



Harnessing Motivation, Self-Efficacy, and Self-Regulation: Dale H. Schunk's Enduring Influence

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Abstract

This tribute celebrates the unwavering dedication and contributions of Dale H. Schunk to educational psychology. His research has fundamentally transformed how school-based practitioners support student learning. By pioneering effective teaching strategies and interventions, he has called educators to create dynamic learning environments that cultivate students' self-efficacy beliefs and self-regulated learning. Beyond his scholarly achievements, Schunk's commitment to mentoring students and faculty alike has impacted the academic community. His profound influence continues to reshape the landscape of educational psychology, igniting ongoing research and driving innovation to enhance teaching and learning practices among learners. This tribute is a testament to Schunk's enduring legacy and profound impact on educational psychology.

Keywords Feedback · Motivation · Self-efficacy · Self-regulation · Social cognitive theory · Assessment · Mentoring · Mathematics education · Educational psychology · Culture · Calibration

Introduction

As Dale H. Schunk embarks on retirement, we celebrate his distinguished career as an exemplary scientist whose significant contributions have shaped how curriculum, instruction, and assessment are conducted today. He embraced and directly studied social cognitive theoretical principles, including observational learning, modeling, motivation, triadic reciprocity, and self-efficacy, and applied them to educational psychology. He brought self-efficacy to education classrooms. He blended self-efficacy with self-regulation processes through his research and conceptualization. Dale

Extended author information available on the last page of the article

has significantly contributed to motivation and self-regulation literature through his innovative and long-lasting efforts to develop theory, research, and practical applications. His illustrious and impactful career has been guided by his groundbreaking research on self-efficacy, motivation, and self-regulation, profoundly impacting the field of educational psychology.

Dale, a native of Chicago, IL, and an only child, was raised in a family where both parents had accounting-related careers. His passion for sports was evident during his formative years at Taft High School, where Harvard University recruited him to play football; an offer he declined to pursue a career in psychology at the University of Illinois at Urbana-Champaign in their ROTC program. After his undergraduate studies, Dale was an Air Force educational trainer stationed at NATO Southern Headquarters in Naples, Italy. During this time, he also pursued a master's degree in education with visiting faculty from Boston University. His academic journey continued at Stanford University, where he earned his doctorate under the guidance of renowned psychologist Albert Bandura. Dale held teaching positions at the University of Houston, the University of North Carolina at Chapel Hill, and Purdue University. His leadership roles culminated in a decade-long tenure as dean of the School of Education at the University of North Carolina at Greensboro. Dale now holds the esteemed title of professor emeritus, marking a distinguished career in education psychology.

Throughout his illustrious career, Dale has amassed a wealth of achievements. His extensive work includes numerous published books and classic textbooks, empirical studies and theoretical chapters, and active participation in professional conference presentations, where he has often been featured as a keynote speaker. Notably, his textbooks *Learning Theories: An Educational Perspective* and *Motivation in Education: Theory, Research, and Applications* have achieved classic status, alongside his two coedited handbooks, *Handbook of Self-Regulation of Learning and Performance* (Vol 1 & Vol. 2). Dale has secured prestigious grants and provided mentorship to students who have become leaders in their respective fields. His collaborations with esteemed colleagues, including Maria K. DiBenedetto, Judith L. Meece, Carol A. Mullen, Frank Pajares, Paul R. Pintrich, and Ellen L. Usher, have contributed to and enriched the field of educational psychology. Particularly noteworthy is his partnership with Barry J. Zimmerman, with whom he has developed significant theoretical frameworks on self-regulated learning. Their work has shed light on the complex interplay of personal, behavioral, and environmental factors in teaching and learning, making substantial contributions to our understanding of motivation, self-efficacy, and self-regulated learning in educational practice. Dale's emphasis on empowering learners to take an active role in their learning process underscores the importance of his work in the field.

In recognition of his significant contributions to the theory and research of self-regulated learning, Dale was the first recipient of the esteemed *Barry J. Zimmerman Award for Outstanding Contributions* by the Studying and Self-Regulated Learning Special Interest Group of the American Educational Research Association (AERA) in 2015. In 2024, Dale received the *Career Achievement Award for Distinguished Psychological Contributions to Education* from the American Psychological Association, Division 15 (Educational Psychology). This prestigious award is reserved for educational psychologists who have demonstrated substantial, career-long

achievements and made noteworthy contributions to the field. It explicitly acknowledges individuals for their original, scientific, empirically based research that significantly enhances educational psychology knowledge, theory, or practice. These accolades serve as a testament to his dedication and impact in advancing the understanding of motivation, self-regulated learning, and educational psychology and highlight his ongoing commitment to excellence in research and scholarship.

Dale's influential contributions have substantially advanced our understanding of how individuals' beliefs in their capabilities impact motivation and performance. His work on goal setting has provided valuable insights into pursuing and achieving goals. At the same time, his research on strategic learning has illuminated the cognitive and metacognitive strategies that enhance learning outcomes. Furthermore, Dale's research on self-monitoring and feedback has deepened our understanding of how individuals regulate their learning by monitoring progress and receiving performance feedback. His work on attribution assessment has contributed to our understanding of how individuals explain their successes and failures and the implications of these attributions for their motivation and persistence. Dale has demonstrated the essential role of self-regulated learning in education, emphasizing its importance for students' academic achievement and lifelong learning. His research has underscored the potential for all learners to succeed academically when equipped with the necessary tools and support, emphasizing the crucial role of fostering appropriate levels of self-efficacy beliefs, particularly for learners from disadvantaged backgrounds.

Dale's lasting impact on educational psychology is undeniable. He has significantly influenced the field, shaping how educators approach and support student learning. His work has provided valuable insights into the complex interplay between social and cultural factors and cognitive processes, illuminating mechanisms that drive student motivation and learning outcomes. Dale's contributions have paved the way for more effective teaching strategies and interventions, empowering educators to create supportive learning environments that foster students' self-efficacy and self-regulated learning. As a result, his influence continues to shape the landscape of educational psychology, inspiring further research and innovation to enhance teaching and learning practices. Dale's dedication to comprehending teaching and learning through the lens of social cognitive theory is evident in the following ten tributes.

A Foundational Scholar in the Fields of Motivation and Self-Regulation

Allan Wigfield

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Congratulations on your retirement, Dale. I am honored to be asked to contribute some thoughts about your contributions to the field for this article in *Educational Psychology Review*. I use the word "foundational" in my title because Dale's work was exactly that in two areas: (1) work on students' motivation in school and (2) work on their self-regulation. Moreover, he was one of, if not the first, to integrate

motivation and self-regulation, setting the stage for later work connecting the two areas. In my commentary, I will focus more on his work on motivation since that is the part of his work I know best.

As is well known, Dale was a student of Albert Bandura at Stanford University. Bandura (1977) introduced the field to his construct of self-efficacy, which can be defined as “beliefs about one’s capabilities to learn or perform behaviors at designated levels” (Schunk & Pajares, 2002, p. 15). Bandura viewed self-efficacy as a key motivational construct in many different areas of people’s lives, including school, but did not write extensively about how students’ self-efficacy impacts their motivation and achievement in school. Dale was (and still is) *the* scholar who brought self-efficacy to studying individuals’ motivation in school. He did it by beginning with his dissertation study, published in 1981 in the *Journal of Educational Psychology* (Schunk, 1981). He examined how different training conditions (e.g., cognitive modeling and didactic instruction) influenced low-achieving elementary school children’s self-efficacy and performance. He showed that cognitive modeling was the more effective treatment. This study is characteristic of Dale’s work with examining self-efficacy and the school factors that impact students’ self-efficacy.

He soon built on this work by examining other factors impacting students’ self-efficacy in school. Examples of this work include his studies of how different kinds of attributional feedback impacted students’ self-efficacy (e.g., Schunk, 1983a), what kinds of reward contingencies impact self-efficacy either positively or negatively (Schunk, 1983c), and how goal setting impacts self-efficacy (Schunk, 1983b). The latter study is an excellent example of Dale’s connecting self-efficacy to other key motivation constructs (e.g., goals) and can be seen as a precursor of his work connecting motivation and self-regulation.

Along with his empirical work, Dale also wrote key articles that reviewed the work on self-efficacy in education settings and firmly established the construct as central to understanding students’ motivation and school achievement. Early examples are his 1984 article in *Educational Psychologist* and his 1989 article published in *Educational Psychology Review* (Schunk, 1984a, b, c, 1989). Dale quickly became the “go-to” scholar when book editors sought someone to write chapters on self-efficacy for their edited volumes. I did it in my 2002 edited volume (with Jacquelynne Eccles) on the development of achievement motivation; Dale contributed the chapter on self-efficacy with coauthor Frank Pajares (Schunk & Pajares, 2002).

Dale also contributed a chapter to McInerney and Etten’s (2004) edited volume on *Big Theories* in motivation; the title of that book illustrates how prominent the self-efficacy construct had become in work on motivation done in educational psychology. Finally, in 2019, when Alison Koenka and I were developing our special issue of *Contemporary Educational Psychology* on major theories of motivation, Dale was our first choice to write about social cognitive theory and self-efficacy, and he and Maria K. DiBenedetto contributed an excellent article on that topic (Schunk & DiBenedetto, 2020). In sum, Dale brought the construct of self-efficacy to the educational psychology field, quickly became established as the leading scholar examining it, and has remained active for more than 40 years.

The first mention of terms related to “self-regulation” in Dale’s publications is in his 1982 article on how verbal self-regulation impacts students’ self-efficacy and achievement

(Schunk, 1982a, b). Early in his career, he also was interested in how students' self-monitoring impacted both efficacy and achievement. Again, these two articles illustrate how Dale connected different constructs and areas in our field, leading to a clearer understanding of both. As with self-efficacy, Dale soon became one of the leading scholars working on social cognitive models of self-regulation; much of that work was done with his friend and colleague Barry J. Zimmerman. Dale and Barry edited a seminal series of books on self-regulation, motivation, and classroom learning; these remain foundational works in these fields (Schunk & Zimmerman, 1994, 1998; Zimmerman & Schunk, 1989, 2011). When Zimmerman retired, Dale invited Jeffrey Greene to work with him on issues related to self-regulation. In 2018, they edited the highly influential *Handbook of Self-Regulation of Learning and Performance* (Schunk & Greene, 2018).

Another significant contribution Dale made to the field is his textbooks written with Paul Pintrich (Pintrich & Schunk, 1996, 2002; Schunk et al., 2014). These are arguably the best textbooks in the motivation field because they combine a high level of sophistication in discussing work on motivation with an approachable writing style. They make it so that even beginning scholars in the field can clearly understand the knowledge base in motivation and issues the field needs to address.

I will close this commentary with some words about Dale and my relationship. I have known Dale since the early 1980s. We met at AERA through the Motivation in Education SIG. Dale invited me to contribute chapters to various volumes he edited: the 1992 volume on *Student Perceptions in Classrooms*, the 1994 volume *Self-regulation of Learning and Performance*, and the 2008 volume *Motivation and Self-regulated Learning*. The first two, in particular, were quite important in helping me to become established as an "independent" scholar. I greatly appreciated those invitations and Dale's helpful feedback on the drafts of my chapters. As mentioned earlier, Dale contributed a chapter to my 2002 edited book on the development of achievement motivation. He also contributed a chapter on reading and writing self-efficacy to John Guthrie and my edited volume *Reading Engagement: Motivating Readers Through Integrated Instruction* (Schunk & Zimmerman, 1997), as well as a chapter on self-efficacy to the first edition of our *Handbook of Motivation in School* (Wentzel & Wigfield, 2009). In each case, the content and status of our books were raised due to Dale's contributions. Dale has been an amazing colleague, provided me with important career advice over the years, and is someone I am proud to call a good friend. I have a great deal of respect and admiration for him as a person and for his work. Congratulations again, Dale, on your retirement and for your amazing and enduring contributions to our understanding of motivation and self-regulation.

Crafting Effective Theories and Writing with Impact

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It is not hyperbole to write that Dale H. Schunk is one of the key founders of the field of self-regulation and that he has embodied the lessons from this research.

Dale was the first to take key aspects of Bandura's (1986, 2001) social cognitive theory, such as self-efficacy and the developmental aspects of social learning, and apply them to how people self-regulated while learning (Schunk, 1981). Such transfer of ideas between areas of scholarship is challenging and even more impressive when realizing just how accepted self-efficacy is, now, as a key construct in motivation, self-regulation, and learning. It is now difficult to envision research on teaching and learning without the idea of self-efficacy, which is a testament to the power of Dale's insight back in the 1980s. Dale's research has revealed, among other things, how the learners' beliefs about their capacity for achieving a task affect whether they attempt that task, the nature of their engagement, and the likelihood of their persistence through difficulties. Adequate kinds and levels of self-efficacy can be learned through direct experience. Yet, Dale's work has shown how people more often observe and emulate others when developing the self-efficacy necessary to engage in novel and challenging tasks. Again, this social and developmental approach to learning is as uncontroversial now as it was groundbreaking when Dale first proposed it.

Not content at making substantial and novel contributions to theory (e.g., self-regulation, motivation), Dale spent his career applying these ideas to teaching and learning, resulting in powerful, practical guidance on promoting effective learning. The measure of his impact is both obvious and difficult to fully articulate, given how foundational his work has been to so many in education and education research, including myself. One measure is in the number of texts he has written, edited, and coedited, spanning foundational handbooks on self-regulation (e.g., Schunk & Greene, 2018; Zimmerman & Schunk, 2001, 2011), texts that illustrated important congruencies between motivation and self-regulated learning (e.g., Schunk & Zimmerman, 2008), essential translations of learning theories into practices for educators and students (e.g., Schunk, 2012), and a field-spanning history of the entire field of educational psychology (Zimmerman & Schunk, 2003). These texts are foundational disciplinary "homes" in the field wherein other scholars have apprenticed and made their own contributions; the field and the scholars who comprise it would not be the same without his scholarship. When I look through these texts, I certainly see Schunk's impressive thinking and careful editing, but also, I see how he provided venues for other scholars to explore and publish their thinking. A thoughtful editor begins their work when selecting authors for the volume, and in the tables of contents in these texts, I see the beginnings of many scholars' careers, and the essential opportunities Dale provided for those scholars to develop their own academic self-efficacy.

I was fortunate to be the beneficiary of Dale's adept editorship and mentorship. In addition to affording an early career scholar the opportunity to contribute to important texts in the field (e.g., Greene et al., 2011, 2018), Dale provided valuable feedback on my ideas and how they could be productively extended. He modeled the kinds of scholarship I hoped to emulate and, in so doing, enhanced my self-efficacy. I was, frankly, shocked when he asked me to coedit the second edition of the Routledge *Handbook of Self-Regulation of Learning and Performance* (Schunk & Greene, 2018), and his endorsement of me in this way has meant more to me and my career than I can articulate here. Once again, he lived his research when he modeled

effective editing during our Handbook work, giving me opportunities to develop my skills under his careful tutelage. I recall with great fondness and deep appreciation the many times he drove from Greensboro, NC, to Chapel Hill so we could discuss the planning, enactment, and refinement of the Handbook. I observed him carefully, noting what he focused upon in the chapters we reviewed, as well as the ways he helped authors bring to blossom ideas in their work that were sometimes still germinating, and at other times yet-unnoticed by the authors.

Due to his adept editing, Dale helped authors realize the fullness of their conceptualizations while tethering their ideas to practical implications for teaching and learning. In this, he modeled effective theory development (Greene, 2022; Schunk, 2020), another lesson and gift I received during our time together. I consider myself greatly fortunate to have had the opportunity to learn from his scholarship, apprenticeship with him, and find my self-efficacy enhanced by both. His career has been extraordinary due to the depth of his insights and the ways in which he lived those insights, paying them forward to others.

Advancing Social Cognitive Theory in Education

Ellen L. Usher

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My graduate school advisor, known for his high standards in writing and thought, had one collaborator he deeply trusted: Dale H. Schunk. This was my introduction to the social cognitive theory expert whom Frank Pajares held in such high regard. The theory-focused work they coauthored (Pajares & Schunk, 2002; Schunk & Pajares, 2005) became foundational to my understanding of social cognitive theory in education.

I first saw Dale present at the AERA conference with Barry J. Zimmerman. Star-struck and nervous, I introduced myself afterward, sharing greetings from Pajares. Dale's warmth and joviality immediately put me at ease. At a later AERA meeting, Dale was assigned as my mentor during a graduate seminar. While some student-mentor pairs had brief conversations, Dale went above and beyond, treating me to lunch and reviewing my dissertation proposal, on which he had made thoughtful, handwritten comments. His feedback sharpened my understanding of self-efficacy.

After Pajares' untimely passing in 2009, I was somewhat adrift as a junior faculty member. Receiving an invitation from Dale to collaborate on our first theory-focused paper was both humbling and uplifting. Perhaps Dale had internalized what his mentor, Albert Bandura, had modeled: that effective mentors help "turn potentiality into actuality" (Bandura, 1997, p. 106). I will forever be grateful that Dale, in turn, saw potential in me and guided my growth with the same thoughtful care.

Among Dale's most lasting contributions to educational psychology is his pivotal role in advancing and applying social cognitive theory, profoundly shaping how educators understand motivation and learning. Social cognitive theory posits that individuals' behavior, environment, and personal factors—such as beliefs and

thoughts—interact in a dynamic, reciprocal manner. Dale was among the first to apply and test these tenets in educational contexts, challenging behaviorist assumptions that uniform environmental inputs produce predictable learning outcomes.

Through his empirical work, Dale demonstrated how social influences affect learners' beliefs and behaviors. In a series of studies in the 1980s, Dale and his colleagues examined theorized mechanisms through which two critical social factors—feedback and social modeling—affect children's academic self-beliefs and functioning (e.g., Schunk, 1981; Schunk et al., 1987; Schunk & Gunn, 1985; Schunk & Hanson, 1985; see Schunk, 1987, for a review). One key finding from this work was that students who struggle academically are more persuaded by peers who disclose their academic challenges, cope through their errors, and express self-doubts. After observing such models, struggling students tend to perform better academically and to believe themselves more capable. This confirmed the theoretical prediction that observing similar, though imperfect, *coping models* enhances motivation, and implied that teachers should select role models who demonstrate perseverance, making academic success feel more attainable for struggling students (Schunk, 1987).

Dale's work also underscored the essential role of goal setting in academic motivation. He showed that specific, proximal, and challenging goals foster greater commitment and performance (Bandura & Schunk, 1981). Learners are more motivated when they can monitor progress toward their self-set standards and see evidence of personal growth. Furthermore, Dale showed that attributional feedback plays a crucial role in this process. Early in skill development, feedback that attributes success to effort boosts self-efficacy and encourages learners to set more ambitious future goals (Schunk, 1982a, 1996). As learners advance and their abilities grow, feedback that attributes success to their developing abilities helps sustain self-efficacy and drives goal-directed behavior (Schunk, 1983a). This dynamic process allows learners to maintain motivation as they pursue increasingly complex tasks.

Expanding the concept of academic self-efficacy in meaningful ways, Dale proposed that educators should assess students' self-efficacy for other learning processes beyond self-efficacy for learning. This includes their beliefs about their capabilities to regulate their learning by managing their time, attention, and strategies effectively. His research stressed the importance of cultivating task-specific self-efficacy and self-efficacy to learn, which help students persist through academic challenges and optimize their learning strategies (Schunk, 1991; Schunk & DiBenedetto, 2016; Usher & Schunk, 2018).

In addition to his foundational research, Dale has consistently called for a broader exploration of social cognitive theoretical tenets. He has advocated for integrating cultural and contextual factors in understanding self-efficacy development and social modeling. Moreover, he has recognized the potential for educational technology to enhance learner motivation by offering diverse models of success and supporting the development of self-efficacy and self-regulation skills (Schunk & DiBenedetto, 2020).

Dale's clear and accessible writings have served as a guide for those seeking to understand and apply the foundations of social cognitive theory in educational settings (e.g., Schunk & Usher, 2019). He has been a champion for translating theoretical ideas into practical strategies for improving teaching and learning (see Schunk &

DiBenedetto, 2023). His lifelong dedication to understanding and enhancing motivation and learning will leave an enduring mark on educational psychology.

A Pioneer of Academic Self-Efficacy Research in Education

Mimi Bong

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After completing my dissertation on the generalizability of academic self-efficacy using confirmatory factor analysis, a covariance statistical technique considered novel and sophisticated then, I submitted the manuscript to the *Journal of Educational Psychology* (Bong, 1997). Of the two anonymous content experts, one was particularly demanding. No matter how hard I tried, satisfying this reviewer, who always typed his comments in Courier 12, seemed almost impossible. Immediately after the article was published, I learned the identity of this difficult reviewer—it was Dale H. Schunk! At the next annual AERA meeting, the late Michael Pressley, who was the journal editor, shared an anecdote about sending out a self-efficacy manuscript to two of his best friends, Dale H. Schunk and Barry J. Zimmerman. Ironically, one recommended rejection while the other praised the work as cutting-edge. Pressley pleaded to the audience that it was one of the most difficult decisions he made as an editor. He said, “Because I know where these two are coming from.” It took me several more years before I fully grasped what he meant by that.

Dale has epitomized what educational psychology research is through his lifelong commitment to investigating the impact of academic self-efficacy on children’s learning and achievement. His academic advisor, Albert Bandura (1977), coined the term and published the seminal work on self-efficacy. Nevertheless, it was Dale who pioneered its application to classroom research, revealing the transformative potential of self-efficacy beliefs in improving educational outcomes for both students and teachers. The influential contributions of Dale to academic self-efficacy theory and research are indispensable to any discussion on the subject. Through a series of experiments involving authentic school tasks and settings, he developed instructional guidelines that teachers can readily adopt to improve student motivation and learning.

Especially productive empirically, Dale began conducting numerous experiments with elementary school children in the 1980s, continuing through the 1990s. Several essential features characterized his work. He carefully selected students who would participate in his experiments by administering an objective skills test or seeking recommendations from classroom teachers. By doing so, he identified children who were struggling with the three Rs—the basic skills of reading (e.g., Schunk & Rice, 1987, 1993), writing (e.g., Schunk & Swartz, 1993a), and arithmetic (e.g., Bandura & Schunk, 1981; Schunk, 1981, 1982a, 1983a). He helped children improve these fundamental skills by instilling in them the self-efficacy beliefs that they could

master the crucial competencies during their early school years before it was too late. His experiments exhibited strong ecological validity because they were conducted in classroom settings familiar to the participating children rather than in isolated laboratories.

The experimental treatments in his studies were based on Bandura's social cognitive theory, yet they consisted of practical and effective teaching methods. For instance, his findings suggest that teachers should help children focus on proximal subgoals rather than solely on distal goals (Bandura & Schunk, 1981; Schunk, 1983b) and provide process-oriented goals with feedback on progress instead of product-oriented goals that focus only on the outcome or general goals such as "do your best" (Schunk & Swartz, 1993a). At that time, teachers encouraged students to attribute their success partly to their ability rather than exclusively to effort (Schunk, 1983a) and, when offering attributional feedback for success, to provide ability-related feedback first before introducing effort-related feedback (Schunk, 1984b, c). However, most current research shows that strategy attributions are preferred and highly beneficial over ability, and ability attributions can negatively impact motivation and achievement (Cleary et al., 2006; Teo & Chen, 2024; Zimmerman & Schunk, 2004).

Dale also found that instructional modeling is more effective when delivered by peers than teachers in enhancing children's self-efficacy and skill acquisition (Schunk & Hanson, 1985). The effects of modeling were greater when there were multiple models instead of a single model (Schunk et al., 1987); the models demonstrated achieving success through coping strategies rather than through mastering tasks with ease (Schunk et al., 1987); and when they also verbalized achievement beliefs that were initially negative but gradually turned positive as they gained task mastery (Schunk & Hanson, 1989). These are all valuable instructional strategies that, when implemented by classroom teachers, could bring tangible benefits to at-risk children.

Most importantly, Dale's experiments set a scientific standard that all educational psychologists should emulate and follow. They were meticulously designed with safeguards against threats to internal validity, demonstrating exceptional precision that effectively ruled out alternative explanations. Dale recruited children from multiple schools (e.g., Bandura & Schunk, 1981; Schunk & Hanson, 1985, 1989; Schunk & Rice, 1993; Schunk & Swartz, 1993a; Schunk et al., 1987; Schunk, 1984a) or from multiple classes within a single school (e.g., Schunk, 1983a, b). Children were randomly assigned to different conditions and received varied instructional treatments. Pretests and posttests were always administered, and a control group was established. Notably, Dale engaged in replication attempts of his findings by systematically revising or expanding his earlier experiments, sometimes within a single study (e.g., Schunk, 1984b).

Dale significantly contributed to advancing the self-efficacy theory and research by spearheading efforts to verify the critical impact of academic self-efficacy beliefs in learning and performance. As for our relationship, well, it suffices to say that I ended up inviting him as a discussant for all my subsequent symposia and, most recently, to contribute to my edited book *Motivation Science: Controversies and Insights* (Bong et al., 2023; Schunk, 2023b).

Achieving Goals Through Technology and Culturally Self-Regulated Pedagogy

Héfer Bembenutty

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Dale H. Schunk has demonstrated an enduring dedication to the development of theory, pioneering research, and practical applications in the field of self-regulation. His groundbreaking work on self-efficacy, goal setting, strategic learning, self-monitoring, feedback, and attribution assessment has significantly influenced educational psychology. Throughout his highly productive career, Dale has consistently focused on understanding self-regulatory processes, their theoretical foundations and empirical basics, and how they impact teaching and learning. He has employed rigorous methods to demonstrate the crucial role self-regulated learning plays in education.

Recently, Dale's emphasis on integrating technology into self-regulated learning, particularly in utilizing technological traces to assess students' progress, has provided valuable insights into the evolving education landscape (Bernacki, 2018; Winne, 2023). With increasing diversity and global connectivity within schools, Dale has advocated for school-based research using technological tools to understand better and support the learning process (Schunk & DiBenedetto, 2020). While early modeling research was primarily conducted with live or video models (Bandura & Walters, 1963), Dale urged researchers to consider the impact of different media (e.g., machine learning, artificial intelligence) on modeling processes and student learning and to avoid making assumptions that online or asynchronous media influence everyone similarly. Dale has raised thought-provoking questions about the influence of online models on diverse learners, prompting further exploration into this complex relationship. In reviewing the literature, Dale found that emerging research supports the positive impact of online tutors and digital games in helping students develop self-regulatory skills, ultimately increasing their self-efficacy (Schunk & DiBenedetto, 2020).

Researching teaching and learning to leverage the potential of technology to enhance students' self-regulatory skills is not new to Dale. In two studies involving undergraduate students participating in computer projects, Schunk and Ertmer (1999) assessed the impact of goals and self-evaluation on self-efficacy, achievement, competence, and use of self-regulatory strategies. Students were learning educational computer skill applications, including word processing, spreadsheets, telecommunications, and HyperCard. The studies provided valuable insights into the effects of goal setting and self-assessment on student learning. The studies revealed that students with a process goal reported high levels of self-efficacy, self-judged learning progress, self-regulatory competence, and strategy use. The opportunity for self-evaluation enhanced self-efficacy among the students significantly. The second experiment provided further insights into the relationship between goal setting and self-evaluation. They also found that frequent self-evaluation led to positive outcomes regardless of whether the students were assigned a process or product goal.

Schunk and Ertmer's studies highlight the potential of technological tools, such as computer projects, to facilitate proactive self-regulated learning among students. Technology can play a crucial role in promoting student agency and proactive learning by offering opportunities for students to set goals, monitor their progress, and engage in self-evaluation.

In addition to emphasizing the need to integrate technology with self-regulated learning, Dale highlighted the importance of considering culture when assessing motivation, self-efficacy, and self-regulated learning. Central to Dale's perspective is the understanding that self-regulation of learning is a cultural process (Bembenuddy, 2024a) that involves dynamic interactions among educators, learners, and their learning environments, as proposed by the social cognitive theory (Bandura, 1986). This holistic approach acknowledges the interconnectedness of these elements and stresses the importance of considering the broader cultural context in which learning takes place. His dedication to researching diverse groups, including those from disadvantaged backgrounds, has been evident since his initial empirical studies, reflecting his zealous and caring disposition. For instance, a study conducted by Schunk and Rice (1993) focused on a sample of students with diverse ethnic backgrounds, predominantly from lower-middle-class families and with reading disabilities. The results indicated that children taught to fade verbalizations to inner speech and received feedback linking strategy use with improved performance showed higher posttest self-efficacy, comprehension skill, and self-reported strategy use than those in the no-fading/no-feedback condition. The group that received fading plus feedback reported higher strategy use and comprehension skills than the feedback-only condition. These findings suggest that incorporating fading and feedback can improve learning and skill development outcomes for all learners, including minoritized students.

Dale has advocated for implementing self-regulated learning principles in diverse classrooms where teachers and students can promote cultural classroom environments framed within the self-regulated learning processes. Dale's position is consistent with new trends in the educational psychology literature. For instance, Bembenuddy (2024a; White & Bembenuddy, 2014, 2016) posited that in culturally self-regulated classrooms, the collaborative efforts of teachers and students play a crucial role in regulating their cognitive, emotional, and behavioral responses to tasks, resulting in the participation of all diverse learners. In culturally self-regulated classrooms, teachers exert personal agency in teaching, and students activate their thoughts, cognition, and resources to affect their learning process.

In classrooms where teachers adopt a culturally self-regulated pedagogy (Bembenuddy, 2024a), students can be proactively involved in learning. Students can set realistic goals, select appropriate learning strategies, monitor levels of self-efficacy, and self-reflect on outcomes. Consequently, teachers and students can be self-regulated agents in culturally diverse classrooms. Dale has observed that "although goal setting may be universal, the types of goals set and how they are set are undoubtedly subject to cultural influences" (Bembenuddy et al., 2023, p. 27). Dale further reflected, "Like goal setting, self-efficacy seems to represent a universal construct but is affected by cultural standards" (Bembenuddy et al., 2023, p. 28). He noted that educators face challenges in assessing how diverse values, beliefs, and sociocultural

experiences affect self-efficacy beliefs, and he called for research on cultural factors that affect learning, motivation, and self-regulation (Schunk & DiBenedetto, 2020).

Dale's empirical and theoretical work has emphasized the importance of self-regulated learning for teachers and students. Self-regulation allows them to take control of their teaching and learning and proactively pursue personal, professional, and academic goals. Dale has shed light on the significance of leveraging technology and embracing cultural diversity in the classrooms.

From Theory to Research to Application

Anastasia Kitsantas, Maria K. DiBenedetto

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Dale H. Schunk is a distinguished scholar who has successfully translated theory into research and practical applications. During our pursuit of doctoral degrees, we had the opportunity to uncover Dale's work on self-regulated learning, goal theory, attribution theory, and the role of self-efficacy in student learning. Under the guidance of our mentor, Barry J. Zimmerman, we were tasked with extensive reading in these areas. Schunk's research provided valuable insights into the mechanisms of self-regulated learning, the factors influencing student motivation and achievement, and their impact on student learning outcomes.

Our exposure to Schunk and Zimmerman's work has significantly influenced our scholarly pursuits and continues to inform our approach to research and practice in educational psychology. One of our most notable memories is reading Dale's articles and chapters. One resonated with us: *Teaching Elementary Students to Self-Regulate Practice of Mathematical Skills with Modeling* (Schunk & Zimmerman, 1998). Here, he describes how his research on young students struggling in mathematics helped build their self-efficacy and motivated them to succeed. His research inspired us to read as much of his work as possible, and we have continued to follow his scholarship through the years.

While Dale is the author or coauthor of numerous books, journal articles, book chapters, and reports, one of the most salient is his *Learning Theories* textbook (Schunk, 2020). As doctoral students, this, too, was valuable reading. This book provides a research-based theoretical foundation for understanding student learning. This book continues to be prominent in higher education programs and is in high demand. Another publication that resonates with us is his article: *Social Self-Interaction and Achievement Behavior* (Schunk, 1999), in which Dale describes how social influences (models such as expert teachers) are internalized and utilized by learners to develop self-regulatory skills. Specifically, he outlines how feedback, modeling, and self-verbalizations contribute to students internalizing self-efficacy beliefs. This process enables students to self-regulate and gain greater control over their learning.

Dale has established a strong track record of producing numerous book chapters that effectively dissect intricate concepts, making them accessible to a broad

audience and facilitating their practical application within educational settings. His adeptness at simplifying complex ideas has significantly contributed to the understanding and implementing these concepts in classrooms. For instance, in a chapter titled “Attributions as Motivators of Self-Regulated Learning” (Schunk & Zimmerman, 2008), he begins the chapter with a scenario focused on a classroom setting, weaves in the theory and research findings, and clearly illustrates how educators could alter student attributions to enhance their motivation, self-regulated learning, and performance through additional examples in teaching contexts across educational levels.

While Dale has collaborated with many scholars, including Albert Bandura, he is widely known for coauthoring numerous articles and books with Barry J. Zimmerman. They met during the 1982 AERA annual meeting. Barry had read Dale’s research on attributions, goal setting, and self-efficacy and wanted to discuss their role in self-regulated learning. This initial meeting led to hours of discussing, brainstorming, and sharing ideas, resulting in a more complete understanding of self-regulated learning and a 40-year relationship rich in friendship and collaboration.

As the first person to research the effects of self-efficacy on academic achievement within the context of teaching and learning (Schunk, 1981), Dale’s work resulted in a springboard for a plethora of research examining student learning and achievement among children and adults across various subjects, nationally and internationally. Dale is committed to applying research findings in practice and effectively communicates the complexities of learning and the importance of self-efficacy and self-regulated learning in a way that is accessible to educators at all levels. His research has been like a seed planted in fertile soil. Dale’s research applications are like the seed that grows into a tall and robust tree trunk (research that consistently shows the effects of self-efficacy on achievement), with many branches spreading and reaching far out from the trunk (applying the research in classrooms throughout the world), and each beautiful leaf like a child in school.

Researchers as prolific as Dale have often given relatively little attention to applying research to teaching and teacher education. He is dedicated to making research easily comprehensible to and readily implementable by teachers. We are genuinely impressed by Dale’s enduring relevance in his research, scholarship, and approach to learning, which continues to resonate with students today (e.g., Bembenutty et al., 2022). His dedication to writing and adept translation of research findings into practical applications serve as valuable models for our writing pursuits (DiBenedetto, 2018; Kitsantas et al., 2024).

During an interview, Bembenutty (2015) asked Dale, “How would you like the field of educational psychology to remember you? Dale’s commitment to contributing to practice is clearly illustrated through his answer, “... I hope to be remembered as someone who conducted research with clear implications for improving teaching and learning. Too often, our educational research studies do not lead to changes in educational practices...” (p. 30). Dale is widely respected and admired for his significant impact in guiding school-based practitioners on effectively applying research on self-efficacy, motivation, and self-regulation to practice. He is a renowned scholar known for effectively translating theory into research and practical applications.

The Importance and Evolution of Context-Specific SRL Assessments

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Dale H. Schunk is a highly influential and productive experimental researcher whose significant contributions to education, motivation, and self-regulated learning (SRL) have spanned over four decades. Before formally meeting Dale in the early 2000s, I had developed a deep admiration for his scholarly work, particularly his direct application of SRL principles within educational settings, rigorous examination of social cognitive principles, and the exceptional clarity of his writing. However, my respect and admiration deepened upon meeting and interacting with Dale in subsequent years. One rarely gets to interact with an intellectual giant in a field who also demonstrates the highest levels of professionalism and graciousness. While Dale's groundbreaking scholarship is part of his legacy, his kindness toward colleagues and graduate students is also integral to his overall impact.

Dale published a large volume of seminal journal articles, book chapters, and textbooks. When people think about Dale's research, I suspect most would mention his experiments examining the causal effects of modeling or SRL processes on student outcomes or his focus on the importance of self-efficacy and SRL processes (e.g., goal setting, self-reinforcement, self-monitoring, self-verbalization) in school settings. While these later contributions are substantial, I focus my commentary on Dale's often-overlooked innovations and contributions to SRL and motivation assessment practices.

Dale researched and developed various assessment approaches, believing that situational factors and the broader social context impact SRL and motivation. At a broad level, this contextualist focus is illustrated through his administration of SRL assessments across multiple academic domains (e.g., reading, mathematics, and writing domains; Schunk & Cox, 1986; Schunk & Rice, 1986; Schunk & Swartz, 1993a, b; Schunk, 2023a, b). It is impressive that Dale recognized over 40 years ago that one cannot assume that SRL or motivation processes operate similarly across content areas or learning activities. Further, his consistent use of contextualized SRL assessments in the 1980s and 1990s was an appropriate contrast to the emerging trend for researchers to rely more heavily on global and de-contextualized forms of SRL assessment (i.e., aptitude measures).

Dale developed creative methods to assess a broad range of SRL or motivational processes, including self-efficacy, attributions, satisfaction, strategy use, strategy value, goals, interest, and persistence (Schunk, 1996). Most notable was his use of self-efficacy scales. Dale assessed student capability perceptions to perform a wide range of academic behaviors (e.g., answering reading comprehension questions and writing distinct types of paragraphs) as well as to regulate their learning (Schunk & Rice, 1991; Schunk & Hanson, 1985; Schunk & Swartz, 1993a, b). Dale's focus on elementary school children in much of his research was also of great value because he demonstrated the utility of assessing contextualized beliefs and

attitudes of children and the overall importance of these beliefs to their academic skill development.

Dale also made substantial contributions to assessing strategic learning and self-reflection phase processes, such as attributions, self-evaluation, and satisfaction (Schunk, 1984a, b, c, 1996; Schunk & Rice, 1991; Schunk & Swartz, 1993a, b). In terms of strategic thinking, Dale asked students to use a 0–100 Likert scale to report their perceptions about several aspects of strategy use: the frequency of use when performing an academic task (e.g., writing), progress made in using a strategy, and the value of strategies for enhancing skills (Schunk & Rice, 1991; 1993; Schunk and Swartz (1993a, b). Dale's decision to assess *multiple* aspects of students' strategic thinking during task performance was a notable innovation. Regarding self-reflection assessments, Dale's use of a structured unidimensional scale to evaluate students' task-specific attributions was innovative and consistent with a contextualized assessment focus. This measure presented students with four attribution options—ability, effort, task difficulty, and luck—and asked them to rate, on a scale from 0 to 100, the influence of each factor on their task performance (Schunk, 1984a, b, c). This approach to assessing student attributions was influential, in part, due to its situational emphasis and its utility for separately examining the role of *each* type of attribution on student performance.

Dale's assessment approaches and tools also exhibited foundational elements of contemporary SRL microanalysis procedures (Cleary et al., 2023). SRL microanalysis represents a structured interview technique in which task-specific questions targeting cyclical phase SRL processes (e.g., attribution, strategy use, self-evaluation, satisfaction, self-efficacy, persistence) are administered during task completion (Cleary, 2011; Cleary et al., 2023; Cleary & Zimmerman, 2001; DiBenedetto & Zimmerman, 2013; Kitsantas & Zimmerman, 2002). Although not fully microanalytic in nature, many of Dale's assessment tools targeted student perceptions about theoretically grounded SRL phase processes during engagement in well-defined learning activities, a key feature of SRL microanalysis. Dale's impact on educational psychology cannot be fully recognized and appreciated unless one also considers his innovative approaches to assessing SRL-related processes and how these efforts shaped contemporary SRL assessment practices.

Assessment Feedback in Self-Regulated Learning and Motivation

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Dale H. Schunk's scholarly work on assessment feedback has been pivotal in advancing our understanding of how this vital educational component influences and interacts with students' self-regulated learning and motivation. More specifically, his research focuses on attributional and performance feedback and how these can enhance students' self-regulation and motivation. Crucially, Dale's work

emphasizes that feedback is not merely about evaluating academic performance but rather its potential as a dynamic process that can influence students' beliefs about their abilities and motivate them to take control of their learning.

The bulk of Dale's work on feedback revolves around two main types: attributional and performance feedback. First, he worked on *attributional feedback*, which refers to the explanations and reasons provided for a student's performance. Dale's research highlights how feedback that attributes success to effort rather than innate ability fosters a growth mindset and enhances students' self-efficacy. For instance, Dale demonstrated that when students received feedback emphasizing effort as the reason for success, they reported higher self-efficacy and were more motivated to continue learning, compared to feedback attributing success to fixed abilities (Schunk, 1991). His studies also found that this type of attributional feedback led to greater persistence in the face of academic challenges, as students believed their continued efforts could lead to further improvement. This type of feedback encourages students to view learning as a process they can influence through their actions, which is a core component of self-regulated learning theory.

The second type of feedback Dale investigated was performance feedback, which provides students with information about their progress toward learning goals. Schunk and Pajares (2002) highlighted how performance feedback helps students make sense of their learning experiences by offering concrete markers of progress, which can then inform students' next steps in learning. Schunk found that timely and specific performance feedback is crucial in helping students develop self-regulation skills, particularly in monitoring their progress and adjusting their learning strategies. His research showed that performance feedback allows students to set realistic goals and reflect on their capabilities, reinforcing self-efficacy and fostering a belief in their capacity to achieve (Schunk & Pajares, 2002). This cyclical process of feedback and self-regulation increases motivation and leads to improved academic achievement. By providing clear and objective feedback, educators can empower students to take an active role in their learning, which is central to self-regulated learning.

A significant aspect of Dale's research involved studying the effects of feedback on students with special educational needs, including those in gifted education and students with learning disabilities. Dale's work demonstrated that attributional and performance feedback especially benefits these students (e.g., Schunk & Cox, 1986). In his research on students with learning disability, he showed that providing feedback emphasizing effort and strategies rather than fixed ability can help these students overcome learned helplessness and develop a sense of competence. To illustrate, Schunk and Cox's (1986) study found that students with learning disabilities, who received continuous verbalization during problem solving along with effort-based feedback, exhibited higher self-efficacy and improved subtraction skills compared to those who received no verbalization or feedback. This approach allowed students to see their progress as the result of their effort and strategic thinking, reinforcing their belief in their ability to succeed. This focus on effort and strategy is critical for promoting resilience and persistence among students who face unique challenges in their educational journeys, something Dale's work emphasized.

Dale's integrative approach to feedback and self-regulated learning highlights the interplay between feedback, self-efficacy, and motivation. He argued that

feedback should inform students about their current performance and guide them in developing self-regulatory strategies. Schunk (2008) called for more research that links feedback with academic outcomes and emphasizes the role of feedback in fostering self-regulation. This underscores the importance of viewing feedback as an integral part of the learning process that can help students develop metacognitive skills, set goals, and evaluate their progress.

How does Dale's work integrate with current feedback models? Firstly, Hattie and Timperley's (2007) model emphasizes that feedback can be both positive and negative in its impact, depending on timing, clarity, and the specific feedback type. They categorize feedback into task, process, and self-regulation levels, stressing that effective feedback must move beyond task correction to encourage deeper learning and metacognitive engagement. Dale's focus on feedback that promotes self-regulatory strategies echoes Hattie and Timperley's argument that the most impactful feedback operates at the self-regulation level, where learners are guided to reflect on their processes and strategies. Secondly, Panadero and Lipnevich's (2022) *MISCA Model of Feedback Elements* further expands the conceptualization of feedback, identifying five core components—Message, Implementation, Student, Context, and Agents (MISCA)—that influence how feedback is delivered and received. Dale's emphasis on helping students use feedback to build self-regulation aligns with these authors' assertion that feedback must be contextualized, considering individual student characteristics and learning environments for greater impact.

By focusing on attributional and performance feedback, Dale has provided educators with strategies to enhance students' self-regulated learning and motivation, especially in self-efficacy and attributional theory, which continues until these days (Schunk & DiBenedetto, 2022). His work has emphasized the importance of creating feedback-rich environments that empower students to become self-regulated learners, and how the two main types of feedback he studied are pivotal for such aim. As Dale has recently observed, "Feedback is a key environmental instructional variable that can affect self-efficacy and motivation. Feedback can function as a vicarious source of self-efficacy information" (Schunk & DiBenedetto, 2021, p. 164). Thank you, Dale, for all your work in books and articles, which were always enlightening and easy to read. It has been a pleasure learning about educational psychology from one of the most talented writers of your generation. Thank you for making complex concepts so accessible and, I will dare to say, fun!

Bridging Mentoring and Self-Regulation Research

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Dale H. Schunk's passionate commitment to writing and dedication to the educational psychology field was evident even when he was busy as an administrator, most recently at the University of North Carolina at Greensboro (UNCG)

(Patterson-Hazley & Kiewra, 2013). As the education dean in 2007, he hired me at UNCG through an external search for a department chair. Dale taught me how to navigate politics in the academy while doing important work on behalf of one's unit. I appreciated his calm leadership demeanor and capacity to keep multiple competing agendas and projects in check. The attention he gave to diversity initiatives in the college was earnest. I remember feeling relieved that when I proposed a school program to recognize both junior and senior faculty mentoring contributions, he warmly invited a proposal and endorsed it. The program was rolled out every year.

When I joined Virginia Tech in 2013 as the School of Education's director, a professor in educational psychology asked if Dale could talk to our faculty and students. Dale's research had long been central to his work, so he wanted to meet him in person. Driving up the mountain to our campus, Dale gave well-received talks and met with groups of students. I was pleased to have a prominent figure in the discipline visiting us who enjoys interacting with faculty and students. Recently, Dale and that professor in my unit who stayed in touch with him over the years coauthored a paper. In 2011, Dale invited me to a luncheon in New Orleans at an AERA conference, where I met doctoral students in Division C (Learning and Instruction) wanting to seek his advice. After introducing me as a mentoring expert and doctoral mentor to the group, Dale shifted to the students' introductions and current research, building synergies around the table. Quiet-natured, introspective, and kind, he likes others to shine and deliberately uses time wisely. He embodies the qualities of a good mentor: listening actively and offering helpful, precise feedback, as well as being knowledgeable, empathetic, and receptive (Fletcher & Mullen, 2012). Even while focused on the task, he remains attuned to the preciousness of human connections. Cultivating the possibilities of tomorrow in the present is another gift Dale brings to his academic interactions, mentorships, and collaborations.

Dale's contributions to mentoring research in educational psychology are noteworthy. He was keen to draw on mentoring and psychology literature to discover intersections between these ideas. We would map out a piece with a detailed outline specifying our parts, which was Dale's style. After we wrote our parts, we would merge them for continued review and revision, sometimes over coffee. In the process, we would also share influential readings, unknown to the other, from our respective fields (mine is educational leadership), discussing the material and distilling key points.

Two of the numerous works we published from 2010 to 2020 focus on academic mentoring (Mullen & Schunk, 2012; Schunk & Mullen, 2013). Our most substantial contribution is an article in which we proposed a conceptual model of mentoring research integrated with self-regulated learning (SRL) (Schunk & Mullen, 2013). Earlier, Dale and Barry J. Zimmerman (a distinguished professor emeritus of educational psychology and long-time, close collaborator of Dale's) published my chapter on facilitating SRL and using mentoring approaches with doctoral groups in their edited book on SRL and performance (Mullen, 2011). At that point, mentoring and SRL were mainly viewed as separate lines of inquiry, and Dale wanted to see an interdependent treatment. Further pursuing this intersection, Dale and I (Schunk & Mullen, 2013) set out to bridge these two research areas by applying social cognitive theory. We introduced the Process Model of

Mentoring Interactions (PMMI), which explicates reciprocal relationships among mentors' and protégés' self-regulatory cognitions, affects, and behaviors before, during, and after mentoring interactions. Effective strategy use is one component of SRL that is also familiar with effective mentoring.

Since then, Joseph (Joe) Tise and coauthors have published an application of the PMMI adapted for underrepresented student populations (Tise et al., 2023). In 2023, Joe emailed to share that he found our 2013 article insightful; apparently, it had greatly informed his thinking and research for a recent article in which empirical support is provided for our theoretical work. Like myself, Dale was delighted by Joe's use of our model.

During an interview, Héfer Bembenutty (2015) asked Dale about the "state of knowledge in self-regulation research" and "promising avenues for research." Responding that SRL development warrants more research attention (p. 4), Dale posited: "There are different paths to self-regulation," reflectively adding, "... I suspect that much self-regulation develops in informal contexts, such as when individuals participate in collaborative projects or nontraditional types of mentoring relationships. We know little about how self-regulation develops outside of formal arrangements" (pp. 28–29; see also Bembenutty, 2024b).

Dale is an *applicator* who applies research findings to practice, specifically in K-12 schools (Patterson-Hazley & Kiewra, 2013), which is why his writing examples are often school-based. He also applies self-regulation principles with his students and, quite possibly, writing partners. I can certainly attest to his goal setting with timelines, modeling of skills, and astute feedback (see Patterson-Hazley and Kiewra's description of Dale's mentoring practices). Working alongside Dale is a privilege and a unique opportunity to engage in and benefit from reciprocal learning. The experience feels circular to me—here is an exemplary role model and graduate mentor reflecting on academic mentorship from his deep understanding of SRL. It has been an honor to offer a glimpse of Dale's distinguished contributions to mentoring research and, importantly, who he is as a remarkable human being and source of inspiration to others.

Major Contributions to Mathematics Self-Efficacy Research in the Classroom

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As my master's thesis advisor at Purdue University, Dale H. Schunk introduced me to inquiry on *self-efficacy*. This significant construct focuses on people's beliefs about their capability to perform tasks at designated levels. Self-efficacy has been widely applied, particularly to school learning, and research on the topic will likely lead investigators to Dale's abundant studies and conceptual pieces. As a researcher and educator, his global influence in education spanned decades (e.g., Schunk, 2023a, b). His studies in self-efficacy—both as an antecedent of student academic

performance and motivation and as an effect of students' prior performance and experience—are known worldwide (Schunk & Greene, 2018). His earlier studies were on lower-performing elementary-school children in mathematics, and he is considered a pioneer in applying and expanding the research on self-efficacy from clinical settings to classroom learning of academic subjects (Schunk, 1981).

As one of Albert Bandura's students, Dale expanded and applied research on self-efficacy from the clinical treatment of phobias to classroom learning. Adhering to social cognitive perspectives, Dale posited self-efficacy as a major personal catalyst to explain the motivation for classroom learning of skills and knowledge. His early studies provide insight into his extension and application of self-efficacy beliefs to classroom learning rather than clinical settings. Using experimental designs, he tested modeling and didactic teaching on children's perceived efficacy and performance. Similarly, Dale examined the effect of self-motivating conditions when children received proximal, distal, or no-goal plans to improve their perceived math self-efficacy, intrinsic interests, and performance (Bandura, Schunk, 1981; Schunk, 1981). In 1982, Schunk replicated his 1981 study focusing on different attributional feedback students received when performing subtraction problems. The results showed that children who received feedback on past attributions—which linked their prior performance to their effort—outperformed children in other conditions (Schunk, 1982a, b).

Since attributional feedback is an important source of information for students' self-efficacy, Schunk (1983a) experimentally tested for differences of ability versus the effort attributional feedback on children's self-efficacy and math performance. Using similar procedures, he examined whether social comparison (a source of vicarious learning), goal-setting instruction, a combination of social comparison plus goal-setting instruction, and the treatment control condition would differently affect the self-efficacy and performance of these children in solving division problems (Schunk, 1983b). He found that information derived from social comparison plus proximal goals instruction affects performance more than other conditions. Dale's study showed that prior achievement is not the only influence on self-efficacy and that vicarious learning helps students assess their self-efficacy.

In another study, Dale tested the effect of monitoring and recording students' progress when solving math problems (Schunk, 1983c) and found that children who self-monitored or were monitored externally performed better than those who received no monitoring instructions. Thus, Dale's empirical studies provided a foundation for examining social cognitive factors influencing lower-performing children's math self-efficacy and performance. Then, Schunk (1985) conceptualized a model to delineate the complicity and reciprocal nature of how student characteristics, cognitive processes, actions, and contextual factors form a continual feedback chain that explains student motivation and learning in the classroom.

Dale's prolific writing and dissemination of his research findings laid a foundation for other researchers in the field. His pioneering work in applying self-efficacy to classroom learning inspired me to pursue and extend research on self-efficacy. While I was Dale's master's-level student, he modeled his analytic thinking and used his knowledge to formulate novel research questions. He also guided my writing to achieve conceptual and linguistic clarity. Further, through his

generosity and mentorship, I was introduced to his colleague, Barry J. Zimmerman, with whom I studied and further developed my research on math students' calibration of their self-efficacy and performance. Dale's extensive research has broadened our understanding of self-efficacy and self-regulated learning and their applications across various subject areas, including science, technology, engineering, mathematics, and computing (STEM-C; Chen, 2023).

Conclusion

Dale is a highly esteemed scholar whose profound impact on educational psychology is remarkable and inspiring. His extensive research and development of a theoretical framework have significantly advanced our comprehension of motivation and self-regulated learning. Dale's contributions have elucidated the pivotal role of self-regulated learning as a process that can significantly benefit teachers in various aspects of their work, including curriculum development, instructional dissemination, and the creation of reliable assessment tools. Dale's impactful research has deepened our understanding of motivation, self-efficacy, and self-regulated learning and underscored their potential to influence educators and students in diverse learning environments. His work is a cornerstone for contemporary researchers seeking to explore further and implement self-regulated learning practices in educational settings. As we celebrate Dale's distinguished career and retirement, his enduring focus on motivation, self-efficacy, and self-regulation continues to profoundly influence the field of educational psychology.

Declarations

Competing Interest The authors declare no competing interests.

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