

A New Theoretical Construct in the Concept of Self-Regulated Learning

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Abstract: The following work is a reflection based on extensive bibliographical study that attempts to shed light on the importance of self-regulated learning in educational contexts. In these last years, several terms have been used interchangeably to refer to self-regulated learning. Among these terms, particularly noteworthy are the terms of self-directed learning, autonomous learning, independent learning, and self-learning. Nonetheless, the term self-regulated learning is the one that has prevailed. Self-regulated learning is a type of technical learning in which the learner manages his/her cognition, behaviour, affection and motivations actively and responsively (all of which are systematically oriented to achieving the set goals. Self-regulated learning is a new construct that considers the various types of cognitive, metacognitive, motivational, contextual and behavioural variables, all of which lead to a quality learning process. Students who self regulate their learning and studying processes are more active, effective and efficient and demonstrate substantially higher levels of motivation.

Key-Words: Self-Regulated Learning, Metacognition, Self-Perceptions, Creating Writing, Self-Analysis.

1. Introduction

It was not until after the 1960s that the black-box learning models was abandoned, in which considerable importance was placed on input (teaching) and output (outcome) variables, without considering the processes that are developed from within the person that is learning (teacher-centred approach).

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In the 1990s, the concept of self-regulated learning arose as a new construct in response to the need to reference that that process while at the same time integrating the variables and components that had been addressed traditionally in an isolated manner. In this sense, the consideration of self-regulated learning was not referencing both what to learn, as well as how to learn. In addition, learning was not only being seen as the way, but also the goal.

Self-regulated learning is a non-stop inquisitiveness. It comprises that power and motivation that needs to be instilled in a student so that he/she always seeks the best possible strategy in relation to studying in order to achieve the greatest efficiency in his/her studies and be an effective and efficient student (Roces and González, 1998).

In this way, students self generate thinking, feelings and behaviours in order to achieve their learning goals and start and direct their actual efforts in order to acquire knowledge and abilities instead of delegating them to the teacher, parents or other agents that participate in the educational process.

2. Development

Self-regulated learning theories attempt to explain and describe how a student learns and attains achievements, regardless of apparent limitations in their mental abilities, their socioeconomic backgrounds and dependent on their educational environments. On the other hand, these theories also seek an explanation and description of why a student may fail in reaching his/her academic outcomes, regardless of apparent advantages in those particular features.

In contrast to previous viewpoints on learning, self-regulated learning theories assume that students can:

1. Increment personally their abilities to learn through the selective use of metacognitive and motivational strategies
2. Select proactively, structure and also create advantageous learning settings
3. Play an important role in selecting the way and amount of instructions they require

With the intention of clarifying further the concept of self-regulated learning, at least in practice, theoreticians have made comprehensive descriptions of the characteristics of students that self regulate their learning, based on diverse empirical research results. Zimmerman (1986, 1990) affirms that a student can be described as self-regulated at the level in which it is metacognitive, motivational and an active participant behaviourally in his/her own learning processes.

In the majority of the theoretical definitions of self-regulated learning, characteristics of students that self regulate their learning is usually found (Boekaerts, 1999; Schunk and Zimmerman, 1994)

Suárez and Fernández (2004) propose seven fundamental characteristics of self-regulated learning:

Self-regulated learning represents the ultimate aim of learning. According to Zimmerman (2001), self-regulation constitutes the fourth and last phase of development of complex cognitive-motor skillsets. The first phase is the *observation* stage of an expert model. The *imitation* phase is the second stage, which can be accompanied by feedback provided by the model itself. The third phase is the *self-control* stage in which the student learns for him/herself how to execute the skillset in a routine manner. Finally, the *self-regulation* phase is the one in which the student adapts the skillset based on the changes of the context.

Self-regulated learning includes activities such as setting academic goals; supervising the corresponding execution; addressing and focusing on the instructions; using affective strategies to organize, encode and repeat the information to be remembered; setting up a productive work environment and using resources effectively; maintaining positive beliefs on one's own capabilities, the value of learning, the factors that influence learning and anticipated outcomes of th actions; and experiencing pride and satisfaction with one's own efforts (Zimmerman, 1994).

When an attempt is made to use the term of self-regulation as an explicatory construct, difficulties then occur. The difficulty arises when we consider that all cognitive actions have motivational consequences and that those consequences promote future self-regulatory actions; as such, there are bidirectional relations between learning and motivation (Boekaerts, 1996; Borkowski, Estrada, Milstead and Hale, 1989).

Self-regulated learning has a complex character. So much so that references are habitually made to a conceptualization that is limited on the aspects it includes.

It is in the actual student and not other individuals (parents or professor) where control over his/her actions must emerge, Zimmerman and Kitsankas (1997). This suggests that the selection or control criteria on the part of the individual are essential for exercising self-regulation.

Self-regulated learning involves a development process in its acquisition. For Rocés (1995) due to the fact that self-regulated learning is basically made up of knowledge, beliefs, learning skillsets, it is malleable in response to environmental influences. As such, self-regulated learning is formed when learners are involved in the instructional experiences.

The development of a self-regulated learning process is related to the characteristics of the task. This characteristic is especially related to the

knowledge of the field of study, type of task and the interest in it on the part of the student.

In addition to the previous characteristics, others may also be addressed. According to Zimmerman (2001), the majority of the self-regulated learning definitions require the deliberate use of specific processes, strategies or responses on the part of the students in order to increment their academic performance. In all the definitions, the first characteristic assumed is that the students are cognisant of the potential utility of the self-regulated processes in the improvement of their academic achievement.

On the other hand, a second characteristic that is assumed in the majority of the self-regulation definitions is the self-feedback during the learning process. This feedback circuit refers to the cyclical process in which the students supervise the effectivity of their learning methods or strategies and respond to that feedback in a variety of manners, from changes uncovered in their self-perception to other more evident changes in their behaviours, such as substituting certain learning strategies with other ones (Zimmerman, 2001).

The third common characteristic is a description of how and why the students choose to use certain self-regulatory process, strategies and responses. It is noteworthy to mention that it is this characteristic of the motivational dimension of self-regulated learning in which theoreticians disagree greatly.

As of the 1960s, teaching variables (input) and learning (output) ceased to be important, and instead, the processes that occurred within the student came to the forefront.

The student is no longer a passive agent and becomes an active agent instead, who not only repeats information but actually perform operation on it. This led to two major focuses of attention and study. The first one concentrates on the way in which the student captures and organizes information. The second one is centred on the motivational processes of learning.

In the 1990s, both the cognitive and affective-motivational processes were considered in conjunction, and it is in this context, that self-regulated learning rose to the forefront.

The study of self-regulated learning has been carried out from various theoretical perspectives:

3. Operant

This approach underscores the reinforcement of external stimuli (the relation between behaviour and environment), based on the principles of Skinner. From this perspective, the behaviours of self-regulation must be methodologically linked to external, reinforced stimuli (self-reinforcement)

and the decision of individuals to self regulate themselves depends on the type of immediate or subsequent rewards they will receive (for example, self-reinforcement with the promise to go and watch a film in original version).

Mace, Belfiore and Huchinson (2001) explain that operant conditioning is the behaviour that occurs depending on the consequences that the environment produces. There are two basic types of reinforcement: positive and negative. Positive reinforcers are stimuli that increase the probability of a response when presented in a situation. Negative reinforcers are unpleasant stimuli, which, when suppressed increase the probability of the response. In both cases, the outcome is one and the same – increase the probability of the desired response.

When discussing self-regulation, those that support this theory usually maintain that self-regulating responses of a person must be linked to reinforcement stimuli and following this approach, the decision to self regulate depends on the dimension of immediate or delayed rewards and of the time interval that transpires between them.

Regarding key self-regulation processes, Mace, Belfiore and Shea (1989) describe four main classes of self-regulated learning responses: self-tracking, self-instruction, self-evaluation and self-reinforcement.

With respect to the effects of the social and physical environment, operant researchers do not delve into how to develop the self-regulation capability, but they do underscore the importance of external factors in self-regulation learning.

4. Phenomenological.

This perspective underlines the importance of self-perceptions, organized in a self-concept, which develop the will of the student to persist in the various educational tasks.

It is important to note that from the phenomenological perspective, the subjective perceptions of students are the most relevant, in comparison with the objective of the physical and social environment.

According to McCombs (2001), the basic *self* role during learning is generating motivation to persist in the learning activities. This author suggests that the *self* structures are divided into global and specific domain forms. The global self-concept refers to the image pupils have of themselves as self-regulated students, while the concept of specific domain is defined as the perceptions of subjects regarding their ability to direct and control their motivation, cognition, affect and behaviour in specific domains. It is particularly interesting to point out that phenomenology places more importance on the subjective perceptions that the students have of the physical and social environment than on the objective nature of the same. As such, McCombs (2001), in accordance with the phenomenological tradition,

indicates the importance of the professor transmitting self-confidence to the students in their learning capability.

Regarding the key self-regulation processes, these are centred on self-evaluation, planning and goal setting, tracking, processing, coding and strategy retrieval (McCombs, 2001).

The ideal age in relation to the capability of self-regulation is between seven and eight years, which is when the self-system processes are developed.

In relation to the mode of acquiring the self-regulation capability, self-regulated learning depends on the self-system processes. These begin to be developed around the age of eight; as such, it is the ideal point in time to begin working the aspects that make it up and reinforce positive self-perceptions (McCombs, 2001).

5. Information Processing

This theory arises in the advent of computers and attempts to explain the human cognitive operation, specifically, aspects such as storage and information processing.

The approaches of this posture date from the 1930s, in the advent of computers. These approaches emerged into descriptions and explanations on the human cognitive operation and in particular, on the storage and processing of information, which led to learning models in terms of *hardware* and *software* components.

Subsequently, the consideration of the limitations of the mental capability in the self-regulating process, and, as such, the need to automate more basic aspects in order to release capability related with affective-motivational aspects were incorporated into their models accordingly.

The primary principle of this approach is the capability of individuals to receive information from their environment, the actual processing of that information, and the transmission of a response in relation to that processing.

6. Socio-cognitive

The two basic ideas that sustain this theoretical perspective of self-regulated learning were proposed by Albert Bandura based on his socio-cognitive learning theory (Bandura, 1991).

The first one is that human motivation is determined by the expectations of the individual in reference to his/her own capability to achieve positive outcomes and to the outcomes that the individual can attain (Bandura, 1971, 1977, 1989).

The second one comes from the triadic theory of human behaviour (Bandura, 1986, 1991), which establishes the interaction between environmental, personal and behavioural variables. From this perspective,

learning self-regulation is performed via cognitive and affective processes, which are in interaction with environmental and behavioural factors.

Volitional. Although there is considerable controversy surrounding the distinction between motivation and willingness, various authors, such as Corno and Kanfer (1993) and Kuhl and Beckman (1990), have established the difference between both on the basis that the former (motivation) is targeted to the creation of the impulse or intention to act, while the latter (willingness) has an influence on the ongoing use of those intentions in order to carry out that behaviour.

On the other hand, it assumes that through training, optimized use of volitional control strategies is obtainable, which are internal and external self-control processes of the subject; as such, a greater level of self-regulation of the behaviour is thus achieved.

Vygotskian. According to the Vygotskian perspective, acquisition of self-regulation on the part of the student is obtained in interactions with adults and in subsequent phases, it is interiorized gradually, based on the next area of development. This interiorization process is improved via the "internal dialogue" the student conducts with him/herself and on the tasks to be performed (Vygotsky, 1964), and which eventually leads to knowledge, self-control and command of the environment.

Cognitive-constructivist. The cognitive-constructivist theory is based on various sources, such as Barlett (1932) and, in particular the constructivist theories of Piaget (1954). From this perspective, students are considered to inherently create their own theories and framework on learning and the learning components (self-competence, effort, control, goals, task features, and strategies). Through the various learning experiences, new information is incorporated, the information is organized, and the theories and frameworks (assimilation process and accommodation) are modified, all of which is once again used to adapt behaviour. These processes ensure the student is not a mere reproducer, but also as a creator of knowledge.

Bearing in mind the evolution of the conceptual models of self-regulated learning in the past decades, there has been a change in the focus of various aspects of self-regulated learning.

Paris and Byrnes (1989), Paris, Byrnes and Paris (2001) and Paris, Lipson and Wixson (1983) describe the historical trends in research on self-regulated learning: As of the 1970s, research was primarily cognitive and it was not until the 1980s when researchers started to consider the various conditions involved in the implementation of the strategy, increasingly including metacognitive aspects of learning. In the 1990s, research was more concerned with the intervention in the classroom (Paris, Byrnes and Paris, 2001). Recent models for self-regulated learning have increasingly underlined the impact of motivational and volitional components in learning (Boekaerts and Corno, 2005).

Even though the authors have a common perception of learning self-regulation in general terms, as a cycle in which the self-evaluation of the learning process underscore the various aspects in the components included in the process.

When we use the terms of self-regulation competence or abilities, we are referring to the capability of the students to self regulate their learning (based on the definition of the competence of Weinert, 2001), while the self-regulation strategy in general is a term that is used for describing the specific activities employed for reaching the learning objective in an efficient manner.

Based on the contributions of Corno and Mandinach (1983) regarding self-regulated learning and the recent motivational theories of the time, McCombs (1988; McCombs and Whisler 2000) suggests a model in which knowledge (conscience) and control (self-regulation) of the cognition and affectivity are involved in the metacognitive system.

The approach proposed by McCombs (1988) assigns a key role to self-efficacy judgements and personal control attributions and maintains that learning self-regulation requires a high-level of cognitive commitment.

The metacognitive system interacts, in turn, with the cognitive and affective systems, thus influencing the perceptions of the requirements of the task. Various schemes, knowledge and strategies related to the metacognitive, affective and cognitive system are involved, as well as memory of them which is combined and integrated in the memory of previous learning experiences.

The perceptions of the requirements of the task and of control over the personal action generate successful/unsuccessful expectations with regard to the rewards the outcomes provide (outcome expectations), as well as control or personal action expectation (efficacy expectations). The former references the most probable consequences a specific action will produce and the latter, the judgements on the actual capability to reach a certain execution level, which form the basis for produce a level interest and intrinsic motivation, vis a vis fulfilling the requirements of the task by applying the appropriate metacognitive, cognitive and affective strategies. At that point in time, the knowledge process (conscience) plays an important role of the relevant strategies and perceptions on the utility and cost of the strategies.

Based on the collection of strategies of the subjects, they establish their own judgements on the suitability of strategies to the requirements of the task.

The completion of the task leads to the self-evaluation of the task. The execution level is evaluated and is compared with the internal goals (internal criterion) or with the execution of the other ones (external criterion). Subsequently, the subject will attribute the outcome obtained to various causes, which will then lead to a new evaluation and to the establishment of different judgements on the personal control and self-efficacy in reference to the task completed. Judgements and sense of self-efficacy and self-control maintain a reciprocal influence between themselves and with the

metacognitive, cognitive and affective systems; as such, they generate an influence on the perceptions and future expectations, such as in motivation vs. similar learning tasks.

Borkowski's model (1992) focuses his attention in the relationship of the motivational, affective and metacognitive processes and attempts to explain the strategies used by an expert information processor.

Accordingly, it is based on the idea that any important cognitive act has motivational consequences, which promote, in turn, future self-regulatory behaviours (Borkowski, Estrada, Milstead y Hale, 1989). Borkowski and Muthukrishna (1992, p. 485) state that:

"...As strategic and executive processes become refined, the child comes to recognize the utility and importance of being strategic (general strategy knowledge accumulates), and beliefs about self-efficacy develop. More specifically, children learn to attribute successful (and unsuccessful) learning outcomes to effort expended in strategy deployment rather than to luck and they understand the intellectual competence can be increased through the self-regulated and/or self-directed activity. In these ways, the metacognitive model integrates cognitive acts (in the form of strategy use) with their motivational causes and consequences."

An optimum learner is therefore one who successfully integrates the primary components of the metacognitive system and cognitive, motivational, personal and situational characteristics.

These learners recognize the importance and utility of their strategies and they believe in the development of self-efficacy. They learn to attribute their successful or unsuccessful outcomes to the effort dedicated to using strategies instead of to luck and they understand the intellectual competence can be increased through the self-directed activity. As such, this model integrates cognitive actions (strategies) with their causes and motivational consequences. These motivational consequences, outcome of the feedback of the result of its completion and of its causes, gradually stimulate the selection of strategies and control over decisions.

7. Conclusions

Finally, Zimmerman (2001) considers that the majority of the theoreticians assume that the efforts of students to self regulate themselves in their academic learning generally requires preparation time, monitoring and perseverance, because the outcomes of these efforts are not sufficiently attractive for students and as such, they are not motivated to self regulate themselves.

Consequently, self-regulated learning postulates that greater emphasis is not situated in the transmission of conceptual-type content to our students but rather in learning to learn.

The key to learning is not for the students to generate summaries, outlines or underscoring but rather to attempt to underline that the student is the true actor in the planning, supervision and cognitive, behavioural and affective-motivational regulation of his/her learning process.

Finally, one of the most important contributions of the self-regulated learning approach is to consider the student as the true actor, who increments as he/she advances in the educational system. That importance, nonetheless, must be supported in the job of the professor as the mediator who needs to teach how to learn.

Teachers can easily recognise self-regulated students. This situation should be taken advantage of by professors in order to implement teaching strategies to ensure that students whose self-regulation strategies are less developed can benefit accordingly.

This is so because students who self regulate their learning and studying processes are more active, effective and efficient and demonstrate substantially higher levels of motivation. We as teachers should develop this operational competence in the classroom in order to achieve quality teaching.

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