Relating Teacher Professional Development Processes to Students' Engagement in Learning: An Integrative Research Project.

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This brief, overview paper is the first to be presented within a coordinated symposium that reports findings from an integrative research program designed to advance understanding about self-regulated learning (SRL) for both teachers and students. In addition to this overview, our symposium comprises four unique and complementary papers derived from a multi-year, multi-layered project that collectively inform understanding about (1) the qualities of secondary students' self-regulated engagement in "learning through reading" (LTR) when asked to build meaning from text in varying contexts; and (2) how engaging teachers in data-informed cycles of collaborative and reflective inquiry fosters teacher professional development, teacher SRL, modifications to practice designed to support student SRL, and associated gains for students. In this introduction, we describe the complementary foci within our research program, situate each conference paper therein, and highlight major contributions emerging from this research program.

Layer One: A Focus on Student SRL

Research suggests that students who intentionally and reflectively self-regulate learning are more likely to be successful. Thus, our research has focused on expanding understanding about the nature of SRL and contexts and practices that support it. Building from research on SRL components and processes (e.g., Borkowski, 1992; Butler & Winne, 1995; Corno, 1993, 1994; Pintrich, 2000; Schunk, 1994; Winne & Perry, 2000; Zimmerman, 2000), we offer a model of *Self-Regulated Learning in Complex Activities* (see Figure 1) to describe students' strategic

engagement in LTR (Butler & Cartier, 2005; Cartier & Butler, 2004). In our symposium, we draw on this model to examine the complex relationships among motivation, emotion, cognition, and metacognition in students' SRL (Wang, Haertel & Walberg, 1993).

Figure 1 suggests that SRL is shaped by what individuals bring to a learning activity. But individuals' SRL is also situated in multiple layers of context (i.e., sociocultural/historical; national/provincial; neighborhoods and schools; local learning environments; domains; activities and tasks) (Butler & Cartier, 2005; Cartier & Butler, 2004). In this symposium we report findings related to how individuals' background, strengths and challenges, knowledge, perceptions, and conceptions interact with multiple layers of context to shape engagement in learning.

Three of the four papers in this symposium work together to provide a rich profile of how individual-context interactions shape students' SRL when learning through reading (LTR) (Cartier 2000). First, in a "main project" paper (Butler, Cartier, Schnellert, & Gagnon, 2006), we provide descriptive portraits of self-regulated engagement for 646 secondary students (grades 7 to 12) working on curriculum-based LTR activities within diverse contexts. We describe patterns meaningful across the entire sample, but also show how relationships were shaped by individual-context interactions. In a second paper (Giammarino, Butler, Cartier, Schnellert, Gagnon, & Higginson, 2006), we present a fine-grained analysis of methodological designs appropriate for capturing SRL as a situated event. In that paper, we provide a theoretical justification for the approaches reported in the main project paper and methodological guidance for future research. Finally, in a third of our papers (Tang, Butler, Cartier, Giammarino, & Gagnon, 2006), we narrow focus to examine strategic help-seeking as one aspect of self-regulated engagement in LTR. We integrate a model of help-seeking with our model of *SRL within Complex Activities* to frame an examination of context-individual interactions in help-seeking, SRL, and reading performance for students who are or are not designated as English-as-a-Second-Language learners (ESL).

Layer Two: A Focus on Teacher Professional Development

Two reasons originally motivated our concurrent interest in teacher professional development and student SRL. First, we ground our investigations of both teacher and student learning in a common theoretical framework. Our goal is to expand understanding about SRL by applying our situated model of SRL to an analysis of teacher professional development within collaborative learning communities (Butler, Novak Lauscher, Jarvis-Selinger, & Beckingham, 2004; Butler, 2005). Second, we seek to identify a professional development model that fosters shifts in classroom practices that promote students' self-regulated engagement in LTR. By focusing on both teacher learning and student outcomes, we can examine relationships between the two (and mediators between them). Thus, in the fourth paper offered within this symposium (Schnellert, Higginson, & Butler, 2006), we report initial findings related to how using collaborative research methodologies supports teachers to co-construct new theoretically-grounded but situated (i.e., contextually relevant) assessment and teaching practices, and how those changes in practice might be associated with improvements in student learning.

But, given the focus in our research on the benefits associated with situated literacy assessments, we found our project being shaped by and embedded within a broader discourse about assessment and accountability at multiple levels (classroom, department, school, district, provincial). As a result, our research evolved to include a third focus, also addressed in the Schnellert et al. (2006) paper. We also focus attention on how our model for generating situated literacy assessments might both provide formative assessments useful for guiding practice, and assist in tracking outcomes in a way that is perceived as meaningful by individuals adopting different socio-political perspectives (e.g., teachers, administrators, policy makers).

Project Overview

Across the four papers comprising this symposium, findings are reported from one year of a multi-year project in which teachers from 4 secondary schools worked collaboratively with researchers to promote SRL by their students. Across papers, data are presented for 646 students with varying backgrounds (e.g., different cultural and linguistic backgrounds; struggling and accomplished learners) who were learning through reading in multi-layered contexts (different schools; school programs; classrooms; domains). Interviews, observations, documents, and artifacts were also collected to investigate links between teacher engagement in constructing, scoring, and reflecting on situated assessment data, shifts in practice, and pre/posttest changes for students. Figure 2 overviews the data collected to trace teacher and student learning.

What Are We Learning?

By constructing an integrative research program that links investigation of teacher development processes to research on students' SRL, we are able to enrich understanding about teacher and student SRL simultaneously. As can be seen in the papers themselves, we are providing theoretical, methodological, and practical contributions.

Contributions to Understanding Student Self-Regulated Learning

First, findings reported in our main project paper (Butler et al., 2006) revealed problematic LTR profiles that cut across our 31 classrooms (and 646 participants). For example, we found that most students reported over-inflated self-perceptions of competence, very little planning, and low use of cognitive strategies most beneficial for higher-level learning (e.g., applying or linking information). At the same time, notable variation was observed when we examined cross-case patterns that enriched our understanding of individual-context interactions. For example, students working in classes targeted for less successful students (e.g., School 4, grade 12 students studying

Communications) were among the least confident, while students who self-selected to participate in French Immersion were among the most highly confident.

Another major finding from our main project paper emerged through a combination of factor and cluster analyses. Using factor analyses, we identified 23 reliable dimensions underlying our Learning through Reading Questionnaire (LTRQ) (Butler & Cartier, 2005; Cartier & Butler, 2004), each of which was consistent with our theoretical framework. We entered these dimensions into cluster analyses to define cross-componential profiles of self-reported LTR engagement. What we found were four distinct profiles that encompassed emotion, motivation, cognition, and self-regulation.

For example, actively engaged learners (42% of students) reported positive emotions, held positive motivational beliefs (e.g., high perceptions of competence and control, positive task value, controllable attributions), and reported high levels of cognitive and self-regulating strategy use. They were lowest in ratings reflecting attributions for success to external, uncontrollable factors, an external focus on pleasing or impressing others, and disengagement from learning. In contrast, students who fell in a “disengaged” profile (13% of the sample) evidenced exactly the opposite pattern.

A third profile (including 21% of students) included students who perceived themselves to be trying (i.e., mid-range levels of self-reported cognitive and self-regulated strategy use), but who seemed to have little sense of control over outcomes (low self-perceptions of competence and control; low controllable attributions; high external attributions), an external focus, and high levels of stress and worry. A final cluster (26% of students) included relatively relaxed and somewhat successful students who reported little deliberate strategic activity, although those students within this group who were most strategic were most successful. Although more

encouraging than patterns we have found in other contexts (Cartier, Butler, & Janosz, 2006), we would note that 58% of our sample fell into profiles that were definitely less than ideal.

But, consistent with our theoretical framework, in our main project paper we also describe how cluster membership was mediated by individual-context interactions. For example, we found that self-reports of students who were struggling in school were more likely to fall into less positive profiles (e.g., high stress/inactively efficient; disengaged) than were self-reports of their peers. Similarly, we found that females reported more positive, actively-engaged, strategic profiles than did their male peers (47% vs. 34%). However, we also found that gender differences were mediated by context. For example, equal proportions of males and females reported being actively engaged when studying Science and Technology (46% and 47%, respectively), but a significantly larger proportion of females, in comparison to males, perceived themselves to be actively engaged in Humanities (54% vs. 36% for males).

Findings revealed in our main project paper were extended in our paper comparing SRL and help-seeking for ESL and non-ESL students (Tang et al., 2006). What we found in that strand of our work was (1) the same level of reading performance for both groups, and little relationship between help-seeking and reading performance; (2) certain common patterns in LTR engagement across both ESL and non-ESL learners (e.g., task-focused goals for learning and self-reported use of potentially productive reading strategies, but little focus on planning or on the most active learning strategies); but also (3) group differences in terms of how ESL students thought about LTR activities and their engagement within them. For example, ESL students reported higher levels of stress, lower self-perceptions of competence, more of a focus on memorization and on pleasing or impressing others, and greater use of strategies for managing motivation and emotions. In addition, a greater number of ESL students (but only about 1/5 of the group) set personal goals that put them at risk for disengaging in LTR (e.g., to “read as little as possible”).

Similarly, of the four overall LTR profiles we identified across the entire sample (i.e., actively engaged, high stress/actively inefficient, disengaged, relaxed/inactively efficient), an equal number of ESL and non-ESL students fell into the actively engaged profile. However, more ESL students reported high stress/actively inefficient profiles. We also found that membership in LTR profiles was mediated by gender and context. For example, ESL learners reading in Humanities where more likely to fall into the high stress/actively inefficient category than were ESL students reading in Science and Technology. Furthermore, across subject areas, it was male ESL students who were most likely to fall into this group (even though more female ESL students were represented in that group as well, when compared to non-ESL peers).

Finally, across all four LTR profiles, the lower students' self-perceptions of competence and control over outcomes, the more help-seeking they reported. But overall ESL students were more likely to report asking for help than were their non-ESL peers. In general, our findings suggested that while an important proportion of ESL students felt stressed, were uncertain about their abilities, and did not recognize the importance of key reading and learning strategies, most were seeking productive strategies, including help-seeking, that might help them engage more successfully in learning.

Contributions to Understanding Teacher Professional Development

In a case study of teacher professional development in one participating school (Schnellert et al., 2006), we adopted a unique perspective to investigate how feeding formative, situated literacy assessment data into cycles of collaborative inquiry fostered teacher learning as well as meaningful, goal-directed revisions to practice. More specifically, we examined how engaging teachers in developing, implementing, and scoring curriculum-based assessments focused on students' self-regulated engagement in LTR: (1) promoted teachers' recognition of LTR, what is required of successful students, and the needs of students within their classrooms, (2) spurred

collaborative problem-solving in terms of constructing new instructional practices that could be associated with gains for students, and (3) resulted in meaningful professional development for participating teachers. In the end, our study revealed the complex processes teachers engage as they set instructional goals based on student data and led us to identify enablers and barriers to teacher learning. This study also uncovered benefits of, and constraints on, teachers' use of student data to guide their instruction and professional planning.

Methodological Contributions

In our main project paper (Butler et al., 2006), we describe how we employed a unique, mixed-method design to create multiple, context-preserving case studies that allowed examination of coherence in LTR profiles across layers of aggregation. We offer this methodological design as a heuristic framework for thinking about how to explore individual-context interactions while still allowing for definition of meaningful patterns across combinations of cases. Our methodological analysis (Giammarino et al., 2006) provides a theoretical justification for adopting this methodological perspective, noting the importance of matching methodological tools to the theories under investigation (Winne and Perry, 2000). In this case we sought a methodological strategy true to our perspective on SRL as situated in context.

Our work is also innovative in its concurrent examination of teacher and student learning. By adopting two foci in equal depth simultaneously, we are able to conduct richer examinations of our range of research questions. For example, our investigation of individual-context interactions in shaping students' LTR profiles was enabled by the in-depth examinations we were conducting of teachers, the sense they were making of data, and the instructional changes they tried to make. As a result, we were able to systematically investigate how LTR profiles reflected different features of contexts, and to judge whether and how LTR profiles shifted in response to instructional changes. While we did not interpret these data as showing causal connections as

might be done using an experimental manipulation, we could draw on our observations to better understand and account for individual-context interactions. At the same time, our investigation of teacher professional development was strengthened by our ability to collect data on more than just teachers' perceptions about processes and gains. We were able to construct specific case studies tracing how teachers' interpretation of data linked to new instructional goals, shifts in practices, and outcomes for students.

Conclusions

A central premise within our model of *SRL in Complex Activities* is that an individual's engagement in academic work is shaped by the interaction between what that individual brings to the situation and multiple layers of context. Our investigations of student learning foreground the way in which LTR profiles were shaped by individual-context interactions. We illustrate this by showing how LTR profiles varied for individuals with differing backgrounds, skills, interests, and experience working with contexts that varied in terms of the program in which students elected to work (e.g., a Fine Arts Academy, a Science Academy), the domain under study (e.g., Science; Humanities), and instructional practices (e.g., evaluation practices).

In addition, our analysis of teacher professional developed allowed us to identify how more encompassing layers of context also shaped participants' (i.e., teachers', students', researchers') engagement in assessment and instruction. We traced, for example, how the situated assessment tools developed in our project became integrated over time into emerging priorities and accountabilities at the school, district, and provincial levels. In the end, we offer an assessment model with potential to meet multiple accountability agendas in a meaningful way, by both providing nuanced and curriculum-based formative assessment tools that teachers find meaningful, and at the same time highly sensitive, summative assessment tools for tracing student learning.

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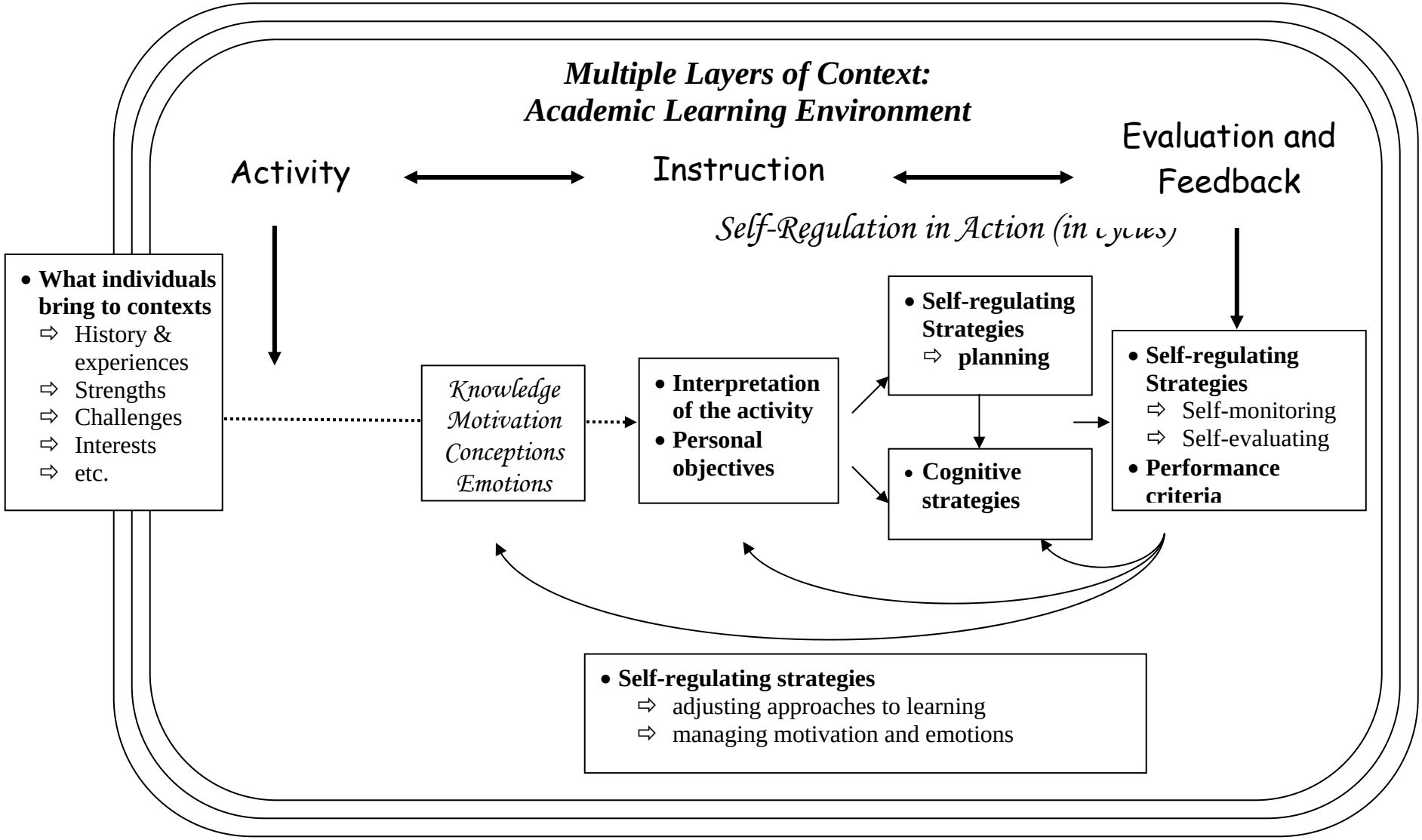
Figure 1
A Situated Model of Self-regulated Learning in Complex Activities (Butler & Cartier, 2004; Cartier & Butler, 2004)



Adapted with permission from Butler & Cartier (2005a)

Figure 2
Study Design: Data Collected to Trace Student Learning and Teacher Professional Development

Pretest	Instruction	Posttest
Student Assessments • Questionnaire • Performance-based assessment (PBA)	Teacher practices • Interviews (Int) • Artifacts (Art) • Observations (Obs)	Student Assessments • Questionnaire • Performance-based assessment (PBA)

↘ ↓ ↙

- Students' conceptions about academic work (Questionnaire & PBA)
- Students' learning through reading (understanding, inferences, and applications) (PBA)
- Teacher learning and classroom practices (Int, Art, Obs)