Literature Review:
Clarifying the Constructs of Motivation, Regulation of Motivation, and Volition in Models of Self-Regulated Learning

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Abstract:

Models of self-regulated learning emphasize that students are more effective when they are motivated to become self-directed learners. However, the terms motivation, regulation of motivation, and volition are sometimes used interchangeably in the self-regulated learning literature. The purpose of this article is to explore the theoretical boundaries and overlaps between these constructs. Conceptual clarity of these important constructs is the important first step to guide future research related to the theoretical definition, measurement, development, and instruction of strategies for self-regulation.

Key Words:

Adult education, motivation, self-regulation, and active learning.

Overview

Why students are motivated or not has always been a concern of educators. Research that focuses on uncovering why students believe and think as they do tends to investigate the association between motivation (seen as a student characteristic) and learning outcomes. Another way is to view motivation as a temporal sequence that is self initiated, directed, sustained, and finally terminated over a continuous process (Graham & Weiner, 1996). This review focuses on the latter view of motivation. The reviewed articles and studies address at least one of the following areas: (a) examining theoretical frameworks in which motivation is a key construct, (b) clarifying conceptual or construct overlaps between motivation and its related constructs, and (c) stressing the interconnectedness of motivation and other variables.

Models of self-regulation

The *Handbook of Self-Regulation* (Boekaerts, Pintrich, & Zeidner, 2000) lists many different models of self-regulation. Zimmerman (2001) categorizes these models according to seven theoretical categories and describes them across five dimensions. The seven theoretical categories are operant, phenomenology, information processing, social cognitive, volitional, Vygotskian, and constructivist. The five dimensions are motivation, self-awareness, key processes, social and physical environment, and the acquisition of capacity. Accordingly, models are differentiated in terms of their different assumptions across these five dimensions and their relative emphasis on different aspects of these dimensions.

The main focus of this review is on information processing and social cognitive models. The reasons are three-fold. First, information processing and social cognitive theories are cognitive in nature; therefore, it helps to focus the lines of inquiry on the main purpose of this review, which concerns cognitive and motivational constructs. Second, social cognitive and information processing views of self-regulation include major academically relevant works in contemporary self-regulation research. For instance, models proposed by leading researchers in these fields, such as Pintrich (2000), Zimmerman (2000), and Winne and Hadwin (1998), are followed by most self-regulation researchers in social cognitive and information processing theoretical traditions (Snow, Jackson, & Corno, 1996; Zimmermann & Schunk, 2001). Finally, the two major constructs, regulation of motivation and volition, examined in the paper are rooted in social cognitive and information processing theoretical perspectives respectively. A volitional account of self-regulation is not treated as a distinct theoretical model in these models, as it shares many key elements of an information processing view of self-regulation (Corno, 2000).

On the "motivation" and "key processes" dimensions outlined by Zimmermann's (2001) comparison of theoretical views of self-regulation models, Zimmermann and Schunk (2001) propose that while a social cognitive view of self-regulation is more complete in its description of motivation, an information processing perspective is richer in describing self-regulation processes in terms of strategies and tactics. Zimmermann and Schunk's (2001) suggestion seems reasonable, given that some key researchers in the social cognitive field of self-regulation are also leading scholars (e.g., Pintrich) in the area of motivation. These scholars often emphasize the role of motivation in their works (Schunk, 2005). On the other hand, an information processing account of self-regulation presents a more complex cognitive architecture and provides a clearer description of cognitive processes of students' use of strategies and tactics (Greene & Azevedo, 2007). However, Greene and Azevedo (2007) also point out that regulation of motivation is underemphasized in research in the information processing model of self-regulation.

These models are described below and summarized in Table 1.

Table 1: A Comparison of Theoretical Views Regarding Motivation in Self-Regulated Learning

Information Processing	Social Cognitive	Volitional
• Motivation is not emphasized historically • Motivation is often conceived more as a state or an aptitude • Cognitive strategy overlaps with volition control	• Key theories of motivation are self-efficacy and goal orientation • Motivation is conceived more as a process, i.e., Regulation of Motivation	• Focus more on post-decisional action control or volitional control • Construct of volition overlaps with Regulation of Motivation

Overall, Zimmermann and Schunk (2001) suggest that all contemporary theories of self-regulation generally follow the pragmatist philosophical tradition of John Dewey and William James, who subscribed to a holistic view of human functioning. In this view, self-regulatory activities are not reducible to their components or activity level, and models of self-regulation need to account for the interactive nature of different processes. Two conclusions might be drawn about self-regulation models: (1) as self-regulation implies learners take an active role in controlling their learning, therefore, self-regulation models must be interactive to account for the active-adaptive nature of learners, and (2) as different models of self-regulation have relative strengths in explaining different aspects of self-regulation processes, researchers might consider adopting different elements from these models for their own research. The models with motivation as its key constructs are outlined in Table 1.

Constructs of motivation

The term motivation is derived from the Latin verb *movere* – that is, "to move" (Pintrich, 2003). However, contemporary definitions of motivation and its related constructs are numerous and varied, and there is much disagreement over the precise nature of motivation (Pintrich, 1999; Wolters, Pintrich, & Karabenick, 2003). The definition used in this study is one that is consistent with that of cognitive psychology, which focuses on persons' thoughts, beliefs, and emotion as central to motivation. From a cognitive perspective, motivation is both the process whereby goal-directed activity is instigated and sustained, and an internal state that arouses, directs, and maintains behavior (Woolfolk, Winne, & Perry, 2000).

Consistent with this cognitive view of motivation, the term *motivation* is used broadly to refer to both the level of motivation and the processes that contribute to, or account for, a certain state of motivation. From this perspective, motivation refers not only to just the end state but also to the process to achieve the end state (Wolters, 2003). Accordingly, important constructs that account for the process of motivation are regulation of motivation and volition. It is important to point out these two constructs have been described by leading self-regulated learning scholars Corno (2001) and Wolters (2003) as non-traditional and under-researched respectively.

Distinguishing between motivation and regulation of motivation

Wolters (2003, p.190) defines regulation of motivation as "the activities through which individuals purposefully act to initiate, maintain, or supplement their willingness to start, to provide work toward, or to complete a particular activity or goal." The central theme of this conceptualization is that individuals need to exercise agency to take active control or make a conscious effort to reach and maintain a level of motivation that is adequate for a task. Most notably, regulation of motivation concerns only the thoughts and actions students consciously and intentionally attempt to regulate their motivation with regard to a task. However, models of motivation do not typically propose that students are necessarily conscious of the underlying processes that influence their motivation or that they purposefully intervene in these processes (Wolters, Printrich, & Karabenick, 2003).

According to Wolters (2003), the theoretical distinction between motivation and regulation of motivation is the difference between subjective control and active control. Whereas theories of motivation emphasize the subjective control of various beliefs and students' characteristics on their choice, effort, and persistence, regulation of motivation concerns students' active control of the processes that influence these outcomes. This theoretical distinction is analogous to that of cognitive processes and regulation of cognition. Wolters (2003) also points out that this distinction is somewhat fuzzy in practice.

However, the distinction between motivation and regulation of motivation may be clarified in a larger conceptual framework of self-regulated learning proposed by Winne and Hadwin (2008). In this framework motivation can be seen as an outcome of efforts of self-regulated learning; conversely, self-regulated learning can be viewed as an instance of motivational behavior. In this dynamic model, motivation (a state or a product) and regulation of motivation (an operation or a process) are mediated by a standard and by evaluative feedback. Winne and Hadwin (2008) proposed that it is the recursive property of self-regulation that allows students to focus on changing motivation or other elements in their learning. This recursive property of self-regulation seems consistent with earlier research results which showed that self-regulation of motivation may change students' goal orientations, leading to better achievement (Schunk, 2005). Overall, Winne and Hadwin (2008) proposed that the active control over one's motivation, which Wolters (2003) described as regulation of motivation, might be rooted in a student's metacognitive awareness of their motivational and emotional states and the strategies available to them to regulate these states for optimal performance.

Despite some ambiguity between the constructs of motivation and regulation of motivation, conceptual clarity of the construct of regulation of motivation is helped by measurement tools. Importantly, Wolters (2003) has developed a set of scales to assess regulation of motivation strategies. These strategies include self-consequating,

goal-orientation self-talk, interest enhancement, environment structuring, self-handicapping, efficacy management, and emotion regulation. Although this set of strategies is not exhaustive–for instance, it does not include volitional control (Corno, 2001)–it does represent a broad spectrum of ways and aspects of self-regulation as described by Winne and Hadwin (2008) in general models of self-regulated learning.

Self-consequating refers to students using self-administered or self-generated consequences, often involving reward as reinforcement, for their own behavior. Another strategy applying the reinforcement principle is goal-oriented self-talk. In this strategy, students vocalize to bring to consciousness the need to invoke mastery-related behavior. The next strategy, closely related to mastery orientation, is intrinsic motivation or interest enhancement strategy. In this strategy students may include plans and actions to increase the immediate enjoyment or the situational interest of a task. The next strategy environment structuring describes students' efforts to reduce distractions in their environment or proactively to arrange their surroundings to make them more conducive for work. A somewhat counter-intuitive strategy is self-handicapping. In this strategy, students may purposefully create obstructions for tasks to make them more difficult. One reason this strategy might work is to force students to pay more attention to a more difficult task, or to habituate them to work in a difficult situation so that anxiety might be reduced when faced with a relatively less difficult, task. The efficacy management strategy includes three sub-strategies: proximal goal-setting–the rationale being that by breaking complex tasks down into manageable sub-components, students are more motivated to complete those sub-tasks; defensive pessimism–when students highlight their own weaknesses so as to self-motivate to invest more effort; and efficacy self-talk–for example, saying to oneself 'You can do it' when encountering difficulties in task performance. Finally, the emotional regulation strategy describes students consciously regulating their emotional experience, often to reduce negative affective responses associated with bad performance (Wolters, 2003).

Further, many of these strategies to regulate motivation can also be selectively used by students to regulate their cognition and behavior in different academic contexts (Wolters, Pintrich, & Karabenick, 2003). As self-regulated learning is presumed to be, to some extent, a context specific process (Winne & Perry, 2000), the strategies and measurement scale developed by Wolters (1998, 2003) may be used flexibly to tap into those aspects of learning that are most relevant to a particular study context. For instance, these regulation of motivation strategies, to the extent that they transcend across different self-regulatory processes, may be useful to study how motivational factors interact with other behavioral, contextual, and cognitive variables in a self-regulated learning model (Winne & Hadwin, 2008; Winne & Perry, 2000).

Distinguishing between regulation of motivation and volition

Corno (1993) characterized volition as a dynamic system of psychological process that protects concentration and directs effort in the face of personal and/or environmental distractions, and so aid learning and performance. Many current researchers (see Pintrich, 1999; Wolters, 2003; Corno, 2001) see volition as part of a larger self-regulatory system that includes motivation and other cognitive process. For instance, if volition is more narrowly defined as self-control that students use to support

their achievement goal commitment and attainment, it can be used interchangeably with self-regulation–that is, if self-regulation is narrowly defined as "maintaining one's actions in line with one's integrated self" (Lens & Vansteenkiste, 2008, p. 142). As motivation is intimately associated with self-regulation (Pintrich & Schunk, 1996), therefore volition and motivation are likewise closely linked.

Conceptually, Wolters (2003) distinguishes regulation of motivation from volition on the basis of their respective theoretical origins. According to Wolters (2003), the construct of regulation of motivation is conceptualized in a broad social cognitive perspective of self-regulated learning. Consistent with this perspective, self-regulated learning emphasizes a fluid and ongoing interaction between motivational, cognitive, and other self-regulatory processes. Within this dynamic framework, regulation of motivation can account for other elements of students' learning, such as self-efficacy, interest, and goal-orientations. In contrast, the theoretical description of volition concerns both regulation of motivation and regulation of cognition; therefore, it is more analogous to self-regulation in general.

However, contemporary volition research derives largely from works in action control theory by Heckhausen and Kuhl (Corno & Kanfer, 1993). These researchers propose a Rubicon model of conceptualizing regulation of motivation and volition. On one side of the Rubicon is pre-decisional processing, which refers to cognitive activity in goal selection; on the other side is post-decisional processing, which describes actions taken to achieve the goal selected. Corno (1993, p. 15) describes pre-decisional processing as motivational and post-decisional processing as volitional, and the transition from motivation to volition as "crossing the Rubicon," after which the focus is on action needed and taken for goal attainment.

Despite efforts to clarify the distinction between regulation of motivation and volition, there are still considerable debates whether the two are separate constructs or whether one is part of the other. But there is little doubt that there is a considerable degree of conceptual overlap between regulation of motivation and volition. In scholarly works, writers contributing to the motivation literature often refer to the concept of volition, and vice versa. For instance, Kuhl's (1985, 1986) notion of volitional control includes certain elements of motivational control, and Wolters' (1998) regulation of motivation contains measurements on volition.

Corno (2001) has provided an account of a more inclusive view of regulation of motivation and volition. She describes regulation of motivation as the will and volition as the way, but the two are complementary and both are part of more encompassing self-regulatory processes. Educationally, Pintrich and Schunk (1996) suggest that post-decisional processing may be more relevant for educational interventions. This is so because students typically do not enjoy choice of academic activity; therefore, pre-decisional processing becomes less important for these students. For instance, students may not like a subject but have no choice and have to face it under conditions where they have little or no control; in other words, the only option available to students then is to work out a way to accomplish the task. Research shows that many academic failures are attributable to procrastination in homework and inability to deal with distractions by students–exactly the kind of issues volitional control is aiming to deal with (Corno, 1993; Dewitte & Lens, 2001). Instead of describing volition in broad

colloquial terms, such as willpower and will, in recent years, volition scholars have reconstrued the notion of volition into more precise information processing terms, and operationally defined it as actions taken on basis of new information (Corno, 2000, 2001). Further, volitional strategies are trainable; therefore volition control strategies have become practical academic intervention measures as they concern directing and controlling information processing, affects, and behaviors toward accomplishing goals (Corno, 1993).

Zimmerman (1986) claimed that volitional processes are important self-regulated learning subprocesses. This is so because the goal system of highly self-regulated persons is organized hierarchically, such that action control processes operate as regulators to give priority to commitments, and to steer engagement along (Corno, 2001; Zimmerman, 2000). Helpfully, Kuhl (1985, 1986) extended the idea of volition beyond a social cognitive framework into a general information-processing theoretical plane and operationalized the construct of action control as learned volitional control strategies. The list of Kuhl's six volitional strategies includes attention control e.g., avoiding visual contact with a source of distraction; encoding control e.g., re-studying only material important for the exam; emotion control e.g., using positive self-talk to help manage frustration; motivation control e.g., promising oneself a treat after completion of a task; information-processing control e.g., investing the right amount of time for different tasks; and environment control e.g. selecting location conducive for study.

In terms of the theoretical basis of the six volition strategies, Corno and Kanfer (1993) categorized three strategies (attention control, emotion control, and information-processing control) as metacognitive control. In contrast, emotion control and motivation control belong to regulating non-cognitive internal processes, which broadly concern motivational control. A final strategy, environment control, deals with strategy to manipulate external environment. This categorization is helpful to clarify construct overlap between regulation of motivation and volition and to construe volition in broader self-regulation and metacognition conceptual frameworks.

Pintrich (1999a) advances that if the term volition control is conceived as a generic term to describe control of motivation and emotion in self-regulation, there is no need to discuss how regulation of motivation differs from volitional control. Moreover, Winne and Hadwin (2008) relate students' regulation of motivation to intentions for future behavior. They suggest motivation includes regulation of emotional state and propose future research to include metacognitive awareness of motivational strategy use. All these are key elements of volitional control as described by Corno (1993) and Kuhl (1985, 1986). Accordingly, this paper will use the term "self-regulation of motivation" to describe regulation of motivation and volition in general. An inclusive conceptualization of motivation will capture the dynamics of motivation in an integrative self-regulatory framework.

As volitional control processes can be conceptualized as events (Winne & Perry, 2000), volitional action control has to be considered part of a larger interactive motivation/self-regulation framework. Instead of looking at the construct of motivation as situationally induced states, or "aptitude," self-regulation of motivation can also be examined as an event, for instance, when a student exercises his or her agency to change motivational state/orientation (Niemivirta, 2002). Breaking motivation down into

different strategic components, including both self-regulation of motivation strategies and volitional control strategies, of how students regulate motivation will provide finer grain data to describe the event-like dynamic nature of learning and motivation (Nesbit & Hadwin, 2006).

Conclusion

Models of self-regulation differ in their focus on the relevance of motivation to self-regulate and on their emphasis on different aspects of metacognitive self-regulation processes (Zimmerman, 2001). Regulation of motivation and volition, the two motivational constructs examined in this paper, are based on two different models of self-regulation. While regulation of motivation is conceptualized within a social cognitive perspective of self-regulation, emphasizing students' past experiences and outcome expectations on determining their motivation (Wolters, 2003), volitional accounts of motivation incorporate concepts of information processing theory into action control theory, stressing action control or the intention to act as the central focus of interest (Corno, 2001).

However, just as different models of self-regulation complement each other, so too may regulation of motivation and volition cross-fertilize each other as measures of motivational processes. Corno (2001, p. 198) provides a description of how the two constructs complement each other to provide a more complete picture of self-regulation of motivation: "motivation generates the impulse, or intention to act; volition controls intention and impulse so that action occurs." While a social cognitive view of self-regulation provides a contextually rich account of how self-regulation of motivation occurs as a result of the interaction among personal, environmental, and behavioral factors, an information processing perspective of self-regulation explains motivated behavior in terms of expressed strategy use.

In sum, much of self-regulation research has been carried out largely within a social cognitive conceptual framework (Snow, Jackson, & Corno, 1996). Though social cognitive models of self-regulation have much to contribute to self-regulated learning, there are some gaps in research that examine the expressed strategy used to self-regulate motivation (Winne & Hadwin, 2008). By incorporating an information processing perspective of self-regulation, volitional action control strategies can be examined in the context of a recursive feedback loop as depicted by Winne and Hadwin (2008). From an integrative perspective, the conceptual differences between regulation of motivation and volition may be analogous to the differences between different sides of the same coin: each tells half of a good story. That is, by locating motivation under an individual's conscious control, motivation can be seen as personal resource available to support learning. In so doing, it also makes the individual more accountable to self-regulate, or manage, this resource (McCaslin, & Good, 1996). From an information processing perspective, self-regulation processes of motivation and cognition can be examined within the context of "schema", "a meeting ground of cold cognition and hot motivation" (Winne 2001, p. 186). Therefore the relations between cognition and motivation are synergistic, and together they provide a more integrated account of self-regulation.

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