-regulated learning models that self-regulated learners are functional in metacognition, they also have the competence and are adaptively motivated to participate in their learning actively (e.g., Wolters, 2003). Therefore, the SRSD model incorporates strategies such as "goal setting," "self-monitoring," "self-instruction," and "self-reinforcement," as well as writing strategies. The use of these strategies will encourage the voluntary use and persistence of writing strategies on the part of learners, who are often prone to depression, supporting and helping them maintain a more motivated state.

Second, while this model presents the essential stages of strategy learning within an overarching framework, the content and method of teaching can be modified to suit individual learners' needs. For instance, in the case of SRSD practice presented in this chapter, at the stage of supporting the use of writing strategies, the teacher grouped children with difficulties writing to collaborate on writing an essay and repeated the stages of discussion and imitation of writing strategies for a child who needed special assistance. Therefore, this model can be applied to students with various characteristics, including learners who have difficulty writing.

TRENDS AND ISSUES IN SRSD RESEARCH IN JAPAN

An empirical study of SRSD in Japan was conducted by Tanji and Yokota (2017). This study examined the effects of intervention with the SRSD model on narrative writing in six children with ASD. As a result, in the number of composition elements (elements necessary for narrative composition, such as "who" and "when"), a high intervention effect was found for five children (PND scores of 100%), and a slight intervention effect for one child (PND scores of 66.7%). Besides, in terms of the quality of composition (e.g., ease of imagination of the story, description of the subject), a high intervention effect was found for three children (PND scores of 100%) and a slight intervention effect for two children (PND scores of 66.7%).

The features of this research are as follows. First, different learning contents and teaching materials were introduced according to the actual conditions of the target children. For example, during the practice of writing strategies, it was observed that students wrote sentences without conjunctions. Therefore, the original schedule was changed, and a session on conjunctions was introduced in which the children discussed a new strategy of using conjunctions and practiced their use. Such modifications tailored to the learners' conditions indicate that SRSD can accommodate flexible adjustments.

Second, a learning effect due to peer relationships was observed. For example, one child who was depressed in a self-monitoring session was observed to start improving his compositions by watching other children improving their compositions. Additionally, when a child painted his composition and began to check the use of strategies, other children imitated this method. The fact that such peer modeling scenes were observed everywhere shows the effects of teaching strategy in groups. The effects of such learning in peer groups have also been shown in writing evaluation (Inuzuka, 2005) and planning (Itoh et al., 1998) activities.

Takashi Fukutomi is enrolled in the PhD program at the Graduate School of Human Relations, Keio University. His research focuses on educational psychology, especially learning assessment and writing and speech instruction

However, since there have been few empirical studies of SRSD in Japan, research is insufficient on the effects of SRSD, the conditions of learners under which the model can be applied, differences in teaching contents and writing strategies depending on the genre of composition, and the maintenance and generalization of strategy use. I have mainly examined the differences in the effects of writing instruction due to individual differences.

Fukutomi (in press) examined the effects of feedback on the processes of improving composition. As a result, when feedback pointing out both the positive and negative sides of the composition at the same time was provided, prevention-oriented (safety-oriented) learners used a more deliberative strategy. In contrast, promotion-oriented (progress-oriented) learners used a strategy to increase sentence volume, showing that even if the same instruction is given, the improvement strategies differ depending on the learners' characteristics.

When researching SRSD instruction, it is necessary to identify differences in the effects of learners' characteristics and genres of composition in Japan and to seek intervention methods tailored to their actual conditions. The accumulation of such research across cultures will contribute to the development of a more general SRSD model.

Commentary on Fukutomi's Review of Chapter 3, *Self-Regulated Strategies Development in Writing: Development, Implementation, and Scaling Up*

Karen R. Harris, Steven Graham, & Tanya Santangelo

Most sincerely, we thank Takashi Fukutomi for his review of Chapter 3, *Self-Regulated Strategies Development in Writing: Development, Implementation, and Scaling Up*. Our chapter focuses on the Self-Regulated Strategies Development model (SRSD). Fukutomi has provided an excellent overview of the chapter. Many key points regarding SRSD are noted. We were pleased to see that Fukutomi presented not only the stages of the SRSD model of instruction, but also has written about some of the other aspects of SRSD. He highlights the role of explicitly developing or enhancing students' self-regulation in SRSD instruction. He discusses outcomes related to persistence and a positive attitude toward the task.

Research shows that SRSD instruction in writing typically results in improvements in outcomes such as self-efficacy, attitudes and beliefs about writing, and persistence or completion of the task. Assessment of self-efficacy, attitudes, and beliefs can be challenging with young students, and much more research and development are needed here. He also highlights the role of and research on peers in SRSD instruction, a promising area that offers many unanswered research questions.

As Fukutomi makes clear, emotions also need to be carefully considered and addressed when using SRSD instruction with students. We greatly appreciated his focus on the need to individualize SRSD instruction and the examples he provided. SRSD requires careful consideration of each student's strengths and needs in affect, behavior, and cognition/metacognition when engaging in writing.

Many students in the United States do not like writing, and this begins around the age of eight to nine years old. Writing is a complex task, and is not well taught in many schools. Thus, SRSD also uses self-talk or self-instruction to help students handle negative emotions/affect, such as anxiety, dislike for the task, maladaptive attributions, and feeling incapable. During modeling, teachers model multiple types of self-instructions, such as coping statements, that help manage emotions and the writing process. Students develop their own self-statements to use when they write.

Research in the United States indicates that self-statements and monitoring their progress are two favorite parts of SRSD with students. While progress is being made in research in measuring affective, behavioral, and cognitive outcomes from SRSD, so much more needs to be done. We found Fukutomi's description of the research being done in Japan of great interest, and he looks forward to learning more from Japanese researchers' work.

Karen R. Harris, PhD, is the Mary Emily Warner Professor of Education at Arizona State University. She developed the Self-Regulated Strategy Development (SRSD) model of strategies instruction, which has been deemed evidence-based in both special and general education.

Steve Graham, PhD, is the Warner Professor in the Division of Leadership and Innovation in Teachers College at Arizona State University. He is the current editor of the Journal of Educational Psychology.

Tanya Santangelo, PhD, is an Associate Professor in the School of Education, Arcadia University. She is also an associate editor of *Journal of Educational Psychology.*

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AERA SIG Studying and Self-Regulated Learning

AERA SSRL SIG TIMES MAGAZINE

Vol 3
Issue 8
August, 2020

Chapter 5, *Cyclical Feedback Approaches for Enhancing Academic Self-Regulation in Postsecondary Mathematics Classrooms*: Self-Regulated Learning in Postsecondary Education in Japan

Ryo *Okada (Kagawa University)*

SELF-REGULATED LEARNING VIEW FOR IMPROVING STUDENTS' ACADEMIC DIFFICULTIES

The importance of remedial education in postsecondary education is widely recognized, especially because several students have difficulty learning mathematics. These difficulties lead to various problems such as cumulative financial costs or a decline in self-efficacy, which may lead them to drop out of school. Insufficient self-regulation capabilities partly cause the difficulties that students face in remedial education courses.

Chapter 5, Cyclical Feedback Approaches for Enhancing Academic Self-Regulation, written by Adam Moylan, identified the nature of such problems based on Zimmerman's cyclical feedback model (Zimmerman, 2000). Additionally, it introduced interventions supported by a compelling theory and vast empirical data.

The author analyzed the causes of students' learning difficulties with reference to the theoretical model of self-regulated learning. The characteristics of students' poor self-regulation can be summarized as

1. insufficient metacognitive awareness of own competence related to a specific task;
2. erroneous judgments about own learning efforts;
3. maladaptive attributions to uncontrollable, external sources, and or fixed personal traits; and
4. inefficient use of errors in adaptive learning or alternative performance strategies.

Metacognitive awareness and learning strategies are essential components of self-regulated learning, and problems that most students face in remedial courses can be interpreted in terms of inadequacy in these areas. Problems in metacognitive awareness and learning strategies can also be regarded as students' poor calibration, which is an issue that has received considerable attention in the field of education.

The most important contribution of this chapter is the introduction of details of instructional techniques and tools grounded in a solid theory and empirical data related to the self-regulation model, and the verification of the effects of the interventions. Many concrete and attractive interventional techniques are shown along the following three broad dimensions: (a) an adaptive classroom culture, (b) instructional methodologies, and (c) a feedback system.

The practice administered by the author improved students' test performance and their capabilities of calibration. This approach can transform struggling students into self-regulated learners, and thus, it can contribute to improving remedial education.

Ryo Okada, PhD, is an associate professor in the Faculty of Education, Kagawa University, Japan. His research interest is in educational psychology, especially learners' motivation, peer relationships, and teachers' support in the academic setting.

The importance of self-regulated learning view in Japanese postsecondary education

Remedial education is also emphasized in Japanese postsecondary education. Many educational programs that support first-year students have been developed and administered in universities and colleges, and educators pay special attention to the theory and practice of self-regulated learning.

Practice-based reports on various topics, including language learning and e-learning, are increasingly being published in relevant journals (e.g., Goda & Okuda, 2009; Ito, 2018; Makino, 2014). Additionally, symposiums about self-regulated learning in postsecondary education are regularly conducted at the Japanese Association of Educational Psychology's annual meetings. Theories and findings on self-regulated learning could have a significant impact on remedial education in Japan.

Although it was not explicitly highlighted in this chapter, cooperation or collaboration with peers may enhance the self-regulated learning approach. Findings have revealed that cooperative learning with peers promotes the use of metacognitive learning strategies or improves self-efficacy in elementary school children (e.g., Ohtani et al., 2016; Okada, 2020).

In a group-based learning situation in university classes, Ito (2017) revealed that co-regulation with peers is related to various metacognitive learning strategies. Umemoto et al. (2018) found that undergraduates' active interaction strategy, which is a component of motivational regulation strategies, predicts self-efficacy in a cooperative learning situation. These findings suggest that taking advantage of peer interaction may maximize the effects of techniques based on the self-regulation learning approach proposed in this chapter. Zimmerman's social cognitive view also suggests the effects of cooperation or collaboration with peers (Zimmerman, 2000) .

Educators who aim to support students at universities or colleges can draw two critical suggestions from the chapter. One pertains to understanding that students with academic difficulties lack self-regulation, and the other pertains to supporting them to make up for this deficiency. If we develop lessons and teach these two points, many struggling students can find solutions to their learning difficulties. It would be a guaranteed way to improve remedial and post-secondary education.

References are listed on Page 17.

Commentary on Okada's Review of Chapter 5 *Cyclical Feedback Approaches for Enhancing Academic Self-Regulation*

Adam Moylan

It was a pleasure to read Ryo Okada's review of Chapter 5, *Cyclical Feedback Approaches for Enhancing Academic Self-Regulation in Postsecondary Mathematics Classrooms*. Chapter 5 contains a description of Barry J. Zimmerman's self-regulatory intervention program for struggling college students.

Amidst the present COVID-19 pandemic and the resulting shutdown and economic recession, the world is witnessing dramatic shifts in education, and existing inequities faced by students are being greatly exacerbated. I believe Zimmerman's contributions to understanding academic self-regulation are highly applicable to our present educational context. Theory, research, and practice about self-regulated learning (SRL) can play a crucial role in helping educators to respond to the sudden, increased demands for independent learning and digital learning.

In his review, Okada rightfully points out the influential role that peer collaboration can play in enhancing self-regulatory approaches. Peer collaboration is undoubtedly an essential means for enhancing strategic approaches to learning, and the chapter did perhaps fail to emphasize its importance within the self-regulatory intervention.

As described in the chapter, students within the program were encouraged to analyze problem-solving errors and discuss strategies within small groups or pairs of students. In addition, the first of the four key features of strategic instruction in the intervention program included peer modeling of strategy use and problem-solving approaches.

Student modeling regularly occurred within both small group and whole group learning activities. Besides, peer collaboration played a vital role in meeting learners' needs for frequent, cyclical feedback about their learning efforts. Contemporary efforts towards re-structuring teaching and learning towards more online, digital learning must creatively find ways to maintain support for these types of peer-to-peer learning activities.

After re-reading the chapter and understanding what Okada viewed as its key ideas, I believe it is important to stress that the intended message was not on learner deficiencies, but rather about what educators can do to better support their learners, such as being more strategic in how individualized, cyclical feedback is applied to progress learning. The chapter described just some of the numerous ways Zimmerman and colleagues have applied SRL theory and research towards enhancing instructional and learning processes.

Adam Moylan, PhD, is an educational psychologist with two decades of experience in designing and conducting education research and evaluation. At Rockman et al, Adam is a Senior Principal Researcher who directs and manages mixed methods evaluations of multisite interventions and initiatives in K-12 classrooms and in out-of-school learning programs, often aimed at supporting underserved learners in urban, public schools.

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AERA SSRL SIG
TIMES MAGAZINE
Vol 3
Issue 8
August, 2020

Chapter 6, *The Triumph of Homework Completion through a Learning Academy of Self-Regulation*: Japanese Homework Learning Phases

Daisuke Akamatsu (*Nagoya University*)

All learners have experience doing homework assignments. Homework has been an essential part of school life. It can be burdensome; however, it can help in learning. In self-regulated learning (SRL), homework is considered an essential component of learning. That is a claim Héfer Bembenutty made in his chapter entitled, *The Triumph of Homework Completion through a Learning Academy of Self-Regulation*, published in Applications of Self-Regulated Learning across Diverse Disciplines: A Tribute to Barry J. Zimmerman. The chapter introduces how homework has been conceptualized in the theoretical SRL framework and how to prompt students to complete homework effectively.

OUTLINE AND SIGNIFICANCE

Bembenutty's chapter comprises four parts. First, the author introduces the origin of homework, its purpose, and its function. Second, the author presents a theoretical model called the "learning academy model of SRL" that secures the triumph of homework completion through cycles of SRL. Third, educational practices are introduced based on the model applicable to various students enrolled in elementary school, high school, technical college, educational psychology class at university, or pre-service teaching course. Finally, the author suggests future directions for research on homework.

This chapter widely covers the theoretical and practical roles of homework. It offers insight on how to accomplish homework based on traditional SRL model. Also, Japanese readers should be mindful of whether the original word homework has precisely the same meaning as the Japanese translated word *shuku-dai*. Japanese shuku-dai consists of two Chinese characters that originally mean *given* and *assignment*. This original meaning may provide readers the impression that homework is controlling and mandatory. However, as they read this chapter, they will understand that homework is a crucial resource in promoting SRL in students.

JAPANESE RESEARCH AND EDUCATIONAL PRACTICE

Psychological research in Japan shows an internationally unique development. Keita Shinogaya (2017), has examined the effects and predictors of *preparation strategy* for class. As noted in this chapter, he reveals several subcomponents of the strategies and demonstrates the importance of metacognitive monitoring. Moreover, Shinogaya (2012) developed the phase-related model of learning strategy.

This model views learning as a continuum of three learning phases: actual new knowledge acquisition, pre-learning, and post-learning phases. It also explains that learning strategies applied in a particular learning phase affect learners' motivation and cognition. This, in turn, promotes subsequent use of learning strategies in the next phases.

Akamatsu, Nakaya, and Koizumi (2019) supported Shinogaya's (2012) model by examining the longitudinal effects of metacognitive strategies through two-waved surveys. They revealed that planning/monitoring strategy use enhances subsequent self-efficacy that, in turn, directly promotes deep-processing strategy use in the following period.

Furthermore, Eriko Ota (Ota, 2019) reviewed past studies on homework and thematized three types of homework from traditional educational psychology perspectives: behavioral, information-processing, and socio-constructivist approaches.

In addition, Ota and Yamanoi (2019) investigated the effects of mathematics assignments that induce students' meaning-related understanding of the learning content. In particular, they indicated that linkage between class and homework improves students' mathematics performance. Through their conceptual and empirical examination, they consistently posited the importance of homework that enhances students' cognitive processes.

Bembenutty's chapter offers critical perspectives on the purpose and role of homework to Japanese teachers. Traditionally, Japanese school culture emphasizes the importance of homework. Accordingly, it is natural for Japanese teachers to assign homework to students. This sometimes prevents them from considering its purpose and utilizing homework in analyzing students' motivation or understanding through its completion. Bembenutty's chapter provides empirical views on homework, focusing on the essential components for its completion. This enables teachers to analyze what ability should be acquired through homework.

CONCLUSION

Homework is an essential part of school life in Japan and other countries. However, Japanese teachers and students may sometimes fail to discover the potential of homework as learning material. Bembenutty's chapter claims that students' self-regulation leads to success in accomplishing homework, which in turn could develop students' self-regulation skills. This chapter has practical importance for learners and teachers worldwide, and its translation contributes to the advancement in understanding homework in Japan.

References are listed on Page 17.

Daisuke Akamatsu, PhD, is a postdoctoral research fellow of the Japanese Society for the Promotion of Science. He obtained his PhD in psychology from Nagoya University. His research focuses on beliefs about learning, learning strategies, and foreign language learning.

Acknowledgment
I express my gratitude to Keita Shinogaya, Eriko Ota, and Claudia Gherghel, who offered me helpful feedback on earlier versions of this chapter review.

Commentary on Akamatsu's Review of Chapter 6: *The Triumph of Homework Completion through a Learning Academy of Self-Regulation*

Hefer Bembenutty

There is a worldwide increase in understanding the purpose, effect, and utility value of homework in our current educational systems (Yang & Tu, 2020). Despite its challenges, homework continues to be one of the most instructional and assessment tools used by most salient educators at all levels of the education spectrums.

Daisuke Akamatsu reviewed Chapter 6, The Triumph of Homework Completion through a Learning Academy of Self-Regulation. In the chapter, Bembenutty discussed Zimmerman's Learning Academy Model. Zimmerman understands that classrooms can be converted into learning academies. In his learning academy, students can engage in peer learning, reach goals, sustain self-efficacy beliefs, and be proactive agents (Zimmerman, Bonner & Kovach, 1996).

Zimmerman's learning academy model construes teachers as a) model of self-regulatory processes, b) competent to encourage students, c) able to teach task and strategy analysis, and d) coaches who help students engage in outcome checking and strategy refinement. The academy is a self-regulated instructional model.

The academy model involves four steps. In Step 1, students examine their self-efficacy beliefs and motivation for the task at hand while observing peers and teachers. In Step 2, students identify goals and strategies to ensuring successful completion of the task. In Step 3, students implement and monitor their strategies. In Step 4, students engage in self-reflection and assessment of outcomes.

In the learning academy, students are proactive and in control of their learning by self-recording their learning process with homework logs indicating when, where, with whom, beliefs, distractions, and outcomes associated with the homework. Teachers model the same processes while coaching the students. Chapter 6 provides evidence supporting the effectiveness of the model in elementary and high school, and college-level interventions.

HOMEWORK CYCLICAL SELF-REGULATED CULTURALLY PROACTIVE MODEL

Bembenutty's (2019, 2020) Homework Cyclical Self-Regulated Culturally Proactive Model expands Zimmerman's learning academy model by adding parents and culture to the cyclical nature of homework completion. Bembenutty posited that involving parents and culture in the curriculum, classroom instruction, assessment, and culture of educators and learners could facilitate students could engagement in homework as a cyclical self-regulated proactive process.

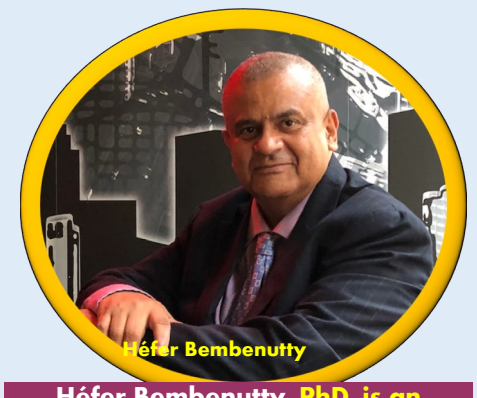
The homework self-regulated culturally proactive model is cyclical and consistent with Zimmerman's two models: The cyclical phases of self-regulation model (Zimmerman, 2013) and Zimmerman's learning academic model (Zimmerman, Bonner, & Kovach, 1996). Bembenutty found preliminary support for the effectiveness of the instructional approach promoting homework self-regulation of learning and performance among culturally diverse high school learners (Bembenutty & Hayes, 2018).

Future research, classroom instruction, and interventions should focus on the cyclical nature of the homework process. Teachers should be able and free to assign homework assignments consistent with their culture and the culture of their students. Effective homework starts with the classroom instruction and assessment and continues at home; that is why teachers should conduct their instruction cognizant of the cyclical nature of instruction and assessment for students to become culturally proactive learners.

Teachers should always consider the contexts in which learning is happening and their own and their students' motivational beliefs. Involving parents and integrating parental values and beliefs into the educational system can result in an effective learning environment.

Daisuke Akamatsu has done a commendable job in his review of Chapter 6. An invitation is extended to educators, administrators, parents, and students to integrate the homework cyclical self-regulated culturally proactive model in their homework practices and interventions. Zimmerman gave us a valuable learning academic model, with methods and resources that can generate significant changes in our educational systems, and Bembenutty's homework cyclical self-regulated culturally proactive model expands Zimmerman's learning academy model.

References are listed on Page 17.



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AERA SSRL SIG
TIMES MAGAZINE

Vol 3
Issue 8
August, 2020

Chapter 7, *Helping College Students Become More Strategic and Self-Regulated Learners*: Learning Strategy Instruction To Enhance Self-Efficacy for Strategy Use

Takatoyo Umemoto (*Kyoto University of Foreign Studies)*

WEINSTEIN'S MODEL OF STRATEGIC LEARNING

Chapter 7, Helping College Students Become More Strategic and Self-Regulated Learners, written by Claire Ellen Weinstein and Taylor W. Acee, discusses Weinstein's strategic learning model, after providing an introduction to the connection between research on learning strategies and self-regulated learning. Additionally, Chapter 7 includes a section on assessments that measure strategic and self-regulated learning in college students using the Learning And Study Strategies Inventory (LASSI), which is a measure of strategic learning, and provides an introduction to strategic learning and self-regulated learning interventions.

The LASSI consists of four major components: skill, will, self-regulation, and academic environment. The skill component includes factors such as cognitive learning strategies, study skills, and reasoning skills. The will component includes achievement motivation, positive attitudes toward learning, and a sense of self-efficacy. The self-regulation component includes variables such as time management, monitoring comprehension, strategic planning, and requesting assistance. The academic environment component includes factors such as understanding the nature of the learning task and instructor beliefs and expectations and gaining knowledge about available resources.

Within this model, learning is influenced not only by these individual components but also by the interactions between them. Learners should be aware of the nature of these four major model components. The nature of the interactions between these four components is essential to students' academic success.

The first-semester strategic learning course (EDP310) offered by the University of Texas at Austin is known to foster strategic learning. This course equips students to become more strategic self-regulated learners, and it has been found that they can learn at a higher level than their peers. The Model of Strategic Learning has also been used to make decisions about course content and structure. At the beginning of the course, students are provided with a very simple description of the model. As the course progresses, new concepts and strategies are incorporated into the strategic learning model.

EDP310 is a blended course, wherein one portion of the instruction is provided in class, and another portion of the instruction is provided through an online system, which covers ten components that correspond to the ten LASSI scales. It has been found that the percentage of college students who graduate is higher among those who have taken this course than those who have not taken this course.

Takatoyo Umemoto, PhD, belongs to the Faculty of Foreign Studies, Kyoto University of Foreign Studies, Japan. His research interests are instability of situational motivation, and learner's motivation regulation process.

LEARNING STRATEGY INSTRUCTION IN JAPAN

In this section, I describe a study on the instruction of one learning strategy in Japan. Targeting vocational school students, I provided learning strategy instruction to enhance their self-efficacy beliefs for using learning strategies and examined the effect of this intervention on the use and transfer of learning strategies (Umemoto, 2013). The learning strategy that was taught was a deep processing strategy that involved linking new content to prior knowledge and recalling learned content by drawing linkages to such contents.

In my study, 45 students were assigned to the intervention group, and 62 students were assigned to the control group. The control participants were provided with a description of the deep processing strategy. Compared to the control participants, the intervention group participants used the deep processing strategy to a greater extent and obtained higher scores on a test conducted three months after the intervention (Umemoto, 2013).

Furthermore, they had been using the deep processing strategy in other classes as well. The findings suggest that their sense of self-efficacy for learning strategy use facilitated the transfer of learning strategies. In contrast, merely describing this learning strategy did not cause the learners to use this strategy.
The findings of this study suggest that it is crucial to enhance learner motivation to increase learning strategy instruction effectiveness. The intervention included small group discussions on how one should use the deep processing strategy when learning specific subjects and across different learning contexts, and these examples were presented and shared within the class. These activities are likely to have enhanced their sense of self-efficacy. For example, the students remarked, "Using a deep processing strategy when learning is something that I can do."

As implied by Weinstein's model of strategic learning, various factors influence learning. Besides, these components are interconnected in a complex manner, and these interconnections influence learning outcomes. Therefore, it is not sufficient to merely address these individual components to foster self-regulated learning. Instead, it is necessary to address multiple components. Accordingly, educators should devise strategies to provide this kind of multifaceted support.

References are listed on Page 17.

Commentary on Umemoto's Review of Chapter 7, *Helping College Students Become More Strategic and Self-Regulated Learners.*

Taylor W. Acee

It was a delight and honor to read and have this chance to react to Dr. Takatoyo Umemoto's review of Weinstein and Acee's (2013) chapter entitled *Helping College Students Become More Strategic and Self-Regulated Learners*. Umemoto's review succinctly and accurately described Weinstein's Model of Strategic Learning, which emphasizes four major components of strategic and self-regulated learning: skill, will, self-regulation, and the academic environment. It also highlighted other key aspects of this chapter related to teaching and assessing learning strategies.

Umemoto emphasized that strategic and self-regulated learning emerges from interactions among elements within these four components. Strategic learning is thus an emergent property; the whole is bigger than the sum of its parts.

Elaborating about the importance of strategic and self-regulated learning, Umemoto described a study he conducted in which students were taught to use and develop self-efficacy for using a deep level learning strategy that involved making connections with prior knowledge and recalling those connections. The intervention group was more likely to use this learning strategy, transfer its use to other courses, and perform higher on a three-month delayed posttest, compared to a control group that only received a description of the strategy.

Umemoto explained how the intervention helped students build self-efficacy beliefs for using the learning strategy, which facilitated its usage and transfer. Theoretically, Umemoto's study helps to support ideas purported in the Model of Strategic Learning, suggesting that elements within *will* (self-efficacy, in this case) and *skill* (strategy usage, in this case) interact to affect academic outcomes (test performance, in this case).

Moreover, Umemoto suggests that strategy instruction should target more than just declarative strategy knowledge, as the control group was only described the learning strategy. In some cases, a simple handout describing a learning strategy may promote its use, but that is probably more often the exception. Strategy instruction is likely more powerful when students are guided in developing declarative (what is the strategy), procedural (how to use the strategy), and conditional (when to use the strategy) strategy knowledge.

Future research should examine various components of strategy instruction and how they influence interactions among elements within the four components of the Model of Strategic Learning. As Bronfenbrenner (1979) noted, "in ecological research, the principal main effects are likely to be interactions" (p. 38).

Furthermore, as Locke (2000) explained, "industrial-organizational psychologists often state that behavior is a function of motivation times (or plus) ability (knowledge); this is true, but how to study this relation is not self-evident" (p. 411). Self-regulated learning researchers (among others) have made progress in studying complex interactions in educational contexts, and I urge us to continue this work because what emerges from these interactions is often what we are trying to facilitate in our students.

References are listed on Page 17.

Claire Ellen Weinstein, PhD, was a Professor Emeritus at the University of Texas at Austin. Claire Ellen conducted groundbreaking research on learning strategies, designed a 3-credit course (EDP310) to teach college students how to learn, developed the Model of Strategic Learning, and authored the Learning and Study Strategies Inventory. Claire passed away on Thursday, June 23, 2016

Taylor W. Acee, PhD, is an Associate Professor in the Graduate Program in Developmental Education within the Department of Curriculum and Instruction Texas State University. His program of research is focused on cognitive, metacognitive, motivational, and affective factors that contribute to and detract from student success in postsecondary education.

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AERA SSRL SIG
TIMES MAGAZINE
Vol 3
Issue 8
August, 2020

Chapter 8, *Help-Seeking as a Self-Regulated Learning Strategy*: Help-seeking Skills, Supported by Encouragement from the Educational Environment

Akie Hayashi (*Fukui University*)

INTRODUCTION TO THIS CHAPTER

It is accepted that seeking help is considered a behavioral or social self-regulated learning process (SRL). Help seeking is among the tools used by self-regulating learners to engage cognitively, behaviorally, and emotionally in the learning process. The articulation and interpretation of instrumental help seeking is a foundational advance in today's concept of how we view this strategy.

The goal of instrumental help seeking is to get just the help needed to overcome difficulty, such as asking for explanations or tips, which can reduce the need for further help and dependence on others. Seeking help that directly or indirectly involves others is unique among SRL strategies. This chapter describes help seeking and the impact of people and situations on the help seeking process, particularly the costs that may reduce the willingness to seek help even when it is needed. Interventions are described demonstrating that help seeking may benefit the student in several ways.

HIGHLIGHTS

This chapter highlights four classes of competencies and resources required for each stage of the help seeking process. Notably, interventions are presented for each competency and resource. The stages of the help seeking process are positioned in response to the prediction, implementation, and self-introspection stages of the SRL model, reinforcing the conclusion that learning success and outcomes are higher when SRL includes adaptive help seeking.

Future research that incorporates a micro- or developmental perspective on help seeking, such as consideration of their relationship with other self-motivating beliefs at work in the forethought phase, demonstrates the dynamic of self-regulating help seeking.

REFLECTION ON THE MEANING OF THIS CHAPTER FOR JAPANESE EDUCATIONAL STUDIES

In Japan, there are many studies on academic promotion such as the relationship between mastery goals and autonomous help seeking, attitudes that define help seeking, and relationships between understanding and engaging in autonomous help seeking (e.g., Nosaki, 2003). The influence of the environment on the child's help seeking is also examined, such as teacher achievement goals and teacher support (Seo, 2008). Studies on self-regulation have found that avoiding seeking help is maladaptive. However, studies do not show that avoidance strategies are always maladaptive; avoidance strategies are only maladaptive when accompanied by avoidance goals (Murayama & Oikawa, 2005).

In the field of clinical psychology, there has been a growing body of research on help seeking skills interventions. Honda, Arai, and Ishikuma (2020) discussed the effects of behavioral intervention focused on help seeking skills. Their program included group social skills training and psychoeducation.

Incidentally, there has been much attention paid to clinical help seeking not only through face-to-face interactions but also via the Internet. The Internet is less affected by physical and time constraints and allows for highly anonymous access anywhere at any time. The Internet can be used as an approach to facilitate seeking help from professional organizations at the beginning of the learning process.

Umegaki (2016) conducted an intervention study to show that the Internet may facilitate seeking help from professional organizations. Since the Internet took hold, some people ask for help from others through websites when they are troubled. Some people count on the Internet to answer their questions. Nonetheless, it is essential to develop help seeking skills (Honda, Arai, & Ishikuma, 2020), whether face-to-face or via the Internet.

I will conclude with an introduction to my research. I am examining whether children's perceived classroom climate affects their styles of help seeking in academic or friendship/mental health domains. Furthermore, I am investigating whether teachers' attitudes toward seeking help and verbal cues about their styles of seeking help affect children's perceived classroom climate and their styles of help seeking. The results suggest that there is some relationship between those variables. I would also like to continue to carefully examine the influence of the environment on the child's style of help seeking and people and things that contribute to the promotion of the child's help seeking skills.

References are listed on Page 17.

Akie Hayashi is currently a student in the PhD program of the Graduate School of Education and Human Development, Nagoya University and a Specially Appointed Senior Assistant Professor in Health Administration Center, University of Fukui. Her research interest is on educational and clinical psychology, especially help-seeking styles in each domains (e.g., academic and friendship).

Commentary on Hayashi's Review of Chapter 8, *Help Seeking as a Self-Regulated Learning Strategy*.

Stuart A. Karabenick & Jean-Louis Berger

First, we express our appreciation to Akie Hayashi for her fine review of Chapter 8, *Help Seeking as a Self-Regulated Learning Strategy*. It correctly focuses on the critical change in help seeking brought about by Sharon Nelson-Le Gall's recognition and promotion of instrumental help seeking now universally recognized as an adaptive self-regulated learning (SRL) strategy. Hayashi also notes distinctions from maladaptive help seeking that learners employ as work avoidant, as well as factors related to the avoidance of help seeking.

Noted is the impact of the Internet on facilitating help seeking, including its capacity to seek and receive help anonymously, which provides the potential for the reduction of self-threat in educational domains. Threat reduction is even more promotive in clinical settings where people are reluctant to admit needing help to overcome embarrassing personal mental health inadequacies. This aspect of help seeking continues to grow with the expansion of online resources, expressed in online education and telemedicine.

A consequence of the increased availability of resources is even an expanding expectation that students and others should see help from available sources, such as friends, teachers, and family and other relatives, as appropriate to alleviate problems. Hayashi correctly notes and cites literature on the importance of developing help-seeking skills. Further recognized is the importance of classroom climate for facilitating help seeking, which is primarily situated in the achievement goal theory (AGT) literature, more specifically the benefits of mastery goals and effects of reducing help seeking of performance-avoidance goals.

The incursion of computing power and learning analytics (LA) in general and artificial intelligence (AI) continues to have a significant impact on the help-seeking process and its role not only in education but also for lifelong learning. Consequently, the sooner learners understand the function and importance of that process, the better equipped existing and future world citizens will be to take advantage of it, when, how, and from whom or where to seek help when needed.

It is encouraging that Hayashi will continue to be invested in the study of help seeking to contribute to the promotion of children's help-seeking skills. We both encourage and applaud her goals. We also suggest that she includes research on help seeking in Japanese culture, an early example of which is work by Shwalb and Sukemune (1998) that appeared in the edited book by Karabenick (1998).

References are listed on Page 17.

Stuart A. Karabenick, PhD, is Research Professor Emeritus, School of Education at the University of Michigan and is professor emeritus of psychology at Eastern Michigan University. His research interests focus on student and teacher motivation and self-regulated learning.

Jean-Louis Berger, PhD, is a Senior Researcher and Lecturer at the Swiss Federal Institute for Vocational Education and Training, Lausanne, Switzerland. His research focus on teaching and learning within a VPET system 1.2 Learning processes and support.

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AERA SSRL SIG
TIMES MAGAZINE

Vol 3
Issue 8
August, 2020

Chapter 10, *Training Metacognitive Skills in Students with Availability and Production Deficiencies*: Metacognitive and Self-Regulated Learning Research in Japan

Masaki Kera (*Nanzan University*)

Metacognition plays a significant role in enabling learners to make progress in self-regulated learning. The metacognitive functions of monitoring and controlling one's cognitive activity are indispensable to setting personal goals, effectively engaging in learning activities, and reflecting on that engagement. In Chapter 10, Training Metacognitive Skills in Students with Availability and Production Deficiencies, Marcel V. J. Veenman discusses the principles and key points to bear in mind when supporting learners in developing these metacognitive skills.

Veenman posited that there are three essential principles for the effective teaching of metacognitive skills: 1) One's teaching should be coordinated with the learning context; 2) Informed training should be provided, and 3) It is vital to offer a long-term training.

Concerning the coordination of one's teaching with the learning context, in metacognitive teaching, the relationship between metacognitive processes and that essential for task execution must be embedded in a clear and specific language relating to learning requirements. In other words, the learner must understand the connection between the specific features of a task and conditional knowledge (i.e., *which* cognitive knowledge is needed and *when*).

Regarding the provision of informed training, learners must understand the value and usefulness of employing metacognition. For instance, a learner's task performance may temporarily drop because of an increased burden on his or her working memory during skills training. In this case, the learner's motivation to use metacognitive skills may decrease and stop before the skills taught have been mentally consolidated.

It is vital to ensure the continued use of metacognitive approaches. This may be achieved by emphasizing the learning and practice of the WWW & H (what, when, why, and how) Rule. This chapter ties these principles to a self-regulated learning cycle (forethought, performance, self-reflection) and introduces a behavioral plan for engaging with a task that describes which metacognitive actions should be taken.

Veenman also identifies two causes of an inadequate metacognitive approach to training materials in learners: availability deficiency and production deficiency. *Availability deficiency* refers to a lack of knowledge about metacognitive skills. Learners with availability deficiencies must be trained in the fundamental use of the WWW and H Rule. *Production deficiency* means that a learner possesses a certain degree of metacognitive capacity but cannot make full use of it for one reason or another.

Learners with production deficiencies lack an understanding of when or why skills should be used in specific learning contexts. Therefore, they need to be presented with prompts or clues to assist them with identifying when these skills are required. Thus, appropriate support for developing metacognitive approaches in a learner differs depending on the nature of the deficiency with which he or she is struggling.

Masaki Kera, PhD, is an assistant professor in the faculty of Humanities, Nanzan University. His research interest is on educational psychology, especially the development and socialization of children's achievement motivation.

METACOGNITIVE SKILLS TRAINING AND SELF-REGULATED LEARNING RESEARCH IN JAPAN

In Japan, the question of how to encourage metacognitive thought patterns in learners has drawn a good deal of attention, both theoretically and practically. For instance, Fukaya (2011) focused on learners' spontaneous generation of questions and answers. Thinking about such questions as *why* and *how,* and the corresponding answers are thought to deepen the understanding of the relationships between the various items of information that learners have obtained.

Fukaya (2011) carried out an experiment encouraging learners of middle school age to generate questions and answers about biological concepts spontaneously. In the experimental group, the learning goal was to obtain answers by first thinking of *how* questions in relation to the structure of the human circulatory system and *for what reason* questions in relation to the functions of the circulatory system.

In the control group, subjects were instructed to think of questions and answers without any intervening didactic intervention. As a result of the three-day learning intervention, students in the experimental group thought of questions about structure and function on their own and tended to have higher test scores on a post-intervention comprehension test. The findings of this study demonstrate the importance of instruction in the generation of questions to facilitate learning.

A study by Yoshida and Murayama (2013) yielded findings confirming the importance of metacognitive training. Their research asked cognitive psychology professionals and middle school students how effective they found various strategies for learning mathematics. They then investigated how these evaluations of effectiveness were consistent across middle school students and cognitive psychology professionals. The authors found a significant discrepancy between the evaluations of the cognitive psychology professionals and the middle school students, suggesting that the middle school students were unable to utilize effective learning strategies.

In promoting the use of metacognitive skills, we must, therefore, not only emphasize the effectiveness of the strategies involved but also devise interventions and tests to assist students in learning and making use of them. Metacognition may be considered a core concept of self-regulated learning. Chapter 10 includes many concrete and essential tips for researchers and educators in Japan on instructional strategies that foster such approaches.

References are listed on Page 17

Commentary on Kera's Review of Chapter 10, *Training Metacognitive Skills in Students with Availability and Production Deficiencies*, Marcel V. J. Veenman

Kera has written a fair review. My chapter, *Training Metacognitive Skills in Students with Availability and Production Deficiencies*, emphasized the three principles for effective metacognitive instruction and the usefulness of the WWW&H rule in relation to Zimmerman's self-regulated learning (SRL) cycle. Zimmerman pointed out to me that the application of metacognitive skills is not strictly linear, but instead appears in repeated loops. Monitoring and evaluation may lead to renewed cycles of orientation, planning, and execution until the task is done. A relevant aspect of metacognition is that the learner must keep track of these cycles while proceeding with task performance. These relevant principles still stand out today (Veenman, 2017).

Kera referred to Fukaya's (2011) study, which indicates that eliciting students to generate questions about *what*, *when*, *why*, *and how,* rather than merely generating questions about learning content, may be helpful in the metacognitive instruction skills. Kera also observed that Yoshida and Murayama's (2013) work revealed that (psychology) professionals tend to overestimate students' strategy use, while students often find themselves unable to apply those strategies effectively. In the same vein, teachers may overrate their students' strategy use.

Based on their own experience of engaging in metacognitive strategies, teachers believe those strategies to be similarly 'obvious' and 'straightforward' to their students (Veenman, 2019). Consequently, teachers tend to give implicit instruction rather than explicit, informed instruction. They incidentally use examples of their metacognitive activity in their lessons, but they rarely explain the metacognitive nature of these activities and the benefit of using these activities to their students (Veenman, 2017).

Based on the instructional principles depicted in Chapter 10, we designed a teacher-training program in which teachers are trained to give explicit and informed instruction of metacognition (Veenman, 2019). Moreover, teachers are incited to set an example for their students by discussing their metacognitive activities within their lessons. This teacher-training program was evaluated in an international study (Veenman & Breedveld, 2018) with Dutch and Czech primary-school teachers and 12-year old students.

First, teachers were extensively trained in four workshops and, subsequently, they trained their students during math and reading classes for at least three months. Metacognitive skills were assessed in a pretest-posttest design with computerized discovery tasks in the domain of biology (Veenman, Bavelaar, De Wolf, & Van Haaren, 2014). Trained students significantly improved their metacognitive skills, relative to control students who received no training. Trained students appeared to *transfer* their newly acquired skills to another type of task and a different task content in the posttest assessment.

This evaluation study was replicated with Dutch teachers and 14 and 15-year old students from secondary education. As teachers in secondary education address different disciplines, they were trained to instruct metacognition within their specific discipline. Results confirmed that trained students improved and transferred their metacognitive skills, relative to control students. However, results were more profound for teachers who collaboratively designed their lessons as a team, relative to teachers who worked individually. Reports of these two studies are in preparation.

Thus, training metacognition in students may demand an enormous investment of time and effort from teachers (preferably as a cooperating team), but the outcome in students is equally substantial. Transfer of newly acquired metacognitive skills indicates that students did not simply learn a trick or habit in a particular context. They acquired a broadly applicable skill for regulating their learning.

Marcel V. J. Veenman, PhD, is director of the Institute for Metacognition Research in the Netherlands. He was the founding Editor-in-Chief of *Metacognition and Learning*. He also initiated the Special Interest Group on metacognition within the European Association for Research on Learning and Instruction (EARLI).

AERA SSRL SIG
TIMES MAGAZINE
Vol 3
Issue 8
August, 2020

Chapter 11, *Learning Technologies and Self-regulated Learning: Implications for Practice:* How to Create a Technology-Oriented Learning Environment to Foster Self-regulated Learning

Takamichi Ito (*Kyushu University*)

OVERVIEW

Chapter 11, Learning Technologies and Self-regulated Learning: Implications for Practice, written by Anastasia Kitsantas, Nada Dabbagh, Faye C. Huie, and Susan Dass, provides an overview of learning technologies and self-regulated learning research, a timely topic in the context of the current pandemic. With many universities continuing to offer classes online, fostering student self-regulation is an urgent issue. I am thankful for the opportunity to translate this chapter and learn from the authors.

The authors of Chapter 11 explicitly support the widespread adoption of online and blended learning in higher education, based on previous research and various sources of information. The accuracy with which this chapter predicted our current situation with the COVID-19 pandemic is impressive. Zimmerman (2008) argued that technology-oriented learning could be a powerful medium through which students can develop their self-regulation skills. Following Zimmerman's idea, the authors address how to support self-regulated learning in online or blended learning environments and how learning technologies can enhance and support student self-regulation. Additionally, they describe a scenario to illustrate how college instructors can promote and support self-regulatory processes while using learning technology.

Takamichi Ito, PhD, is an associate professor at the Graduate School of Human-Environment Studies, Kyushu University, Japan. His primary research interest is teaching and learning processes in educational psychology.

THE FIRST PART OF THIS CHAPTER

In the first part of this chapter, the authors review research on the use of learning technologies, based on Zimmerman's cyclical model of self-regulated learning. His three phases model consists of forethought, performance, and self-reflection, all of which include several key subprocesses. In particular, the authors of Chapter 11 discussed (1) goal setting, planning, and self-efficacy beliefs in the forethought phase, (2) self-control strategies and self-monitoring in the performance phase, and (3) self-judgment and self-reaction in the self-reflection phase.

Research evidence shows that specific web tools embedded in course and learning management systems (CMS/LMS) can support various subprocesses of self-regulated learning (Dabbagh & Kitsantas, 2004). Based on the previous findings, the authors map self-regulatory strategies to LMS tools in an easy-to-understand table.

Teachers can use collaborative and communication tools to help students set goals, engage in effective time management and use content creation and delivery tools to help students interact meaningfully with course content. Learning and assessment tools are utilized to support self-monitoring and self-evaluating. These findings help university teachers describe how to use available learning technology in concrete ways.

THE LATTER PART OF THIS CHAPTER

The latter part of Chapter 11 describes a scenario in an upper-level undergraduate economics course and illustrates how self-regulatory processes can be embedded in a blended course. This scenario is informative, thought-provoking, and novel. LMS and 3D virtual worlds were used to support online instruction and interaction. In this virtual world, an avatar walked around the imaginary university campus, taking classes and learning independently. It is easy to imagine a classroom like this being implemented in the near future.

THE CURRENT STATE IN JAPAN

The current state of application of learning technologies in education in Japan is still in its infancy. The Coronavirus pandemic has led to the rapid proliferation of online college classes. Many university faculty members in Japan are trying to improve their students' ability to self-regulate through trial and error. The accumulation of evidence may still be insufficient, and Japanese online education may only support learning, not self-regulated learning.

This chapter offers concrete suggestions on what learning tools and environments are effective in each of the three phases, and there is much for Japanese educators and researchers to learn. Since progress in learning technologies is remarkable, we should continue self-regulated learning research in this area, while keeping an eye on its future as it grows in importance.

References are listed on Page 17.

Commentary on Ito's Review of Chapter 11, *Learning Technologies and Self-regulated Learning: Implications for Practice:* Anastasia Kitsantas, Nada Dabbagh, Faye C. Huie and Susan Dass

Thank you, Takamichi, for taking the time to translate and review our chapter *Learning Technologies and Self-Regulated Learning: Implications for Practice*. We are pleased to learn that the chapter offers concrete suggestions for Japanese educators on how learning technologies can be leveraged to support student self-regulated learning (SRL) in online learning contexts.

Specifically, your insight is greatly valued, and we agree that the topics reviewed in our chapter have become even more relevant in the face of the global COVID-19 pandemic. Educational institutions at all levels, regardless of resource or experience, were forced to transition to an online and distance learning model practically overnight. In this regard, the challenges facing higher education in Japan are similar to the challenges facing education in the United States and elsewhere.

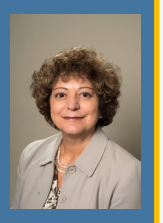
It is essential that educators not only utilize the tools that are often available in learning management systems, but to use them meaningfully and purposefully to promote and maintain student SRL. This chapter offers a formal and practical process of using the affordances of learning technologies to support SRL based on Zimmerman's three-phased cyclical model of forethought, performance, and self-reflection.

Outside the urgent need for SRL due to the pandemic-related rapid transitioning to online learning, advances have been made in learning technologies that afford more seamless, automated, and relevant online, SRL-related support mechanisms. For instance, virtual worlds have advanced in technological capabilities that support students' ability to participate actively and realistically execute real-world tasks and activities beyond passive, knowledge-based learning.

Further, new pedagogical frameworks have been developed that support the development of Personalized Learning Environments (PLEs) which requires the application of SRL processes, particularly goal setting, use of task strategies to organize content resources into meaningful learning activities, and self-monitoring to keep track of progress and self-reflect on performance.

In summary, there is no question that this is an unprecedented time that has caused the educational landscape to shift towards online and blended learning environments rapidly. This challenging time has given us new opportunities to overtly design and implement new technologies that foster a sense of social and emotional connectedness, provide further support for students' development of SRL behaviors and ultimately improve educational outcomes.

Anastasia Kitsantas, PhD, is a Professor of Educational Psychology in the College of Education and Human Development at George Mason University.



Nada Dabbagh, PhD, is a Professor in the Instructional Design and Technology Program at George Mason University in Fairfax, VA, and directs the Division of Learning Technologies of the College of Education and Human Development.

Faye Huie, PhD, is a senior research associate at the National Student Clearinghouse Research Center, where she monitors, analyzes, and reports on national post-secondary completion, retention, and persistence trends.

Susan Dass, PhD, is a graduate of George Mason University. After working at Inner City Fund (ICF) on advanced learning technologies for medical and defense applications, she has since semi-retired.

AERA SSRL SIG
TIMES MAGAZINE

Vol 3
Issue 8
August, 2020

Chapter 14: *The Use of Self-Regulation Interventions in Managing Chronic Disease*: Medicine and Self-Regulated Learning in the Post-COVID-19 World.

Yasushi Matsuyama (*Jichi Medical University*)

The year 2020 will be remembered as the year in which COVID-19 caused a global epidemic unprecedented in modern times. This COVID-19 pandemic has reaffirmed that no matter how much medical technology and public health progress, humanity will never be free from the fight against infectious disease, and that chronic disease is a critical factor in the severity of the infectious disease. Day-to-day management of chronic diseases is as important as the development of therapeutic drugs and vaccines.

Chapter 14, *The Use of Self-Regulation Interventions in Managing Chronic Disease*, written by Noreen M. Clark, begins with the sentence, "Almost one half of the U.S. population lives with a chronic condition" (p. 417). Many developed countries have an aging society, including Japan and the United States, and many older adults have chronic diseases. The hallmark of chronic disease is that it cannot be cured but can be controlled.

Clark, a faculty member at the University of Michigan, was one of the first to understand the importance of patients' self-management or self-regulated learning in the control of their chronic disease. To promote this idea, she applied self-regulated learning principles to patient self-management. She collaborated with Barry J. Zimmerman, a social cognitive psychologist and an expert in self-regulated learning. Their efforts lead to the development of a self-management model for chronic disease, the Model for Managing Chronic Disease (MMCD).

Clark's model included those characteristics of daily behaviors that an adult needs to manage his or her condition - or that of children - and the continuous and reciprocal process this requires, involving the three core aspects of self-regulation: self-observation, judgment, and reaction. This chapter describes the Model for Managing Chronic Disease (MMCD) contributions to chronic disease prognosis in two research projects.

First, to explore whether the MMCD construct can be utilized as a constant over time, Clark and her colleagues conducted a two-year observational study of parents of 637 asthmatic children living in Detroit, Michigan, and New York City suburbs. Second, to demonstrate the usefulness of MMCD in practice, they applied it to a self-regulating intervention program called *take PRIDE* for older patients with chronic heart disease, named as an acronym of its characteristics: P = problem-solving approach; R = researching the daily routine; I = identifying a heart management goal; D = developing a plan to reach the goal; and E = establishing expectations and rewards.

Testing of the PRIDE outcomes in randomized controlled studies showed that, compared with controls, program participants had less psychosocial dysfunction due to their disease. PRIDE also produced specific clinical benefits, like better physical abilities such as walking, fewer hospital stays, and lower hospitalization costs.

As a Japanese clinician, I acknowledge the tendency of some physicians here only to manage "diseases" in patients, using uniform treatment and guidance. Looking around the world, however, the 1980s first began to see calls for *patient-centered care* in both Europe and the United States, with an emphasis on patient decision-making and a behavioral science approach. In contrast, the doctor-patient relationship in Japan sometimes tends to fall back into paternalism, perhaps reflecting the hierarchical nature of Japanese society. The emphasis on disease management by doctors persists in medical education.

Japan has the world's fastest aging population, and many older adults have chronic illnesses. The insistence on a *doctor-centered* approach to chronic illness has led to ever-increasing funding for *medical* treatments, straining the nation's finances. Moreover, COVID-19 has made us realize that situations can arise in which standard medical services become suddenly unavailable. The significance of patients acquiring the skills to self-regulate their chronic conditions is gaining new urgency. Reading the collected wisdom in Clark's Chapter 14 is both timely and worthwhile.

To date, doctors, pharmacists, nurses, and nutritionists have worked together to educate patients on how to manage their chronic diseases actively. The future will require collaboration with disciplines other than medicine—just as Clark did with educational psychologists with expertise in self-regulated learning.

Coincident with the advent of patient self-regulation, self-regulated learning has also become prominent in Japan's medical education. It is used in the sense that the ever-increasing demand for medical expertise and skills cannot be met through the current medical school curriculum only. Instead, self-regulated learning is critical: medical professionals should proactively study and update their skills throughout their lives.

My research topic is close to this context, namely that the identity formation medical students undergo in becoming healthcare professionals is an essential factor in their active motivation to improve themselves, to devise learning strategies, and to reflect on themselves (Matsuyama, et al., 2019). There is an essential difference between self-regulated learning, as covered in Chapter 14, and that emphasized in medical education. Nevertheless, certain parallels are also evident. At least, we can say that self-regulated learning is now gaining recognition in Japanese medical education. I hope that the concept of self-regulated learning will take advantage of this momentum and become more prevalent in patient-management.

Sadly, Noreen Clark passed away on November 23, 2013, in New York City following a sudden illness. Her significant achievements and living persona can be viewed at the University of Michigan's website (https://sph.umich.edu/noreenclark/). This site demonstrates her significant contributions as one of the world's foremost experts in chronic disease management.

Yasushi Matsuyama, MD, MHPE, PhD, is an associate professor at the Medical Education Center, Jichi Medical University, Japan. His research interest concerns the impact of professional identity formation on self-regulated learning.

Commentary on Matsuyama's Review of Chapter 14, *The Use of Self-regulation interventions in Managing Chronic Disease*

Deeba F. Minhas

I express appreciation and gratitude to Yasushi Matsuyama at Jichi Medical University for reviewing Noreen Clark's Chapter14, *The Use of Self-regulation Interventions in Managing Chronic Disease*. Self-regulated learning will be impactful as it is integrated into Japanese medical education.

As one of the world's leading experts in the management of chronic disease, she was on a great pursuit to increase self-regulation and empower patients to manage their chronic disease. Since her passing on November 23, 2013, following a brief illness, the field has not been the same.

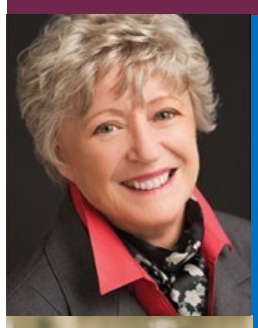
Matsuyama's research exploring changes from a teacher-centered to a learner-centered context by promoting self-regulated learning among undergraduate Japanese medical students is commendable. The students participated in an elective course (Free Course Student Doctor or FCSD) in which they designed individualized learning, received support, and formative feedback. Some of those students remained in the teacher-centered curriculum, where they discussed their motivation, learning strategies, and self-reflection on self-study. A contextual change toward learner-centered learning could promote SRL even in students strongly accustomed to teacher-centered learning. The results revealed that the learner-centered approach helped them to employ learning strategies actively (Matsuyama et al., 2019)

As a rheumatologist, I care for patients with chronic ailments. I have firsthand seen the substantial benefit of working with patients to create personal goals, and providing education and resources to achieve those goals. One area I am studying is Mindfulness-Based Stress Reduction (MBSR) to decrease pain interference in the lives of rheumatoid arthritis patients. This could be a tool to increase patients' self-efficacy and self-regulation to potentially improve physical and psychological outcomes.

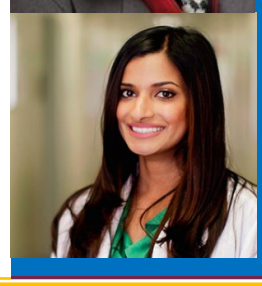
We will need to provide patients with different options, allowing them alternate means to reach their unique, personalized goals. With the burgeoning opiate epidemic, future directions in medicine will focus on obtaining high-quality information regarding a patient's response to different pharmacological and non-pharmacological self-management therapies.

The goal is to obtain data on which types of therapies patients do and do not respond to clinically with patient-reported outcomes through biomarkers, laboratory data, and functional imaging. Identifying the underlying mechanisms for their pain and response will lay the groundwork for an eventual precision medicine approach to future treatment plans.

References are listed on Page 17.



Noreen M. Clark, PhD, the Myron E. Wegman Distinguished University Professor of Public Health, director of the University of Michigan Center for Managing Chronic Disease, and former dean of the University of Michigan School of Public Health, died November 23, 2013.



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AERA SSRL SIG
TIMES MAGAZINE
Vol 3
Issue 8
August, 2020

Chapter 15, *Applying the Model of Development of Self-Regulatory Competence to Mentoring*: Learners' Psychological Development and Motivation in Japan

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In recent years, mentoring has gained attention as a core method for learning and academic achievement. *Mentoring* is the process by which a mentor comprehensively and continuously encompasses both academic, professional, and personal aspects to encourage learners to succeed (Healy & Welchert, 1990). Mentoring that focuses on learners' development in the context of self-regulated learning is a model exemplified in the work of Barry J. Zimmerman. His approach to mentoring promotes a cyclical and progressive model for developing self-regulated learning skills and competencies.

Chapter 15, *Applying the Model of Development of Self-Regulatory Competence to Mentoring*, authored by Maria K. DiBenedetto and Marie C. White, is interesting, as it applies Zimmerman's model to learners, particularly those in doctoral programs. It reviews mentoring research and shows that Zimmerman's developmental model of self-regulatory competence is exemplary in doctoral education. In addition, the chapter discribes the relationship between this model and Zimmerman's mentoring method and its application to educational settings and future research.

CHAPTER 15: KEY ELEMENTS

The chapter addresses the importance of the role of the mentor, who has the responsibility to guide and encourage the learner to become self-motivated and independent. Zimmerman's approach to mentoring his doctoral students incorporates a process of self-regulated learning that includes both cyclical and sequential levels attaining of self-regulation.

Zimmerman's model consists of four sequential levels: observation, imitation, self-control, and self-regulation (Zimmerman, 2000). DiBenedetto and White describe and apply Zimmerman's model to mentoring doctoral students:

1. The *observation* level is dominated by vicarious learning through exemplary teachers. Vicarious reinforcement is triggered by observation of successes that faculty members receive, and faculty members attempt to persuade students that they have talent and foster self-efficacy.
2. The *emulation* level is characterized by doctoral students imitating observed self-regulating thinking and behavioral tendencies and putting them into action. Specifically, the mentees attempt to reproduce the skills in seminars and in designing their own research.
3. The *self-control* level brings a shift in the driving force of self-regulating behavior and self-efficacy from an external to an internal one. Doctoral students are trained in self-regulated learning, focusing on processes such as goal setting and strategy use with less input from the mentor.
4. The *self-regulation* level, doctoral students have attained strategies and skills to complete a task, and no longer rely on faculty members for assistance. At this point, self-regulation is evident. Here, with the outcome itself as the goal, it is possible to internalize the self-efficacy learned from the mentor and adaptively manipulate strategies and self-regulation skills.

APPLICATIONS OF THE CHAPTER ON MENTORING TO THE JAPANESE EDUCATIONAL SYSTEM

In the Japanese educational system, the impact of mentors is examined in terms of career development. Hashimoto (2016) investigated the kind of support high school students received from their mentors. As a result, high school students received different supports depending on the position of the mentor. Kodama (2016) examined the effect of mentoring on student teachers during teaching practices. Results suggested that when teachers' actual burdens and difficulties were perceived, sufficient mentoring provision might increase their involvement in achieving their goal of becoming a teacher, and insufficient mentoring might decrease their interest in teaching.

Mentoring theory has been applied in online education. Mentors in e-learning are said to be responsible for guiding and supporting each learner and coordinating group discussions (Tominaga & Kogo, 2014). Matsuda, Honna, & Kato (2005) developed guidelines for mentoring in e-learning and evaluated them. As a result, when learning support was provided based on the guidelines, the learners' evaluations of their mentors were improved.

RECOMMENDATIONS FOR TEACHERS, COACHES, MENTORS, AND STUDENTS

The function of mentor was examined primarily in terms of psychological growth of learners. Yamada (2005, 2008) has shown that students' pathways and identities are developed by teachers who take on the role of mentors. Furthermore, Nakajima and Matsumoto (2017) identified the mentor as a person who supported learners' development and growth and examined the effects of support through mentoring on identity development and adjustment. Results suggested that encouragement and acceptance of mentors might affect students' identity development and sense of comfort.

Studies that examine how learners perceive their mentors are also interesting. For example, Tominaga, Sugiura, and Kogo (2013) developed the items on the qualities of e-learning mentors that learners expect and examined the qualities learners look for in a mentor. Results showed that mentors' ability to instruct, respond to learners, and perform their tasks were expected by learners. On the learners' perspective on perception, motivational psychology has also focused on the perception of affective aspects such as motivation of mentors or teachers. Terao and Nakaya (2019) suggested a process in which learners' perceptions that teachers had intrinsic motivation for teaching cued learners' expectancies for the subject content and teacher's support, and these expectancies formed a cognitive set and affected learners' intrinsic motivation.

CONCLUSION

Zimmerman has practiced appropriate mentoring as a graduate faculty member. His ability to develop learners into self-regulating educators, researchers, and future mentors is perhaps one of his many accomplishments. DiBenedetto and White introduce a mentoring relationship between faculty members and graduate students in doctoral programs that has not yet been fully considered. This key element of Zimmerman's mentoring model, reminds us of the critical role faculty members have in the mentoring process. Effective mentors should be knowledgeable and skilled. Zimmerman's mentoring approach is exemplary and can easily be emulated by educators who serve as mentors.

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Kanako Terao is enrolled in the PhD program at the Graduate School of Education and Human Development at Nagoya University. Her research interest is on educational psychology, especially the social contagion of motivation model and teacher motivation.

Commentary on Terao's Review of Chapter 15, *Applying the Model of Development of Self-Regulatory Competence to Mentoring*

Marie C. White & Maria K. DiBenedetto

The learning process requires the acquisition of self-regulatory competencies. To master capabilities, such as goal setting, help-seeking, and self-monitoring, learners observe experts and competent models (White, 2017). Observation of an exemplary model is essential for successful learning and development while pursuing self-set goals, such as completing a doctoral degree.

In a review of Chapter 15, *Applying the Model of Development of Self-Regulatory Competence to Mentoring*, Kanako Terao expertly considers the faculty's critical role of advisor, as a model, when mentoring doctoral candidates.

With insights gained from her reading of Chapter 15 and professional experience, Terao notes that mentors can contribute to the factors that impact their mentees' psychological growth and development. She strikes a chord of truth when she considers the relationship between the mentee and the mentor as core to the success of Dr. Zimmerman's model of self-regulation as fundamental to the mentoring process.

Terao's review focuses on the chapter's elements that explain how Professor Barry J. Zimmerman's mentoring style reflects his model of self-regulated learning. She discusses the mentor's critical role as he leads his doctoral candidates through the four levels of developing self-regulatory competencies. Additionally, Terao explains the impact Japanese mentors have on their students, making a case for mentors to consider using Zimmerman's model to expand their relationship with their students.

The outcome of Zimmerman's mentoring process enables the student to adapt behavior across changing conditions, independent of the mentor (Zimmerman, 2000). Critical to the model is the iterations of cyclical phases of self-regulation and the feedback loop that informs future attempts at the task (White & DiBenedetto, 2015). As noted in the chapter, much is needed to understand the processes taking place within each level and how the pacing and transitions to the subsequent levels occur.

After the chapter's publication, White and DiBenedetto (2015) presented an integrated model of self-regulation to strategically include the phases of self-regulated learning, modeled by Zimmerman. At each level of attaining self-regulatory competency (observation, emulation, self-control, and self-regulation), Zimmerman remains in control of the mentoring relationship and paces his guidance according to the doctoral student's learning and development. This is accomplished through numerous conversations and multiple iterations of the cyclical phases of self-regulated learning, forethought, performance, and self-reflection.

The mentoring process builds a relationship between Zimmerman and his doctoral students. As a result, trust and respect allow the doctoral candidate to accept the decisions made regarding transitioning to the next level. The decision may take time but is marked by encouragement to move ahead more independently.

As Terao notes, mentoring relationships significantly impact the lives of the mentees. When the authors of the chapter interviewed Zimmerman's doctoral candidates regarding their time with him as their advisor, the statement representing many responses came from Rajkumari Wesley. She described the nature of her relationship with her mentor, highlighting the skillful pace with which Zimmerman leads his doctoral candidates towards independence: "Our meetings were focused and quite challenging. Zimmerman was as enthusiastic as I was about getting to the next step. He set the highest standards, and I was challenged to give my very best—he read every word I wrote, fixed it, then revised it again and again; and then Zimmerman finally said, "OK"—we set up a defense date!"

References are listed on Page 17.

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Vol 3
Issue 8
August, 2020

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