

# Articles

## Self-Directed and Self-Regulated Learning: Conceptual Links

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### ABSTRACT

This paper explores links between the concepts and models of self-directed and self-regulated learning. The focus is on the covert (person) and overt (behaviour and environment) aspects that link the fields of self-directed and self-regulated learning. Ways in which each of these areas of study address the private and shared worlds of the learner emerge. The exploration of these connections suggests a comprehensive and coherent perspective and should provide a basis for future research. The practical implications of a coherent perspective are also explored.

### RÉSUMÉ

Dans cet article, l'auteur explore les liens entre les concepts et les modèles de l'apprentissage auto-dirigé et autoréglementé. L'auteur insiste sur les aspects implicites (personne) et explicites (comportement et environnement) qui relient les domaines de l'apprentissage autodirigé et autoréglementé. Il en ressort les façons par lesquelles chacun de ces domaines adressent les mondes privé et partagé de l'apprenant. L'exploration de ces liens suggère une perspective compréhensive et cohérente, et devrait offrir les fondements pour des recherches futures. Aussi sont examinées les implications pratiques d'une perspective cohérente.

## INTRODUCTION

The intent of this article is to explore the theoretical links between the concepts of self-directed and self-regulated learning. Traditionally, self-directed learning (SDL) was seen as students taking primary responsibility and control of their learning process, including setting goals, finding resources, determining strategies, and evaluating outcomes. The basic definition of self-regulated learning (SRL) is very similar but has a greater emphasis on the constructive and cognitive process of learning. Previous publications have noted the need for further investigation of the connections between these two areas of learning (Garrison, 1997). Although, on the surface, there would appear to be considerable conceptual overlap, few studies have made explicit connections among the concepts and models. Even within these fields there exists considerable theoretical diversity and “little theoretical integration” (Schunk & Zimmerman, 1994, p. 312).

The rationale for this investigation is that a linking of the core concepts could lead to a comprehensive model that has value for researchers and practitioners. Largely a theoretical and conceptual piece of research, this investigation was not intended to provide a comprehensive literature review. Rather, the focus has been on selected authors, core ideas, and models that demonstrate the greatest potential to provide a comprehensive and integrative framework, the ultimate benefit being a parsimonious and understandable framework that can be interpreted and applied by practitioners.

The thesis is that both self-directed and self-regulated learning essentially deal with the same concepts: external management practices and internal monitoring processes. The only essential differences are the starting point (personal or contextual) and the emphasis given to the core ideas. We call for the integration of interactive and reflective learning practices as these reflect important guiding principles that can be of immediate benefit to practitioners. Our approach was to review the selected SDL and SRL models and related concepts. In each case, the conceptual links are discussed, a unifying perspective is provided, and a brief comment on the practical implications is offered.

### CONCEPTUAL OVERVIEW OF SELF-DIRECTED LEARNING, SELF-REGULATED LEARNING, AND REFLECTIVE INQUIRY

The early work on self-directed learning (SDL), which was initiated in the 1960s, preceded the research into self-regulated learning (SRL) that has occurred in the last two decades (Zeidner, Boekaerts, & Pintrich, 2000). Moreover, each was founded upon different concerns and concepts. SDL emerged from the work of Tough (1971), who focused on its sociological

aspect, and from the work of Knowles (1970), who focused on the pedagogical aspect (Long, 2001). SRL emerged primarily from the field of psychology, with its focus on cognitive and metacognitive concepts and functions; however, in the last decade motivational and management processes have also been included in SRL (Boekaerts, Pintrich, & Zeidner, 2000). In contrast, research in the area of SDL has been moving toward the field of psychology by including cognitive and metacognitive concepts (Garrison, 1997). Although there are distinct traditions, these fields of study overlap to an extent where it is important to explicitly explore their links. Ultimately, the benefit of these explorations will be a more comprehensive understanding, if not a coherent model, to guide research and practice.

Table 1 presents a summary of these various areas of research, with their core concepts and links. These are examined in more detail in subsequent sections of this article.

**Table 1:** *Conceptual Links*

Area of Research	Links		
	Description	Cognitive	Task Control
Self-directed learning	Originally focused on sociological and pedagogical aspects of learning.	Only in last decade has SDL focused on cognitive concepts and processes. Few direct connections to SRL.	The emphasis in SDL remains on the external management of learning activities. No clear links to SRL.
Self-regulated learning	Emerged from psychology with focus on cognitive and metacognitive concepts and functions.	SRL has well articulated motivational, self-efficacy, and metacognitive concepts. Potential to link to SDL.	Much less clarity with regard to task-control issues. Links to SDL are not explicit.
Inquiry/Reflection	Implicitly linked to both SDL and SRL.	Dewey rejected any separation of the cognitive and social; knowledge and action are one.	Inquiry blends both reflection and discourse; as such, it must be linked explicitly to SDL and SRL.

### *Self-Directed Learning*

Two recent models of SDL (Garrison, 1997; Pilling-Cormick, 1996) emphasize a comprehensive view of the phenomenon and present it as a process rather than as a learner characteristic. As Pilling-Cormick (1999) summarized, control is an integral part of the process, both externally and internally, in the two models. Both models are dynamic in nature, and each has multiple variables, including environmental, personal, cognitive, and social variables. As Garrison and Archer (2000) stated, "Meaningful and worthwhile learning must view external task control and internal cognitive responsibility concerns as integral and reciprocal constructs" (p. 95). Learning is an essential part of both models and is the link between these models and other areas of research that focus on cognitive responsibility. Finally, external and internal issues play a role, and recognition is given to both in each of these models.

Garrison's (1997) comprehensive model of SDL denotes SDL as a process in which the individual takes responsibility and control to monitor and manage learning tasks and activities, going beyond external task control and integrating cognitive monitoring and motivational processing. These relationships are described in his model, which attempts to integrate the dimensions of management (contextual-external task control), monitoring (cognitive responsibility), and motivation (conative-cognitive responsibility). Management focuses on external task control while monitoring and motivation address cognitive and metacognitive concepts. This emphasis on the external and internal appears in other theories of learning; for example, Illeris (2003) claimed all learning includes an external interaction and an internal psychological process.

In Pilling-Cormick's (1996) Self-Directed Learning Process (SDLP) model, SDL is depicted as a process in which individuals determine their priorities and choose from various available resources. These resources play an active role in developing a system of meanings for interpreting events, ideas, or circumstances. According to the SDLP model, the process of SDL is the interaction between student and educator that takes place within the varying context of control. The model has three components: the control factor (task control); the contextual influences on the interaction between educator and student (task control); and the interaction between the educator and student (cognitive responsibility). Two components focus on motivational and management processes while one includes cognitive responsibility.

#### *Cognitive Responsibility*

Monitoring, one of Garrison's three dimensions, focuses on cognitive issues. Understanding the task, assessing a repertoire of learning strategies, and having a general awareness of and an ability to think about learning are important. To be self-directed is to be self-reflective and self-regulative. Self-

direction is enhanced by an awareness of the thought process, as well as of the regulatory function. Self-monitoring is consistent with the self-appraisal aspect of metacognition (Paris & Winograd, 1990); it is not conceived as simply a regulatory function but includes a metacognitive awareness of the learning process. As Garrison and Archer (2000) asserted, "A learner who is fully self-directed has moved beyond simple task control and learned to think critically and construct meaning . . ." (p. 95). In effect, self-monitoring is a metacognitive and motivational process and responsibility, which includes understanding the task, accessing a repertoire of learning strategies, and having a general "awareness of, and an ability to think about, our thinking (plan and modify thinking according to the learning task / goal)" (Garrison & Archer, 2000, p. 97). This latter function can be enhanced by a metacognitive awareness of reflective (critical) thinking phases.

Motivation, another of Garrison's three dimensions, is essential for precipitating interest and maintaining focus and, thus, can have considerable influence on cognitive activities. This effect occurs through volition, which brings "discordant affective and executional preferences in line . . ." (Kanfer, 1989, p. 381), and which, by directing effort to learning goals, is meta-motivational. Paris and Winograd (1990) stated that a "view of metacognition in the service of academic learning . . . entails motivated, social interactions" (p. 24). In short, metacognitive knowledge must include awareness of motives and cognitive resources.

Pilling-Cormick (1996) addressed this concept in the learning-process portion of the interaction between educator and student component of her SDLP model. The approach to learning in her model does not rigidly follow a set of predetermined steps that are identical in all learning situations. Instead, a taxonomy approach is used to classify component processes that then become part of learning, specifically, deciding to investigate, reflecting on learning, reaching an outcome, and considering future learning. These processes differ according to context (see Table 2) and they incorporate the three forms of learning identified in the literature: content-oriented, learner-oriented, and assumption-oriented. The context determines which form of learning is taking place. Once the orientation, or form of learning, is determined, characteristics of the component processes involved within that orientation are examined. In the SDLP model, learning is an internal process whereby students decide what is meaningful and what they will process internally as part of their learning; learning involves both internal and external changes; and the learning process incorporates motivation. One of the component processes of the context-based approach to learning is the decision to investigate. Thus, learning is seen to be an active process in which students determine the information or skills they need and then work to acquire them.

**Table 2:** *Context Orientation in Self-directed Learning*

Component Process	Contexts		
	Content-oriented learning	Learner-oriented learning	Assumption-oriented learning
Deciding to investigate	Consider content	Determine or modify needs	Investigate assumptions
Reflect on learning	Content reflection	Premise reflection	Content reflection Premise reflection
Reaching an outcome	Mastering the task	Student's needs met	Revision of assumptions
Considering future learning	Future applications	Future needs	Future assumptions

*External Task Control*

In Garrison's SDL model, control is an essential component in all three of its dimensions. In the self-management dimension, task control issues appear. This dimension is concerned with the control and implementation of learning intentions, motivations, and activities; it focuses on actively managing learning and, as such, is the task control function that most often involves others. Self-management brings with it increased responsibility to construct meaning and the need to monitor the learning process. In the model's self-monitoring dimension, a sense of control is essential for the learner to take responsibility for constructing meaning. Similarly, motivation, the third dimension, depends upon expectations and volition (i.e., perceived and real control).

Control is also the overriding framework of Pilling-Cormick's SDLP model. Pilling-Cormick's control component is the extent to which students can direct their learning: "Control is represented by the outside circle in the model, indicating that the extent to which students direct their learning process influences all other aspects of teaching and learning" (p. 40). In her student-educator interaction dimension, four factors influence the amount of control students have over their learning: social constraints, environmental characteristics, student characteristics, and educator characteristics. However, although these factors influence the learning process, they are not internal to the learner.

### *Conceptual Links*

The historical focus of SDL has been the control or direction of external learning activities (Garrison, 1997). One scenario that illustrates this focus is an instructor attempting to use a self-directed approach in a classroom setting. In the past, typically the focus was on how to structure the class so that students had more control, for instance, of setting timelines or choosing assignments. This type of approach addresses control issues and emphasizes external learning activities; it does not, however, go beyond external factors to delve into the learner's intended learning outcomes or how the learner constructs deep meaning.

Both Garrison's and Pilling-Cormick's models move beyond this focus. Garrison's model is an attempt to redress the omission of the cognitive and motivational components of self-direction, as well as to integrate the social and cognitive perspectives. Pilling-Cormick's model includes forms of learning within the learning component of the educator-student interaction and, as such, moves beyond merely the task management focus. This is consistent with Long (2000), who was one of the first to note the lack of a psychological conceptualization in SDL.

This brings us to self-regulated learning, which has a rich research legacy and a focus on cognitive concepts.

### *Self-Regulated Learning*

According to Brown (1987), "Self-regulation is essential for any 'knowing act'" (p. 95). There must be awareness and intent to direct thought and action. It has been demonstrated that SRL in the form of "learning strategy instruction in real-life learning settings . . . [is] dramatically improved when instructional approaches combine cognitive learning strategies with structured co-operative interactions . . ." (Volet, 1991, p. 321). In other words, self-regulated learners are active participants in the learning process and assume appropriate responsibility and control.

Pintrich (2000) stated that

a general working definition of SRL is that it is an active, constructive process whereby learners set goals for their learning and then attempt to monitor, regulate, and control their cognition, motivation, and behaviour, guided and constrained by their goals and the contextual features in the environment. (p. 453)

In short, learners can and should observe and control their behaviour—not just their thoughts.

Zimmerman (1989) stated that, in general, "students can be described as self-regulated to the degree that they are metacognitively, motivationally,

and behaviourally active participants in their own learning process” (p. 329). The basic elements of SRL include

such activities as attending to and concentrating on instruction; organizing, coding, and rehearsing information to be remembered; establishing a productive work environment and using resources effectively; holding positive beliefs about one’s capabilities, the value of learning, the factors influencing learning, and the anticipated outcomes of actions; and experiencing pride and satisfaction with one’s efforts. (Schunk, 1994, p. 75)

As a starting point, Zimmerman (1989) provides a useful model, which consists of three influencing processes that are consistent with Bandura’s (1986) social-cognitive learning theory (see Figure 1). The assumption is that SRL is influenced not simply by internal personal processes but also by external environmental processes and contingencies that influence behaviour as well. As Zimmerman (1989) pointed out, “SRL occurs to the degree that a student can use personal (i.e., self-) processes to strategically regulate behaviour and the immediate learning environment” (p. 330). It is important to note this interface between the private and public worlds.

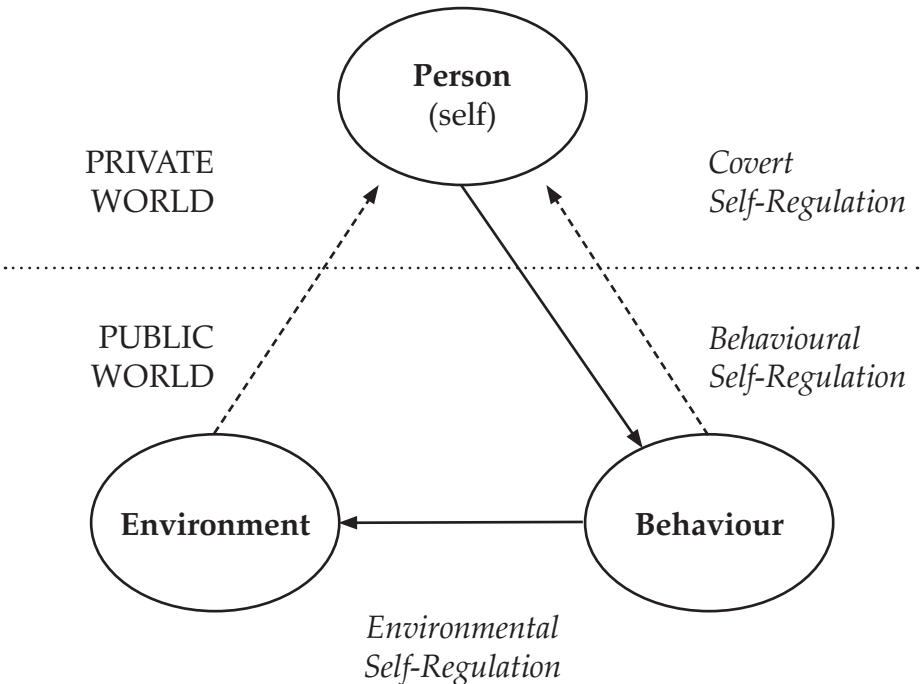


Figure 1: Self-regulated Learning Triadic Model (Adapted from Zimmerman, 1989)



Zimmerman (2000) suggested that “self-regulation refers to self-generated thoughts, feelings, and actions that are planned and cyclically adapted to the attainment of personal goals” (p. 14). That is, the private cognitive processes (person) include motivational, self-efficacy, and metacognitive issues, in addition to the public processes of behaviours or actions and environmental influences. In essence, there is an iterative process between the learner’s internal and external worlds. It is not sufficient to simply focus on managing external behaviour; the covert or cognitive processes must also be monitoring the self.

### *Conceptual Links*

Of particular interest here are the links or connections between the concepts and bodies of research on self-regulated and self-directed learning. However, there is no unifying perspective and this lack of a coherent framework and a common terminology and understanding contributes to considerable confusion theoretically, which carries over to the application of these concepts in practice. There is a need to explore the links between SRL and SDL phenomena and concepts. Indeed, Long (2000) claimed that “success and quality of self-direction in learning are associated with most, if not all, of the processes of self-regulation” (p. 20).

Comparing the models at the macro level, SRL is theoretically more diverse. This is evident in Zimmerman’s (1989) SRL triadic model; its three major components—person, environment, and behaviour—leave open the inclusion of a wide range of principles and concepts. In contrast, SDL grew from the principle of autonomy and control and its proponents have only recently begun to consider cognitive and motivational elements. As such, self-direction remains a much less diverse model.

More specifically, as noted above, Long (2000) stressed the link between self-regulation and self-direction. He claimed that self-regulation is a critical element in self-direction and suggested that both self-regulation and self-direction in learning have multiple definitions that reflect the psychological orientation of the definer. He not only identified self-monitoring, self-instruction, self-reinforcement, goal setting, self-planning, self-selection of strategies, and self-evaluation as sub-processes of self-regulation but also identified self-system development as an aspect of self-regulation that focuses on phenomenological elements such as achievement, motivation, self-esteem, and self-efficacy.

In order to further explore the links between self-directed and self-regulated learning, we now focus on two key elements: self-efficacy and metacognition.

*Self-Efficacy*

Motivational beliefs are shaped by two primary factors: the value of the goal to the individual and the individual's perception of being able to successfully achieve the goal (Pintrich, 2000). Thus, assuming that learners have the interest (value) and believe they can be successful, "planning and activation of motivation involve judgments of efficacy" (Pintrich, 2000, p. 462). In other words, self-efficacy influences the "choice of activities, effort expended, and persistence" (Schunk, 1994, p. 79), and, as a result, it is considered a key element in influencing SRL (Zimmerman, 1989).

Bandura (1997) stated that "perceived self-efficacy refers to beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (p. 3). Efficacy beliefs not only influence decisions to engage in learning and to persist but also influence the organization and implementation of learning activities. Beliefs, of course, are cognitively appraised by other factors, such as ability and task difficulty and actual performance. Successful behavioural outcomes reinforce efficacy beliefs and enhance motivational levels, as well as quality of learning strategies and self-monitoring (Zimmerman, 1989).

Self-efficacy emanates from a sense of control. As Schunk (1994), citing Bandura, stated, "Feelings of control increase one's choice of academic tasks, effort, persistence, and achievement" (p. 81). Self-efficacy, however, does not mean being overconfident; in fact, some doubt may well increase effort and motivation (Schunk, 1994). Still, it is essential that learners attribute their success to factors over which they have control (e.g., ability, effort). An example is the positive correlation that Schunk (1994) found between self-efficacy and strategy use; that is, more effective learning control strategies resulted from self-efficacy beliefs. Moreover, Schunk and Zimmerman (1994) suggested that a focus "on strategic processes is a critical component of self-regulation" (p. 307). Goal setting, strategy use, and help seeking raise learners' achievement and motivation.

*Conceptual Links*—The basic assumption here is that effective self-regulation requires learners to have a sense of self-efficacy, among other factors, in order to engage in, manage, and monitor their learning process. Unfortunately, little research has focused on how self-efficacy influences self-regulation and, conversely, how self-regulation influences self-efficacy for purposes of learning. This is particularly true for adults and for the ways in which varying views of ability and effort interact with self-regulation (Schunk, 1994). Perhaps this relationship could be explored through the concepts of responsibility and control, especially as both self-regulation and self-efficacy are strongly linked to issues of responsibility and control. Schunk (1994) identified the area of strategy use, which is controllable by learners,

as an area “apt to facilitate self-efficacy, motivation, and learning” (p. 92). Garrison’s (1997) SDL model, with its motivation, management, and monitoring components, could help frame this exploration.

### *Metacognition*

Beyond motivation and self-efficacy is the importance of the cognitive and metacognitive aspects of planning and monitoring learning. From the cognitive perspective, self-regulated learners “metacognitively plan, organize, set goals, and self-monitor their performance” (Ellis & Zimmerman, 2001, p. 206). Metacognition is a central concept in self-regulation and, thus, it is useful to briefly explore this concept as a link between self-directed and self-regulated areas of study.

Essentially, metacognition involves the knowledge of one’s own thinking, that is, it entails reflecting on one’s thoughts and understanding the process of thinking. Learners need an awareness and understanding of cognitive processes before they can expect to successfully regulate their learning activities. Metacognition provides the cognitive tools that learners require to “achieve self-appraisal and self-management of their own thinking” (Paris & Winograd, 1990, p. 22).

Two key elements are associated with metacognition. Schraw (2001) described these as knowledge and regulation of cognition, noting that “metacognition consists of knowledge and regulatory skills that are used to control one’s cognition” (p. 6). Knowledge includes knowledge of oneself, as well as of implementation strategies, while regulation of cognition “refers to a set of activities that helps students control their learning” (p. 4).

Others have also recognized that metacognition “captures two essential features . . . self-appraisal and self-management of cognition” (Paris & Winograd, 1990, p. 17). Self-appraisal represents reflection about knowledge of cognitive states and abilities. Concurrently, self-management controls metacognition and manages the resolution of an issue or problem. Hacker (1998) identified the same metacognitive knowledge and regulatory components as follows:

. . . there does seem to be general consensus that a definition of metacognition should include at least these notions: knowledge of one’s knowledge, processes, and cognitive and affective states; and the ability to consciously and deliberately monitor and regulate one’s knowledge, processes, and cognitive and affective states. (p. 11)

Knowledge and regulation are thus central to most discussions of metacognition. Moreover, metacognition mediates between cognition (i.e., learning) and the external activities of learning. From an educational perspective, Hartman and Sternberg (1993) argued for fostering increased awareness of

the importance and knowledge of metacognition and improving the regulation of cognition.

Interaction is essential for metacognition as it is not a private internal activity. Rather, it is congruent with the individual needing “to communicate, explain, and justify its thinking to other organisms as well as to itself; these activities clearly require metacognition . . . [and] a penchant for engaging in those metacognitive acts termed social cognition” (Flavell, 1987, p. 27). Because learning is inevitably a social activity, interaction is necessary to reveal cognitive knowledge and metacognitive strategies. Critical discourse tests meaning and encourages the development of metacognition.

*Conceptual Links*—Metacognitive beliefs include the learners’ view that they are intentional, self-directed, and self-critical (Paris & Winograd, 1990). This view brings together the three central constructs of motivation, management, and monitoring that are embodied in the models of self-direction and self-regulation. Metacognition mediates between reflection and action. In fact, metacognition is the fusion of reflection and action, which has the pragmatic value of focusing the learning process on developing the learner’s cognitive awareness and strategic task control. The goal is for learners to learn to learn and to continue to learn throughout their lifetime.

In this sense, self-regulation is very much a metacognitive activity and a useful model to help understand metacognition. It should include purposeful discussions of cognitive processes and model the role that metacognition plays in self-directed and self-regulated learning. This knowledge and metacognitive awareness create a climate in which learners can be more systematic and which will help them develop learning strategies. Metacognition goes to the core of both SDL and SRL and is a link or bridge between reflective inquiry (see next section) and strategic task control.

Long (2000) emphasized the crucial role that metacognition plays in SDL. To understand self-direction in learning, Long focused on three primary dimensions of the critical psychological processes. One of these dimensions is metacognition, and he proposed that self-direction requires a conscious awareness of important aspects of the cognitive processes employed in learning (p. 18). When someone is engaged in self-direction in learning, they are actively resorting to metacognition. Self-direction may be an innate human desire (Knowles, 1970), but it also depends on and, conversely, facilitates metacognition and learning how to learn.

### *Reflective Inquiry*

As noted earlier, metacognition involves reflecting on one’s thoughts and understanding the process of thinking. Learners need both an awareness and understanding of inquiry processes before they can control them and

successfully direct and regulate their learning activities. Metacognition provides the cognitive tools that learners require to integrate reflection and action.

One systematic approach and model of inquiry is that of John Dewey. Dewey (1933) offered a coherent model and cycle of inquiry and reflective thinking, whereby he described the process of inducing reflective thought (i.e., critical thinking) through questions and then actively monitoring this inquiry for the purpose of achieving understanding. The fact that Dewey referred to the thinking process as a “reflective activity” suggests that his is very much a metacognitive model, with the potential of being a guide to inquiry. For Dewey, reflection entailed the state of learning and one’s own mind (knowledge and possible actions/strategies; know and use).

Based on Dewey’s cycle of inquiry, the model of practical inquiry illustrated in Figure 2 provides the phases of inquiry and has the potential to provide metacognitive awareness of the thinking and learning process (Garrison & Archer, 2000). It is essential to understand the natural cycle of the learning process in order to effectively regulate the process. In an ideal sense, the cycle is initiated with the perception of a need or problem and then proceeds to explore for relevant knowledge, to construct a meaningful explanation or solution, and, finally, to resolve the dissonance through action.

It is important to note that this practical inquiry model includes both reflective and action components in resolving an issue. The vertical axis is crucial for distinguishing between deliberation and action, which parallel the central knowledge and regulatory components of metacognition. The model provides a coherent understanding of the personal and private aspects of learning and the unity of concrete and abstract experiences. This knowledge of the thinking and learning process can have metacognitive value for reflecting on one’s thought patterns, while being aware of which phase of inquiry or learning one is in can be useful for understanding and selecting specific strategies and activities.

### *Conceptual Links*

Although reflective inquiry represents the two central components of metacognition (knowledge and strategic action), the perspective is from the inside out. That is, the emphasis is more on the generation of knowledge and less on the regulation of learning activities. This bias is reversed in SDL, which historically has been used to look at learning from the outside in. Here, regulation or control is the dominant concern. Not surprisingly, since metacognition is a core concept of SRL, the bias of SRL is from the inside out (i.e., cognitive self). Nonetheless, together they offer the potential for a detailed explication of both inquiry and metacognition. Conversely, metacognition is the link or bridge between reflective inquiry and self-

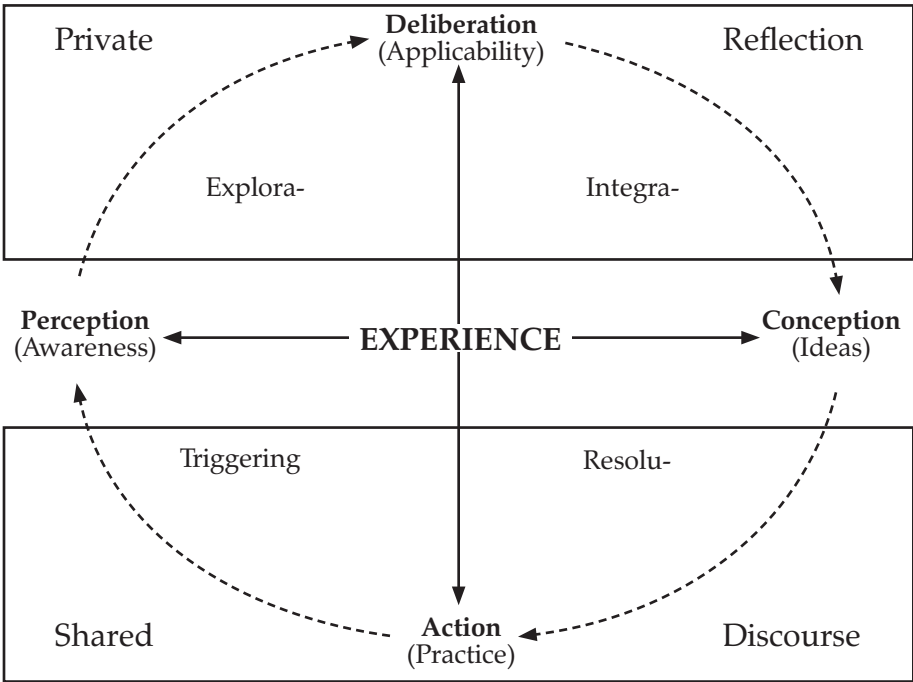


Figure 2: Practical Inquiry (Garrison & Archer, 2000)

directed and self-regulated learning.

Dewey’s (1933) cycle is similar to the component processes in the context-based definition of learning found in Pilling-Cormick’s SDLP model. Basically, both have four parts, as illustrated in Table 3.

Table 3: Comparison between the Practical Inquiry and the SDLP Models

Phase	Practical Inquiry	SDLP Model
One	Perception of a need or problem	Deciding to investigate
Two	Exploring the relevant knowledge	Reflecting on learning
Three	Constructing a meaningful explanation or solution	Reaching an outcome
Four	Resolving the dissonance through action	Considering future learning

## PRACTICAL IMPLICATIONS

The core practical implication derived from the previous analyses, synthesis, and discussion is that self-directed and self-regulated learning are each composed of two integral components: internal monitoring and external management of the learning experience (i.e., the private and public worlds). To use other terms, SDL and SRL both address issues of responsibility and control. For the practitioner, this speaks to the need to design learning experiences in which learners have input and influence from the beginning; strategies are the focus of attention as much as information acquisition; and learners benefit from multiple sources of feedback. In essence, this is the process of inquiry that merges reflection and discourse.

Because of the links between SDL and SRL, practical applications must include a focus on the internal and the external. When designing strategies for classroom use, educators need to not only consider students' internal issues but also consider their external control issues, which, in some cases, they may have little or no control over. By using the private cognitive processes of self-efficacy and metacognition, we, as educators, can stress the importance of including the internal component; by including the link with reflective inquiry, we can discover additional ways of beginning with learners.

### *Lessons Learned Using the Self-efficacy Link*

When designing instructional practice, do we consider the value of setting learning goals that are meaningful to individual students? Let's take the example of Jake.

Jake is taking an online English course because he needs the credit. When he registers, he receives a list of assignments and, because he can log on at any time and doesn't have to go to class like other students on campus, he believes that taking this course will be a breeze. Unfortunately, Jake finds himself quickly falling behind. He becomes frustrated and wants a teacher there to tell him what to do. He has never thought about goal setting, the value of the learning experience, or why he was taking the course, beyond it being what he thought would be an easy way to get the credit he needed.

For students like Jake, a SDL or SRL approach that acknowledges the role of self-efficacy is vital to their success. Encouraging students like these to focus on the value of the online learning experience, which is an inherent part of self-efficacy, will increase their opportunities for success dramatically. Two basic questions must be answered as part of the design approach: Are the learner's goals meaningful? Do learners perceive themselves as being capable of attaining success? There are elements of external control, as traditionally addressed in SDL, to use when establishing strategies for determin-

ing goal value; similarly, there is a definite link to the SRL field, with the focus on the internal process of what is meaningful to individual learners.

### *Lessons Learned Using the Metacognition Link*

When considering the metacognition link, it becomes crucial to first provide learners with opportunities to understand their cognitive processes; without this understanding, they cannot be expected to successfully direct or regulate their learning. Beginning the learning experience where the learner is at becomes the issue. Integrating activities that focus on discovering personal learning styles may be something to consider. Once learners reflect on factors that help them with their personal, individual learning, it becomes easier for them to begin reflecting on their thinking processes. From there, ways of regulating or directing learning also become easier. The following scenario highlights the crucial role of cognition in this process.

Georgina, a computer-programming instructor, has decided that she likes the idea of students taking more control of their learning. In the past, she's always given her students the same list of mandatory programs, which they dutifully created and she then evaluated. Now that Georgina wants to give her students more choice for their final computer-programming project, she tells them that they still need to create a program but they can choose what they want to do. The immediate reaction of most of the students is to panic. First, they ask how long the program should be. Next, they ask for example problems. These concerns are followed by several others: How are they going to get all the work done? How much should they have completed by the end of the first month? When should they begin? How will their work be marked? In effect, they are saying, "Just tell me what I have to do to pass and I'll do it!" If Georgina had been aware of the crucial role that metacognition plays in successful student control of learning, she could have incorporated self-appraisal techniques earlier in her course and helped her students become aware of their own thinking. If she had done this, the final project would not have been as traumatic for those students who had little experience in controlling their learning.

### *Lessons Learned Using the Reflective Inquiry Link*

Reflective inquiry plays a vital role in helping learners think about their learning. In terms of practical implications in the classroom, because reflective inquiry is important in both SDL and SRL, approaches to learning need to provide opportunities for such reflection. Take, for example, a career development course instructed by Janice. The learners in her course are not used to reflecting on personal experience, so Janice decides to start with an activity that gets them thinking about themselves in a non-threatening way. She asks them to write one paragraph about a time when they were proud



of themselves. Just asking students to begin thinking about past experiences and focusing on themselves encourages them to “begin with the learner.” Because reflective inquiry begins with what is going on with the learner, this approach fits extremely well with the internal component of the theoretical framework.

## CONCLUSIONS

The analysis of the literature on self-directed and self-regulated learning consistently revealed internal or covert (person) and external or overt (behaviour and environment) elements of the educational experience. Not dissimilar to the previous SDL models presented in this article, SRL iterates between the learner’s private world and shared world (behaviour and environment). Ellis and Zimmerman (2001) described SRL cycles in terms of forethought (task analysis), performance (self-control), and self-reflection (self-judgment / evaluation). Theories of SDL also recognize and integrate the interaction between the learner’s private and public worlds. The historical strength of SRL is its cognitive and motivational features of learning, while the strength of SDL is its external control features. Through an exploration of the links between the two concepts of self-direction and self-regulation, the goal of this article was to move toward a comprehensive and coherent framework as this is the only approach that will have useful and lasting value to the practitioner.

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