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SYNCHRONIZING CLASSROOM ASSESSMENT AND SELF-REGULATED LEARNING

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This special issue of *Times Magazine* synchronizes the fields of self-regulated learning and assessment in education to support thoughts, beliefs, actions, and practices promoting effective instruction and learning.

The Creation of a New Research Niche: Self-Regulated Learning and Assessment

Nevair Oranjian
Guest Editor

Welcome to the December 2020 *Times Magazine* issue of the American Educational Research Association (AERA) Studying and Self-Regulated Learning (SSRL) Special Interest Group (SIG). This issue is framed around the Special Issue of *Assessment in Education: Principles, Policy, and Practice*, edited in September 2020 by Christian Brandmo, Ernest Panadero, and Therese N. Hopfenbeck. This issue explores several of the articles found in the Special Issue and discusses their connections to self-regulated learning (SRL) and the many forms of assessment.

The Special Issue highlights the latest research on SRL and assessment practices in various education settings. Each contributor brings their view of SRL and deftly connects to assessment for learning (AfL), assessment as learning (AaL), and assessment of learning. Every article holds its own yet shows inherent similarities with the others, including co-regulation in its various forms and in combination with formative assessment, SRL models, and AfL to promote successful self-regulatory functioning. This issue of the *Times Magazine* showcases the amazing and highly knowledgeable works through reflections written by the various authors.

The issue begins with a reflection written by Special Issue editors who "saw an opportunity for further theoretical and practical development of these ideas as well as opportunities for more professional collaboration and interaction between the scholars in these research fields" (Brandmo et al., 2020/this issue, p. 3).

Jeffrey Greene provides his commentary of the studies and states that "the articles in this special issue cohere to demonstrate that the integration of SRL and formative assessment frameworks have implications for how teachers construct their classroom environments, tasks, student interactions, and support, with subsequent implications for those students' development and performance" (Greene, 2020/this issue, p. 9).

Readers of both the Special Issue and the *Times Magazine*'s current issue could experience an insight into the most recent SRL and assessment literature by highlighting the recent additions to the vast amount of SRL literature.

Linda Allal reflects upon her work, which was heavily influenced by the expanse of research on SRL. She incorporates a developmental approach to her views on SRL and co-regulation both in and out of the classroom. Allal further states that "instead of co-regulation leading to self-regulation, I think we need to posit a *cyclical* relation: co-regulation enhances student self-regulation, which then feeds on into more advanced forms of co-regulation" (Allal, 2020/this issue, p. 4).

Along with Allal, Heidi Andrade and Susan Brookhart also focus on co-regulation of learning "in order to demonstrate how classroom assessment is related to all aspects of the regulation of learning" (Andrade & Brookhart, 2020/this issue, p. 5). Allal, Andrade and Brookhart define co-regulation and enhance it to include all of the various processes, contexts, and participants who partake and engage in co-regulation.

While co-regulation is an essential aspect of SRL, it is not possible to forget teachers' influence on the development of SRL in students. Laurie Faith, Christopher DeLuca, Angela Pyle, and Heather Braund investigated kindergarten teachers' use of AaL and found that some teachers viewed assessment as an "'add on' rather than an 'integrated' part of teaching and learning" (Faith et al., 2020/this issue, p. 7).

Similar to Faith and colleagues, Nancy Perry and her research team dedicated their research to the integration of "AfL and SRL promoting practices in authentic classroom tasks and activities" (Wan et al. 2020/this issue, p. 8). While Faith and colleagues focused on AaL and Wan and colleagues on AfL, the premise remains the same: assessment practices and SRL are integrated for use in classroom settings.

With clear dexterity, Chen describes the synergy between classroom assessment (CA) and self-regulated learning (SRL) in the CA:SRL model. With its four stages, the model emphasizes the importance of assessment, student learning, and students' motivation (Chen, 2020/this issue).

The overarching goal of this issue of the *Times Magazine* is to focus on and highlight the advances in SRL and assessment literature. Not only do the contributors to this magazine showcase their studies and work, but they are also part of a budding niche in the SRL and assessment literature spheres. They allow us to connect SRL and assessment while helping us better understand how to incorporate the two in the classroom. The contributors also help us become better educators by finding new ways to support our students' SRL and effectively engaging them in assessment practices.

I thank our contributors for sharing their knowledge and expertise in the ever-growing field of SRL and assessment. We hope that these reflections inspire current and future researchers and educators to use SRL in their classroom assessments.

Nevair Oranjian is an adjunct lecturer for the Department of Secondary Education and Youth Services in the School of Education at Queens College, CUNY. She holds a master's in educational psychology from Hunter College, CUNY. She is the co-author of "A Case Study of the Use of Newsela PRO Among Adult Emergent Bi/Multilingual Learners" (*Precollege Program in the Adult Learning Journal*, https://doi.org/10.1177/1045159520959474).

COPYEDITOR
Sarah Young, PhD, is an analyst, researcher, and planner in the Planning, Research, and Evaluation Department at the Community College of Baltimore County. She generously and efficiently served as the copyeditor of this issue of the *Times Magazine*. Thanks, Sarah!

Bridging Classroom Assessment and Self-Regulated Learning: September 2020's Special Issue of *Assessment in Education: Principles, Policy & Practice*

Christian Brandmo, Ernesto Panadero, & Therese N. Hopfenbeck

We thank the editors of the *Times Magazine* for the opportunity to present our special issue, which, to our knowledge, is the first one on this topic. The idea of making this special issue grew out of our experience working within both areas of research for several decades, but also acknowledging the lack of dialogue between the two research fields. At the 2017 AERA annual meeting in San Antonio, we decided to prepare a proposal to bridge the two research fields.

During the last decades, several significant research studies have made connections between self-regulated learning (SRL) and various forms of student/classroom assessment (e.g., Allal & Lopez, 2005; Andrade & Brookhart, 2016; Brown & Harris, 2013; Butler & Winne, 1995; Nicol & MacFarlane-Dick, 2006; Panadero et al., 2018).

Taking this existing work into consideration, we saw an opportunity for further theoretical and practical development of these ideas and opportunities for more professional collaboration and interaction between the scholars in these research fields. Therefore, we launched an open invitation asking for theoretical and empirical papers, which resulted in 45 proposals.

In our introduction to the special issue, we pointed out three reasons why the research areas of classroom assessment and SRL should be further connected (Brandmo et al., 2020, pp. 323–324). The first reason is that these fields discuss issues that address related phenomena, although they are informed by different theoretical perspectives and are conceptualized differently.

One example concerns learning and outcome standards, which are essential for classroom assessment and SRL. From the SRL perspective, these standards are internal/personal and related to internal feedback about whether a chosen strategy is beneficial (concerns progress) and when the learning goal is reached (Pintrich, 2000).

Internal and personal standards are not independent of external feedback and standards. From an assessment perspective, these standards are external/environmental and related to external feedback about success criteria (Black & Wiliam, 2009). Consequently, one of the intentions with a formative assessment is to internalize external/environmental standards to become internal/personal and available for SRL.

The second reason why these research areas should be further connected is that they explore similar constructs from different traditions and methodologies. With its roots in various psychology disciplines, the SRL research area has certain strengths (e.g., being strong on basic research, theory development, and research design). In contrast, the formative assessment research area is more closely related to the classroom, teachers, practice, and teaching subjects.

Historically, the formative assessment field also has a stronger tradition of interventions in which researchers and teachers collaborated on the implementation of new practices and the development of teacher networks as a resource. Therefore, it appears that these research areas possess different qualities, and we believe that closer connections and interactions across them will generate synergies that can lead to even greater progress in research.

The third reason is partly linked to the previous argument and concerns implementation into regular practice. Since these areas possess different qualities and focus areas (e.g., knowledge related to students' learning and motivational processes, various instructional approaches), we propose that closer collaboration across these areas could be beneficial for creating sustainable practices in schools, which, in the end, could be beneficial for even more students.

We are proud of this special issue and would like to use this opportunity to thank the contributing authors who tackled the challenge of bridging different research fields. The special issue contains three theoretical papers, three empirical papers, one commentary paper, and our editorial.

We do not see our mission as completed. Instead, we see this special issue as one step toward further integrating research and practices on classroom assessment and SRL. Hopefully, these articles will inspire new ideas, lead to productive scholarly discussions, and extend the research agenda.

References are available upon request from Christian Brandmo (christian.brandmo@isp.uio.no)

LIST OF PAPERS:

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Allal, L. Assessment and the co-regulation of learning in the classroom. https://doi.org/10.1080/0969594X.2019.1609411

Andrade, H. L., & Brookhart, S. M. Classroom assessment as the co-regulation of learning. https://doi.org/10.1080/0969594X.2019.1571992

Chen, P. P., & Bonner, S. M. A framework for classroom assessment, learning, and self-regulation. https://doi.org/10.1080/0969594X.2019.1619515

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Greene, J. A. Building upon synergies among self-regulated learning and formative assessment research and practice. https://doi.org/10.1080/0969594X.2020.1802225

Christian Brandmo, PhD, is a professor of quantitative research methods in the Department of Special Needs Education at the University of Oslo, Norway. His research interests are related to motivation and learning processes in various groups (students, teachers, and school leaders).

Ernesto Panadero, PhD, works as an Ikerbasque Research Associate at Universidad de Deusto (Bilbao, Spain) and holds an Honorary Professorship at the Centre for Research in Assessment and Digital Learning. Deakin University (Australia). His research focuses on understanding how to employ educational psychology methods and theories, especially self-regulated learning.

Therese N. Hopfenbeck, PhD, is Professor in Educational Assessment and Director of the Oxford University Centre for Educational Assessment. She is the Course Director of the new Master in Educational Assessment at the Department of Education, and Lead Editor of the Journal *Assessment in Education, Principle, Policy and Practice*. Her research interests are focused upon large-scale comparative assessments and how international testing has shaped public policy across education systems. In addition she is interested in different models of classroom assessment, such as linking assessment for learning and self-regulation.

Are There "Self-Regulated Learners"?

Linda Allal

Research on self-regulated learning (SRL) has been impressively productive since its emergence in the 1980s. One indicator is the continual increase in the number of publications and communications on SRL topics in the PsycInfo and ERIC databases (Goetz, Nett, & Hall, 2013). This expansion has been characterized by important theoretical and empirical investigations linking SRL with key aspects of psychological functioning (e.g., cognition) and social and institutional factors (e.g., classroom interventions and interactions). Research has explored the implications of SRL in specific subject matter areas, in schools and higher education.

My work in Geneva has been strongly influenced by SRL research. I do not doubt that the processes of self-regulation play an essential role in learning. However, I have come to question the idea that student learning, particularly in educational settings, is—or can be—*primarily* self-regulated.

My perspective has two parts. First, following a Piagetian view on cognitive regulation mechanisms, I adhere to the idea that some form of self-regulation is involved in *all* learning and cognitive development. Although the SRL literature often expresses the idea that all learners engage in some degree of self-regulation, many articles tend to talk about self-regulated learners as though they form a distinct category as contrasted with students who are not self-regulated (e.g., Zimmerman, 1989).

It is essential to recognize that self-regulation is ubiquitous (Winne, 1995), that it intervenes in learning but also in mechanisms of coping or maintenance of well-being (as described in the dual processing model of Boekaerts, 2011), and that it can lead, in both areas, to positive or negative outcomes.

The second part of my perspective is that self-regulation processes are always embedded in a hierarchical structure of contextual sources of regulation. In classroom settings, the primary sources are: (1) the structure of the teaching/learning situation; (2) the teacher's interventions and interactions with students; (3) the interactions between students; and (4) the tools (e.g., materials, artifacts, instruments) used for instruction and assessment, which provide linkages between the other three sources.

In the model I have proposed (Figure 1, see published article), learning is always co-regulated by the *joint* influence of the learner's processes of self-regulation (situated at the core of the model) and of overarching contextual sources of the regulation (Allal, 2007, 2020).

Moreover, even when students are working on their own outside a classroom setting (e.g., doing homework), contextual sources of regulation continue to operate. They are embodied in the tasks and tools provided by the teacher and in the conditions of the context where homework is carried out.

Some authors see co-regulation as a temporary support structure that will lead students to become self-regulated learners (e.g., Hadwin & Oshige, 2011). I agree that teacher or peer scaffolding can help students internalize, in the Vygotskian sense, a new procedure of self-regulation. Nevertheless, this procedure is invariably integrated within new teaching/learning activities that bring into play new forms of co-regulation.

It is demonstrated by SRL research that well-designed learning environments can foster increasingly dynamic and effective processes of self-regulation. However, this does not mean that students become autonomous self-regulated learners; instead—in my view—they learn to participate more actively and with greater awareness in increasingly complex and diversified forms of co-regulation. Becoming active co-regulated learners is an essential foundation for students' future participation in the world of work and civic engagement.

Instead of a linear relation (co-regulation leading to self-regulation), we need to posit a cyclical relation: co-regulation enhances student self-regulation, which then feeds back into more advanced co-regulation. This positive cycle does not always occur, but it can be an educational goal we seek to attain. In addition, as Panadero, Broadbent, Boud, and Lodge (2018) have proposed, a cyclical conception can take into account co-regulation of student learning and co-regulation of teacher learning when carrying out instruction and assessment.

References are available upon request from Linda Allal (Linda.Allal@unige.ch)

"Research linking assessment and co-regulation of student learning has not yet been conducted in a programmatic way. A relatively small number of studies, using disparate methodologies, has been carried out in primary and secondary classrooms. A major challenge for future research will thus be to combine, in a systematic way, two directions of research. The first is experimental and quasi-experimental research that allows identification and estimation of the effects of various formative assessment tools or procedures on student learning and self-regulation. This type of research can provide important indications regarding the key components that should be integrated in a classroom assessment strategy aimed at the co-regulation of student learning. At the same time, longitudinal, classroom-based research of the process-tracing type is needed to see how various formative assessment tools and procedures are mediated by teacher–student interactions and by peer interactions."

Allal, L. (2020). Assessment and the co-regulation of learning in the classroom. *Assessment in Education: Principles, Policy & Practice*, *27*(4), 332-349. https://doi.org/10.1080/0969594X.2019.1609411

Linda Allal, PhD, is a professor emeritus at the Faculty of Psychology and Education Sciences, University of Geneva, Switzerland. Her research concerns the relations between teaching, learning, and assessment in school settings, particularly in elementary school writing activities.

Heidi Andrade, EdD, is a Professor of Educational Psychology and Methodology at the University at Albany, SUNY. Her work focuses on the relationships between learning and assessment, with emphases on student self-assessment and self-regulated learning.

Susan M. Brookhart, PhD, is Professor Emerita in the School of Education at Duquesne University. Her research interests include the role of both formative and summative classroom assessment in student motivation and achievement.

Classroom Assessment as the Co-Regulation of Learning:

Bridging Two Fields in the Interest of Supporting Academic Achievement

Heidi Andrade & Susan M. Brookhart

We began talking about a synthesis of classroom assessment and self-regulated learning (SRL) years ago (Andrade & Brookhart, 2014) as formative assessment scholars. Formative assessment struck us as a particularly powerful way to prompt and support SRL because it actively involved students in the process of considering the quality of their work and learning. Perhaps the clearest example is formative self-assessment, which involves students reflecting on the quality of their work, judging the degree to which it reflects explicitly stated goals or criteria, and revising their work accordingly (Andrade, 2010).

What is known as self-assessment in classroom assessment circles is a key kind of metacognitive monitoring to researchers in SRL circles. Recognizing the potential for a fruitful cross-field synthesis, we proposed that classroom assessment could and should be framed as the co-regulation of learning. In this article (Andrade & Brookhart, 2019), we used the literature review method to give substance to a classroom assessment theory as the co-regulation of learning by teachers, students, instructional materials, and contexts.

We organized the literature using a version of Pintrich and Zusho's (2002) theory of the phases and areas of the self-regulation of learning, expanded to include the co-regulation of learning to demonstrate how classroom assessment is related to all aspects of the regulation of learning.

Our article begins with definitions of classroom assessment and self- and co-regulated learning. We situate the regulation of learning in constructivist learning theories, emphasizing students making their meaning by actively connecting new information and experiences with prior understandings. We expand Pintrich and Zusho's (2002) model of the phases and areas of the self-regulation of learning to include regulation by others (co-regulation), including teachers and materials. Then, we use this theoretical framework to organize classroom assessment studies to demonstrate how, in aggregate, they provide support for a theory of classroom assessment as the co-regulation of learning.

While we worked to develop our theory, empirical research on the relationships between classroom assessment and the self- and co-regulation of learning proliferated (Panadero, Andrade, & Brookhart, 2018). There is enough new research on the subject to support a new review and a meta-analysis. We are currently updating our review and hope to provoke interest in one or more meta-analyses. Anyone...?

References are available upon request from Heidi Andrade (handrade@albany.edu).

"Research on CA has revealed its central role in all four phases of the regulation of learning. Our selective review of the literature demonstrates that CA influences the forethought phase through goal setting by both teachers and students, and judgments of self-efficacy for assessment tasks by students. CA influences the monitoring phase by ensuring that teachers and students receive feedback about learning outcomes and processes from themselves and each other. The last two phases, control and reaction and reflection, are supported by CA when teachers make adjustments to instruction and students adapt learning strategies and revise their work in response to assessment information.

On balance, the evidence presented in this review suggests that classroom assessment plays a vital role in the regulation of learning, as well as the converse: The regulation of learning requires assessment evidence. This conclusion has only become possible now that the CA research has broadened from investigations of teacher practices and assessment tools (primarily the nature and quality of classroom tests) to investigations of how CA is involved in the learning process.

This review has also suggested some potentially productive, but little studied, avenues for research. One of the more important observations was the recognition of the lack of research on the self-regulatory processes students use as they apply assessment information from formative feedback and summative (graded) work to their future learning attempts. This important gap in the research on SRL was identified by considering the role of CA as a source of regulation of student learning, in effect identifying CA as an important 'other' source in the co-regulation of learning. The theoretical framework laid out in this article and summarized in Tables 2 through 5 can support focused study of the nature of that mutuality, and provides a way to integrate findings from future studies of CA and SRL."

Andrade, H. L., & Brookhart, S. M. (2020). Classroom assessment as the co-regulation of learning. *Assessment in Education: Principles, Policy & Practice, 27*(4), 350-372. https://doi.org/10.1080/0969594X.2019.1571992

A Framework for Classroom Assessment to Support Student Learning and Self-Regulation

Peggy P. Chen

Peggy P. Chen, PhD, is an associate professors in the School of Education at Hunter College, City University of New York.

In 2020, a special issue of *Assessment in Education: Principles, Policy, and Practice* published several articles on the synergy between classroom assessment (CA) and self-regulated learning (SRL). Chen and Bonner (2020) were fortunate to feature our proposed framework, CA:SRL, in that special issue. Zimmerman (2002) defined SRL as the ways that individuals initiate, engage, and sustain their learning progress to attain goals.

Based on social-cognitive learning and motivational theories, Zimmerman's SRL model consists of three phases: forethought, performance, and self-reflection. We first aligned these SRL phases with various CA purposes; we then articulated overlapping rationales and processes applicable to CA and SRL,

based on cognitive, metacognitive, behavioral, and motivational theories and principles. As a result, the CA:SRL framework was developed with the following stages: (1) diagnostic or pre-assessment, (2) Assessment *for* Learning (A*f*L), (3) formal assessment, and (4) summarizing the evidence.

The model's iteration and feedback processes are critical to CA and influence the subsequent stage. Instead of looking at CA as something done to students, the CA:SRL framework focuses on the interactions between students and their teachers at every stage of the assessment process. This framework has as a priority moving student learning forward while providing SRL opportunities and support.

Since developing CA:SRL, we have introduced the framework to teachers and teacher candidates in CA courses to show how assessment, student learning, and students' motivation can be described as a coherent system. We have also elaborated on Stage 2 of this framework (see Figure 1) to capture the multiple rounds of learning, doing, and assessing, which is where the processes and practices of A*f*L occur. These processes are akin to "short or micro" SRL processes.

Using the elaborated Stage 2, we developed formative assessment tasks targeting computational concepts, such as the use of operators, functions, events, and conditionals. We then conducted an empirical study using the think-aloud method to explore high-school computer science students' SRL processes during Stage 2 of A*f*L on the targeted computational thinking concepts mentioned above. Although only a small number of individuals participated in this study, we found that

student engagement in SRL behaviors during the Stage 2 task revealed the importance of promoting forethought processes in A*f*L (Bonner et al., in press).

The CA:SRL framework depicts how assessment and learning processes interact dynamically for both teachers and students in classrooms and demonstrate that such interactions encompass the full breadth of CA purposes, from pre-assessment planning to summation and reporting of evidence.

CA:SRL was developed from theories and research in the field of student learning and principles of assessment and measurement. CA:SRL provides a framework that can be further elaborated upon, as we did with Stage 2 of this framework.
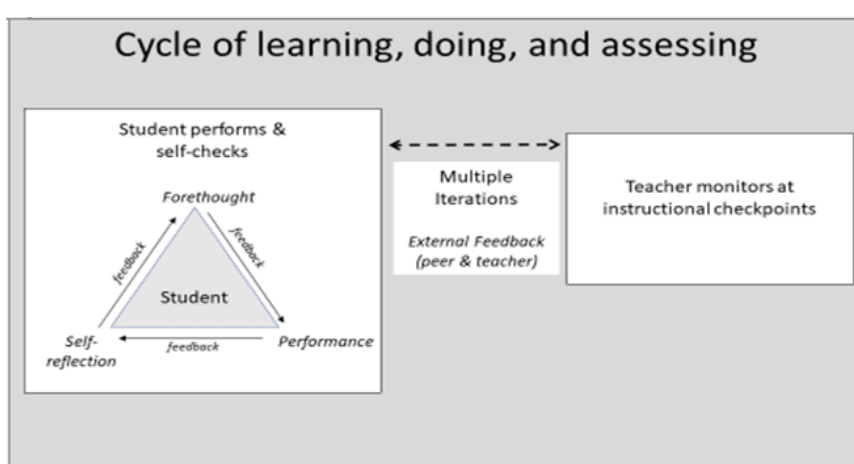
While CA:SRL is parsimonious and succinct, we believe that every stage can be further refined, so that the processes and sub-processes in each stage can be examined and empirically studied. We are only at the tip of the CA:SRL iceberg.

References are available upon request from Peggy P. Chen (ppchen@hunter.cuny.edu).

"CA:SRL contributes to the existing literature in that it draws CA principles and SRL theories together for classroom applications. It embraces the interactivity of students with peers and teachers in monitoring and reflecting upon performance as a shared regulation and co-regulation. Incorporation of the formal assessment purpose of CA lends ecological validity and pushes theory to account for tensions between formative and summative assessment. Potentially, it will seed a new crop of empirical studies to uncover how the full range of CA activities and the theory of SRL can be leveraged together to promote learning and instruction in classrooms."

Chen, P. P., & Bonner, S. M. (2020). A framework for classroom assessment, learning, and self-regulation. *Assessment in Education: Principles, Policy & Practice*, *27*(4), 373-393. https://doi.org/10.1080/0969594X.2019.1619515

Figure 1

Cycle of learning, doing, and assessing

Student performs & self-checks

Forethought

Student

Self-reflection — feedback — Performance

Multiple Iterations

External Feedback (peer & teacher)

Teacher monitors at instructional checkpoints

Play, Assessment, and Learning, Oh My!

Laurie Faith, Christopher DeLuca, Angela Pyle, & Heather Braund

Laurie Faith is a PhD student in Developmental Psychology at the University of Toronto. She is the founder of *ActivatedLearning.org*, a community of SRL-obsessed teachers who specialize in socially shared learning regulation.

Christopher DeLuca, PhD, is an Associate Dean at the School of Graduate Studies and Associate Professor in Educational Assessment at the Faculty of Education, Queen's University. DeLuca's research examines the complex intersection of curriculum, pedagogy, and assessment as operating within the current context of school accountability and standards-based education.

Angela Pyle, PhD, is an Associate Professor at the Dr. Eric Jackman Institute of Child Study. Her research centers on the learning and development of young children in play-based classrooms. She is the director of the Play Learning Lab at the University of Toronto.

Heather Braund recently completed her PhD at Queen's University, Faculty of Education, specialized in assessment and cognition. Her doctoral work explored the relationship between classroom assessment and self-regulation in Kindergarten classrooms.

Put yourself in a classroom: a four-year-old student has dumped a cup of water all over a cardboard ramp the class has worked on for weeks, smudging the marker decorations and wetting the floor. One teacher understands that the student's objective was to make it faster and smoother and says, "Oh, interesting. Was the cardboard faster when it was wet? Let's get a paper towel for the floor…" Another says, "Whoops. Better dry the floor and let's make more sensible choices next time." The difference is subtle but important.

Earlier this year, we published a paper describing the variety of ways 20 Ontario kindergarten teachers leveraged feedback and assessment practices to support student self-regulated learning in play-based learning (SRL; DeLuca et al., 2020). At their most effective, we observed teachers sitting down on the floor, explicitly discussing and documenting students' intentions, plans, strategies, and reflections while students were engaged in play-based learning during the construction of block bridges.

Or, we saw them on the sidelines of a cardboard car racetrack, recording a video that was immediately replayed among the racers to notice and name student innovation, discuss challenges, and highlight next steps in their learning progression. At a developmental level at which play is inextricably linked to learning, it seems that teachers' ability to engage in and understand play was essential to their ability to interpret, assess, and support self-regulated learning.

It is well known that assessment *as* learning (AaL), the provision of direct feedback on what and how students are learning, is a fundamental support to SRL development (Clark, 2012). By focusing on students as active agents in their learning through AaL, they can better identify their strengths and determine what they need to do differently to meet their learning needs (Earl, 2013; Hattie & Timperley, 2016).

To our surprise, we observed only half of our teacher participants using AaL. It seemed to thrive among teachers who were most deeply engaged and supportive of the play taking place among their students. Indeed, the pedagogical moves that support SRL development are also the moves that support play.

Sharing control and encouraging student agency (SRL supportive) allows children to freely choose activities and chase their curiosity opportunistically (play) while delighting in unique forms of the process (SRL supportive) encourages students to explore creative and pleasurable means for solving problems (play) (Ashiabi, 2007; Perry et al., 2002). Teachers using AaL the least were often absorbed in the administrative purposes of assessment.

From their perspectives, we saw process-oriented assessment approaches like pedagogical documentation as time-consuming and encroaching on children's learning through play. For these teachers, the assessment was viewed as an add-on rather than an integrated part of teaching and learning.

Imagine a teacher scrambling to create equal digital documentaries for 28 students to share at a curriculum night, for example, busy behind an iPad all day while students looked on curiously or waited for attention. In this administrative mindset for assessment, some teachers described intentions to share data *only* with the adults in the classroom and took careful steps not to bother their students about it.

Students trying to sneak a peek at what was being documented on the iPad were shooed away. While perhaps more efficient and surely acting with care for their students' best interests, these teachers were probably the furthest from getting any SRL bang for their hard-earned assessment buck.

All the teachers we observed dedicated a considerable amount of energy to assessment. They almost always seemed to be holding a camera, iPad, or clipboard while conducting their daily work with students. Based on our research, we wonder what it would take to support more widespread adoption of AaL, through which observations and assessments would be shared, discussed, and co-created with students.

On the one hand, suggesting an approach through which teachers explicitly share at least one process-oriented observation with children per day, or per lesson, or per hour, might transform their understanding of and engagement in children's play. Alternatively, perhaps teachers need to go right back to basics and remember how to play themselves. One thing is exact, these fundamental changes will not take hold without support. If kindergarten teachers who spend their days immersed in the culture of blocks, baloney, and finger-paint sometimes need help to appreciate the value in play, how much help might their supervisors require? No proposed improvements will thrive unless the systems and structures in which teachers function are equipped to notice them, name them, and assign their appropriate value.

References are available upon request from Christopher DeLuca (cdeluca@queensu.ca).

Collaborating with Teachers to Design and Implement Assessments for Self-Regulated Learning in the Context of Classroom Writing Tasks

Xinke Wan *for* Nancy E. Perry, Simon Lisaingo, Nikki Yee, Natasha Parent, & Krista Muis

This special issue explored many synergies between self-regulated learning (SRL) and assessment for learning (AfL) from various angles across different contexts. Our work illustrates how assessment and feedback are integral supports for effective SRL. In particular, we examined how students' engagement in SRL development can be promoted through curriculum-based assessments focused on supporting and providing feedback about SRL processes. This emphasis sends a clear message that SRL is valued and will lead to success in learning.

Our goal was to integrate AfL and SRL promoting practices in authentic classroom tasks and activities. Therefore, we collaborated with teachers to design and implement assessments of and for SRL, including student self-assessment, in the context of curricular-linked writing activities. Our findings indicated that AfL could inform teaching toward SRL and students' engagement with SRL processes. In this reflection, we spotlight how we used SRL and AfL promoting practices to enhance teaching and learning about writing in Grade 3 classrooms.

First, we positioned teachers as *deliberative intellectuals* (Giroux, 2002), collaborators and contributors to our work. One of the overarching goals of our larger research project was to work with teachers to design and implement SRL promoting activities, including AfL (e.g., student self-assessment of motivation and strategic action).

To address this goal, we held regular teacher learning team meetings over each school year and created space for teachers and researchers to engage in a cyclical process of planning, enacting, and reflecting, much like the cycles of self-regulation we wanted to promote in students and consistent with participatory approaches to research and professional learning (Butler & Schnellert, 2012; Halbert & Kaser, 2013; Perry et al., 2015).

Through our collaborations, teachers gained knowledge about strategies for supporting children's SRL, including using AfL for this purpose. Researchers gained access to local knowledge about whether and how our plans could work in participating classrooms, enhancing and legitimizing our co-constructed innovations.

Second, our work contributes to understanding how much and what kinds of instructional supports are critical to promoting SRL and AfL in tandem. Specifically, in classrooms where AfL processes (e.g., sharing and/or co-constructing success criteria) were emphasized in instruction to support student SRL, students demonstrated a greater understanding of the writing process and more active uptake of feedback and assessment to advance their learning and performance.

Our study also illuminated aspects of classroom assessment contexts that led to SRL, including but not limited to complex and meaningful tasks and co-constructed routines for self- and peer-assessments.

Finally, we recognized teachers as professionals with a diverse range of knowledge and expertise. In our study, teachers came to the project with different beliefs and understandings about SRL and AfL, allowing for a natural variation in SRL promoting practices across classrooms that we characterized on a continuum from high to low emphasis on SRL.

This natural variation in teachers' SRL practices informed our understanding of the kinds of supports being offered across classrooms and how students responded to them and challenged us to consider what kinds of support teachers need to effectively support SRL.

Overall, our study demonstrates a synergistic relationship between SRL and AfL. Specifically, when AfL is implemented as described in the literature (i.e., it is embedded in regularly occurring classroom activities, focuses on learning processes as well as products, emphasizes personal progress, and fosters a constructive view of failure), it pairs well with SRL promoting practices to provide learners with [in]formative feedback they can use to take control of, or self-regulate, their learning.

Our work also emphasizes teachers' essential need to develop deep understandings of SRL and how to use AfL to support it. This participatory approach, operationalized through teacher learning teams, is one way to support teachers' development of SRL and AfL promoting practices and optimize research possibilities within naturalistic environments.

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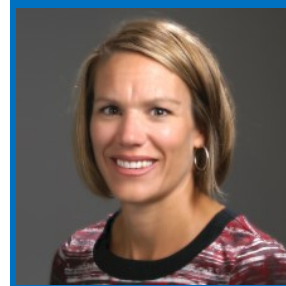
Commentary: Issues and Affordances on Synchronizing Classroom Assessment and Self-Regulated Learning
Jeffrey A. Greene

One of the joys of a career in scholarship is coming across a new idea that immediately feels novel, exciting, and yet also now-obvious. That is how I felt when I first encountered the synthesis of self-regulated learning (SRL) and formative assessment research. From both internal and external sources, formative information is essential to effective self-regulation, yet there is so much to be discovered about the dynamic interactions among these processes.

A better understanding of how formative assessment and SRL complement each other can catalyze research and practice in both fields. Therefore, it was a thrill and an honor to be invited to reflect upon the research presented in this special issue of *Assessment in Education: Principles, Policy, and Practice*, edited by Christian Brandmo, Ernesto Panadero, and Therese N. Hopfenbeck (2020).

The included studies challenged conventional thinking and asserted new ways of conceptualizing how self-regulated learning and formative assessment mutually entangle one another, complicating views that persist in keeping them separate (Greene, 2020). For example, Allal's (2020) situated view of co-regulation highlighted that every act of assessment, be it from the self or otherwise, emerges from dynamic interactions among learners, tools, educators, and their separate and shared historical and cultural backgrounds.

Such a view affords new opportunities to explore the depth that exists beneath unanticipated and therefore informative findings, such as those outlined by Baas and colleagues (2020) in their study of how elementary school students' portfolio use related to their perceptions of monitoring and scaffolding. Investigations of context and culture brighten analytic paths that would otherwise be hidden within solely-confirmatory investigations.

Andrade and Brookhart (2020) argued that classroom assessment could be conceptualized as fundamentally a co-regulation process involving students, teachers, instructional materials, and contexts. As such, formative assessment spans support for the regulation of cognition, motivation, affect, and behavior. Andrade and Brookhart illustrate how and why effective formative assessment can and should address all four of these domains, with a myriad of suggestions for future research with implications for practice.

Chen and Bonner (2020) leveraged self-regulated learning as a theory of action for classroom assessment, spanning assessment of and assessment for learning (AfL). Their work highlights educators' key co-regulative role and how teachers' own ability to self-regulate can be used to decrease the likelihood of bias in the classroom. Their model has fascinating implications for fostering both students' and teachers' self-regulatory knowledge, skill, and dispositions.

DeLuca and colleagues' (2020) qualitative study of kindergarten teachers illustrated how synergized formative assessment and self-regulated learning models, such as those described in this special issue, can afford new insights into teacher practice. The teachers in this study did many helpful things to translate formative assessment into self-regulatory support, yet I was particularly interested in the finding that some teachers were hesitant to share assessment results with students for fear of distressing them. This suggests teachers would benefit from conceptualizing and delivering feedback in ways that promote growth rather than unintended feelings of shame or embarrassment.

Perry and colleagues (2020) also identified a need for additional teacher education and preparation on SRL and how to use AfL as a way to promote effective self-regulatory functioning. Within their impressive seven-year longitudinal study of children's development, these authors used mixed methods triangulation to identify how Grade 3 teachers' emphasis on SRL, or lack thereof, led to classrooms that differed in terms of structural support, autonomy, task complexity, and on-going support for self-regulation through each phase of learning during a writing task. These classroom climates and structural differences were associated with differences in the depth of strategies students enacted, their interest and value in the task, and the subsequent quality of their writing products.

The articles in this special issue cohere to demonstrate that the integration of SRL and formative assessment frameworks have implications for how teachers construct their classroom environments, tasks, student interactions, and support, with subsequent implications for those students' development and performance.

Special issues are unique opportunities to prompt a revolutionary change in how scholars conceptualize and investigate phenomena. This particular special issue maximized this opportunity: the authors presented generative ideas that prompt numerous directions for future research. Importantly, their work has direct implications for helping students and teachers maximize the mutually supportive processes of formative assessment and self-regulated learning. Thankfully, now that we better understand the synergies between formative assessment and self-regulated learning, there is no going back.

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