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COMMENTARY

Clarifying Metacognition, Self-Regulation, and Self-Regulated Learning: What's the Purpose?

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Abstract In this commentary on the special issue, I join the authors in searching for a conceptual framework that would clarify the concepts of metacognition, self-regulation, and self-regulated learning. Building on the insights of the different articles, I suggest that metacognition, self-regulation, and self-regulated learning should be considered as subtypes of the general, abstract, phenomenon of self-regulated action. I continue by questioning the benefit of seeking boundaries between these three concepts. Instead, I propose to search for *dimensions* along which types of self-regulated action vary. I, then, introduce the notion of a "multidimensional conceptual space of self-regulated action" as a conceptual tool that allows for diversity of conceptions of self-regulated action while maintaining conceptual clarity. I conclude by highlighting the central role of *purpose of engagement* in self-regulated action and by noting its potential for guiding the search for meaningful dimensions on which to typify self-regulation.

Keywords Metacognition · Self-regulation · Self-regulated learning · Motivation

The concepts of metacognition, self-regulation, and self-regulated learning have been growing in dominance in educational theory, research, and practice. However, as the articles in this special issue highlight, the increasing popularity of these concepts has been accompanied by several phenomena that are unconstructive for the scientific investigation of the concepts and for the translation of research findings about these processes to educational practice. For example, Dinsmore *et al.*'s (2008) review of the literature points to a rather troubling prevalence of practices by researchers, including neglecting to define the concepts under investigation, misidentifying concepts, misaligning definitions of concepts with methods of operationalization, and employing instruments without reflection on their theoretical roots and methodological limitations. Such practices would be problematic in any domain of inquiry and should be avoided. In addition, however, it is also the legitimate and desirable theoretical developments that were based on empirical findings that have

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contributed to an evolution and diversification of the meanings of metacognition, self-regulation, and self-regulated learning. This almost inevitable phenomenon in the lives of theoretical concepts "gone popular" has led to some conceptual confusion. Hence, this special issue on metacognition, self-regulation, and self-regulated learning was conceived with the *purpose of promoting conceptual clarity of the three concepts*.

Multiple goals and strategies can serve the pursuit of conceptual clarification. For this special issue, the editor and authors chose as an overarching strategy: "to bring several bodies of related research into alignment so that key theoretical elements, methodological features, and statistical dimensions can be compared and contrasted" (Alexander 2008, p. 371). More specific strategies that were selected for this pursuit were "to consider the nature of the interrelations between [these] three key terms," to "juxtapose any one of these terms...against another," and to "explore their shared conceptual boundaries" (p. 370). The authors of each article engaged in their individual project faithfully. They employed an array of even more particular strategies such as exploring historical definitions of the concepts; searching, selecting, and reviewing the empirical literature; comparing and contrasting the three focal concepts with other close concepts; and even using the characteristics of educational environments that are considered to promote such desirable concepts to shed light on their meaning. They have combined their significant efforts, building on and complementing each others' understandings, striving to disperse the fog that masks the clear conceptual picture of the three concepts, seeking the "core meaning of *metacognition*, *self-regulation*, and *self-regulated learning*, as well as where these constructs converge and diverge along select dimensions" (Dinsmore *et al.* 2008, p. 392).

This collaborative effort is commendable, and its general purpose comprises a critical aspect of the scientific project. In this commentary, I will join the other contributors in this effort by discussing several issues that emerge from the articles and that seem to me central to the pursuit of the purpose of conceptual clarification of the processes referred to by metacognition, self-regulation, and self-regulated learning. Specifically, the issues I will address are: (a) the notion of metacognition, self-regulation, and self-regulated learning as referring to different "types" of self-regulation; (b) the problem with seeking boundaries between metacognition, self-regulation and self-regulated learning, and the potential of looking, instead, for dimensions; (c) the promise of constructing a "multidimensional self-regulated action conceptual space" within which to specify different types of self-regulation; and (d) the central role of the *purpose of engagement* in clarifying different types of self-regulated action.

Distinct Concepts or Subtypes of the Same Conceptual Phenomenon?

The starting point for my commentary is the picture that Dinsmore *et al.* (2008) present of the definitions of the three focal concepts that are currently prevalent in the educational psychological literature. In their extensive and enlightening review, Dinsmore *et al.* find that the three terms are often used indiscriminatingly in the current literature. Moreover, they conclude that the representation of these concepts in the literature suggests a conceptualization of metacognition, self-regulation, and self-regulated learning as nested within each other. On the basis of considering the historical roots of the three concepts and their more contemporary development, Dinsmore *et al.* contend that the three concepts share the underlying notion of "a marriage between self-awareness and intention to act" (p. 404). Similarly, Fox and Riconscente (2008), in their review of the historical roots of the concepts in the writings of James, Piaget, and Vygotsky, conclude that "metacognition and

self-regulation are parallel and intertwining constructs that are clearly distinct yet mutually entailed both developmentally and in their functions in human thought and behavior. Neither subsumes nor subordinates the other" (p. 386). And yet, both Fox and Riconscente and Dinsmore *et al.* contend that this complex picture of nestedness or interdependence of the meanings of the concepts provides no "justification for the treatment of [these three concepts] as synonymous terms or conceptual givens" (Dinsmore *et al.* 2008, p. 404).

The understanding that the authors arrive at—that metacognition, self-regulation, and self-regulated learning share a common core that involves self-awareness and regulatory action and yet that they are nevertheless meaningfully different from each other—may suggest that the three concepts do not capture unique, mutually exclusive theoretical meanings, but rather, that they are subtypes of the same general phenomenon of self-regulated action. Such an understanding positions the three concepts under one conceptual abstract umbrella. Moreover, it raises the possibility that there are other subtypes of self-regulation that are not captured by the three focal concepts and that may represent meaningful differences in students' engagement. Notably, if I adopt such a perspective on metacognition, self-regulation, and self-regulated learning, my purpose in this commentary would shift from seeking convergent and divergent characteristics between these three concepts toward seeking a more general conceptual framework that would allow identifying multiple subtypes of self-regulated action.

Should We be Looking for Conceptual Boundaries?

Logically, pursuing the purpose of clarifying the conceptual differences between metacognition, self-regulation, and self-regulated learning led the authors to call to address "the clarity and *boundaries* of these constructs" (Dinsmore *et al.*, p. 401, emphasis added). However, for the purpose of identifying subtypes of self-regulated action, a search for boundaries may be somewhat incompatible. The notion of boundary is necessarily exclusionary and positions concepts as clearly distinct from each other. In contrast, the articles in the special issue indicate that any boundary between metacognition, self-regulation, and self-regulated learning is bound to be very fuzzy and permeable.

For example, the first boundary between concepts that is mentioned in the articles is that of context. Fox and Riconscente (2008) note that metacognition and self-regulation are broadly conceptualized "within the broad context of all activities for humans of all ages and points of development," whereas, in comparison, "self-regulated learning is, by most definitions, limited to students in academic contexts" (p. 374). This statement may suggest that whereas metacognition and self-regulation take place in every context, including academic contexts, self-regulated learning occurs *only* in academic contexts. Alternatively, it may suggest that self-regulated learning represents the contextualization of metacognition and/or self-regulation in academic settings.

Regardless, the use of academic vs. nonacademic contexts as a boundary seems problematic in the present case because of at least three reasons. One is that the boundaries of academic contexts are not clear-cut. Recent years have seen major transformations in the nature of formal academic settings that make it difficult to characterize their boundaries (Loyens *et al.* 2008; Winters *et al.* 2008). A second reason is that academic learning takes place in many contexts other than schools. For example, students also engage in academic learning at home (e.g., homework), in cultural institutions (e.g., museums), in extracurricular settings (e.g., tutoring and after school programs), and even across settings (e.g., distance learning). Another reason is that, by its definition, self-regulated learning can occur

wherever *learning*—academic or otherwise (e.g., youth movements, professional training, leisure activities)—takes place.

Other boundaries or conceptual distinctions between the three concepts highlighted by the articles have been grounded in the theoretical roots of the concepts (Fox and Riconscente 2008) as well as in the foci emerging from the contemporary literature (Dinsmore *et al.* 2008). These involved the distinction of metacognition and self-regulation along the intersection of the boundaries of "cognition vs. behavior" and "individual vs. environment" (Dinsmore *et al.* 2008, pp. 393–394), respectively. Dinsmore *et al.*, for example, located the core meaning of metacognition as a focus on the individual's cognition, self-regulation as a focus on behavior that is the result of individual–environment interaction, and self-regulated learning as a fusion of these former two. Here too, exclusionary boundaries seem to provide non-optimal conceptual distinctions since metacognition is clearly nested in and is affected by environments, and self-regulation involves also the individual's cognition.

Therefore, what we seem to need are conceptual tools other than exclusionary boundaries for conceptualizing the processes that the different terms refer to. An alternative that may be more congruent with the purpose of seeking to conceptualize subtypes of a single general phenomenon is *dimensions*. Unlike boundaries, which position concepts against each other, dimensions allow concepts to gradually transform into each other. For example, in contrast to conceiving cognition and external behavior as distinguished by a boundary, it may be possible to conceive of them as hypothetical poles of a "cognition–external behavior" dimension. Thus, rather than being forced to select *between* cognition and behavior for defining the processes they are targeting, researchers may be able to locate the self-regulatory processes on different points along the dimension. Similarly, the individual vs. environment boundary can become an "individual–environment" dimension along which researchers and practitioners can specify the focus of the processes they are investigating or attempting to promote.

An additional benefit of employing dimensions rather than boundaries as conceptual tools in the present case is the ability to conceptualize change in self-regulatory skills and action as movement along dimensions. Conceptualizing self-regulated action along dimensions such as "other-regulated–self-regulated," "surface strategies–deep strategies," or "extrinsically motivated–intrinsically motivated" may allow researchers and educators to define more clearly the nature of students' regulatory action as well as to follow its change along these dimensions with time, development, learning, and following interventions.

A Multidimensional Conceptual Space of Self-Regulated Action

Whereas the primary focus of the special issue is the three concepts of metacognition, self-regulation, and self-regulated learning, the articles point to a great diversity of conceptions of self-regulatory action in the literature (Dinsmore *et al.* 2008). Therefore, the search for conceptual clarity should not stop at the three focal concepts but should allow conceptualizations of other possible subtypes of self-regulated action. Defining a *set* of relevant orthogonal dimensions, that together would form a "multidimensional conceptual space of self-regulated action," will legitimize the diversity of conceptions without compromising conceptual clarity. Such a multidimensional space will facilitate awareness to the complexity of the self-regulation phenomenon and require researchers to define their particular theoretical and practical conceptualization on a meaningful set of characteristics. The multidimensional space would constitute a framework upon which to compare conceptualizations and upon which to rely when integrating findings from various research

projects. Importantly, as a dynamic conceptual tool, a "multidimensional conceptual space" permits future conceptual development through the incorporation of new meaningful dimensions that are identified with the progress of theory and research.

The purpose of promoting conceptual clarity by defining a multidimensional conceptual space of self-regulated action calls for employing strategies that would identify meaningful orthogonal dimensions upon which self-regulatory processes might vary. There are many likely candidates to choose from, and this task goes beyond the scope of this commentary. However, one possible strategic framework to adopt follows Fox and Riconscente's (2008) scheme of the three components of the self-regulatory action: (a) the "subject" who is doing the regulating; (b) the "object" that is being regulated; and (c) the "means" by which regulation is conducted. Researchers could define the focus of the self-regulated processes they target through considering conceptual categories within which to define relevant dimensions on each of these three components. For example, when considering the "subject" in self-regulated action, one obvious category within which to seek meaningful dimensions is the *Self*. Perhaps the most relevant dimensions in the category of Self for characterizing different types of self-regulated action are "other-regulated–self-regulated" (Loyens *et al*. 2008, p. 8), "controlled-regulation–autonomous or self-determined-regulation" (Ryan and Deci 2000), or "coregulation–self-regulation" (e.g., Diaz *et al.* 1990; McCaslin 2004). Other potentially relevant self-dimensions might include "I-self–Me-self" (James 1890; Roeser *et al.* 2006); "independent self–interdependent self" (Markus and Kitayama 1991), "private self–public self" (Carver and Scheier 1981), and "individual identity–social identity" (Tajfel and Turner 1986).

Similarly, when considering the "object" of the self-regulated action, options for categories within which to seek meaningful dimensions include cognition (e.g., "surface strategies–deep strategies"), emotion (e.g., "self-oriented emotions–other-oriented emotions"), motivation (e.g., "extrinsic–intrinsic"), behavior (e.g., "solitary–collaborative"), personality attributes (e.g., "introversion–extroversion"), and the physical environment (e.g., "avoiding–constructing"). Importantly, epistemological beliefs concerning these "objects" would be an important category within which to seek relevant dimensions (Maggioni and Parkinson 2008). Finally, categories of "means" with dimensions upon which the mode of regulation may vary include the classic metacognitive strategies of planning, monitoring, regulation, and evaluation (e.g., "norm-referenced evaluation–self-referenced evaluation"), as well as categories of social behavior (e.g., "solitary coping–consultation"), or use of tools and technology (e.g., "conforming–creative").

Clearly, a tremendous amount of theoretical and empirical work is required in order to define relevant categories and dimensions within each component of the self-regulated action. Also, the relevance of categories and dimensions may be different for self-regulated action among people in different developmental stages, environmental cultures, subject domains, and kinds of tasks. The task may seem overwhelming. However, a possible strategic anchor for conducting such a theoretical and empirical search may be found in a decades-old socio-cognitive psychological construct: the *purpose of engagement* (Maehr 1984).

The Central Role of Purpose of Engagement in Self-Regulation

My summary description of the special issue above highlighted the purpose that the editor and authors adopted for this project and the goals and strategies that they used to pursue that purpose. Clearly, adopting a purpose other than conceptual clarification for a special issue on metacognition, self-regulation, and self-regulated learning (e.g., exploring their implications for practice; integrating research from different domains) would call for setting

different goals and employing different strategies. This was also apparent as the purpose of conceptual clarification in my commentary shifted from "distinguishing between the three focal concepts" to "identifying a framework for conceptualizing subtypes of self-regulated action." Under the frame of different purposes, different strategies may be perceived as relevant, or as "action possibilities," for engagement (Kaplan and Maehr 2002; Maehr 1984). Thus, when engaged in a task (e.g., a classroom assignment), different people (e.g., students with different characteristics) might engage in different types of self-regulated action, depending on their purpose of engagement (Kaplan *et al.* 2008).

In a high-school essay assignment, for example, a student adopting the purpose of learning from the assignment may begin her engagement with planning that involves identifying areas in which she has too little knowledge; follow by setting goals to develop knowledge and by selecting strategies of searching, gathering, and integrating information; and continue by monitoring and evaluating her knowledge acquisition before engaging in planning, goal setting, monitoring, and evaluating for the writing process. Another student may adopt the purpose of creating a very favorable impression on the teacher. This student would approach the task quite differently and may begin his engagement with planning that involves choosing an attractive main idea; follow by setting goals to emphasize his writing ability and knowledge of the topic and by selecting rhetorical strategies that demonstrate his sophistication; and continue by monitoring and evaluating the impression he created throughout the writing process and at its end. A third student may adopt the purpose of producing something reactionary and creative. This student might begin her engagement not by planning but rather by eliciting associations on the topic; follow by setting goals to combine these associations in freeform text and by selecting postmodern rhetorical strategies that abide by few normative conventions. This student might also choose to not engage in monitoring through the writing process, although she might evaluate the product along those standards she defined for reactionary and creative writing. All three hypothetical students self-regulated their engagement in what could have been defined as the "same" academic task. However, each engaged in a different type of self-regulation in order to pursue their different purposes of engagement.

Maehr (1984) defined *purpose of engagement* as an integrative psychological construct with three interdependent components: (a) the agent's self-processes that are relevant for that situation; (b) the agent's perceived purpose of the task in the particular situation; and (c) the action possibilities—or engagement strategies—perceived to be relevant for the particular "self" pursuing the particular purpose. These three components seem to correspond to the three components of the self-regulated action specified above: self-processes with the "subject," task purpose with the "object," and action possibilities with the "means." The contribution of Maehr's perspective is its emphasis on the interconnections and interdependence among these three components, and their integration in the overall, comprehensive, situated purpose of engagement in the task at hand.

Thus, starting by defining the purpose of engagement that would best serve the educational goal in a particular educational context, subject matter, and type of task may guide theorists, researchers, and practitioners in identifying the relevant categories and dimensions of self-regulated action and, hence, the type of self-regulation that they wish to promote. They should consider whether the educational environment includes affordances for these purposes and types of self-regulation (cf. Loyens *et al.* 2008). But, importantly, they should also consider the likely possibility that students would adopt different purposes of engagement and, therefore, different types of self-regulation than those planned for by the designers of the educational environment (cf. Winters *et al.* 2008).

Hence, a second important step would be to assess students' purposes for engagement and types of self-regulated action for the task. It is this discrepancy between the designers' definition of purpose and types of self-regulation and students' subjective purposes and types of self-regulation for the same task that should define the relevant categories and dimensions to be used in constructing the multidimensional conceptual space of self-regulated action for that particular task. And, it would be movement on those dimensions that should be the focus of self-regulation interventions in that setting. Of course, affecting a meaningful change in students' purpose of engagement is not easy. It requires promoting critical reflection on currently held purposes for engagement and facilitating an open dialog and exploration about the consequences of adopting different purposes and employing different engagement strategies (Dinsmore *et al.* 2008; Flum and Kaplan 2006; Maggioni and Parkinson 2008; Nicholls 1989).

Conclusion

An important conceptual conclusion of the current analysis is that metacognition, self-regulation, and self-regulated learning are not distinct concepts. Rather, they are subtypes of the same general abstract phenomenon of self-regulated action. Hence, self-regulation itself is not a unitary construct: there is no *one* set of cognitive, metacognitive, motivational, and behavioral strategies that constitutes the desirable mode of engagement in every setting and task. There are many types of self-regulated action that are more or less appropriate for different tasks, in different domains, in different sociocultural contexts, and for different students. Importantly, these types of self-regulated action are inseparable from the purpose of engagement in the task. The purpose of engagement constitutes a comprehensive psychological framework within which different self-aspects, objects of regulation, and strategies are integrated to form the type of self-regulated action relevant for engagement in the task. Therefore, purpose of engagement may guide researchers and practitioners in defining the type of self-regulation they wish to promote and in constructing educational environments and tasks that provide affordances for such purposes and self-regulated action. Unfortunately, currently, many students do not adopt *learning* as their main purpose of engagement in school. Despite its common use in the literature, it seems that types of "self-regulated achievement" are much more prevalent than types of "self-regulated learning."

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