

SELF-REGULATED LEARNING AS A RESOURCE AND A GOAL OF EDUCATION

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Today, at the dawn of the 21st century, there are basically two main needs to be met by the educational system and the legislation that underpins it, and which the Spanish Education Act of 2005 (*Ley Orgánica de Education, LOE*) attempts to address. Firstly, the provision of quality education at all levels of the system, which involves the substantial challenge of ensuring educational success for all young people. This essentially implies improving educational standards across the board and ensuring that students develop all their abilities to maximum potential. Secondly, education must today more than ever prepare students appropriately for living in the modern knowledge society and for coping with the challenges it raises. In the present article we examine this topic that is central to all educational levels, analyzing essentially what having the capacity for self-regulated learning means, and how such capacity can be promoted in the classroom.

Key Words: Self-Regulated Learning

En la actualidad, en los comienzos del siglo XXI, las principales necesidades a las que deben dar respuesta el sistema educativo y las leyes que lo amparen, y a las que trata de dar respuesta en la LOE son básicamente dos. Por un lado, proporcionar una educación de calidad a todos los niveles del sistema educativo, lo que conlleva la necesidad de asumir un importante desafío: conseguir el éxito escolar de todos los jóvenes, que se traduce básicamente en mejorar el nivel educativo de todo el alumnado y lograr que alcancen el máximo desarrollo de todas sus capacidades. Por otro lado, actualmente, más que nunca, la educación debe preparar adecuadamente para vivir en la nueva sociedad del conocimiento y para afrontar los retos que de ella se deriven. En este artículo se aborda este tema central a todos los niveles educativos, analizando, principalmente, qué implica estar capacitado para un aprendizaje autónomo y cómo promover dichas competencias en el aula.

Palabras clave: Aprendizaje autorregulado.

Today, at the dawn of the 21st century, there are basically two main needs to be met by the educational system and the legislation that underpins it, and which the recent Spanish Education Act (*Ley Orgánica de Education, LOE*) attempts to address. Firstly, the provision of quality education at all levels of the system, which involves the substantial challenge of ensuring educational success for all young people. This essentially implies improving educational standards across the board and ensuring that students develop all their abilities to their highest potential. Secondly, education must today more than ever prepare students appropriately for living in the modern knowledge society and for coping with the challenges that involves.

The fundamental principles underlying the LOE primarily address these demands. The main focus of this legislation is the need to understand education as a permanent process, thereby encouraging lifelong learning. This

aspect is considered so central to the LOE as to merit a separate article in its introductory protocol.

This perception of lifelong learning and the need to achieve it across all areas of education is held at every level. The Spanish university system, for example, is currently undergoing a process of structural convergence with other European countries in what has been called the "European Higher Education Area" (EHEA). This implies a series of modifications and profound changes at organizational, legal and administrative levels, and, above all, entails adopting a new educational paradigm (Michavila, 2001).

This new focus will include not only the teaching-learning process, but also the assessment and maintenance of quality in higher education, and will involve a restructuring of universities at two closely linked levels. Firstly, at the legal and administrative levels, since the integration of Spain's university system into the EHEA requires concrete proposals for putting into practice the different conceptual elements as defined in the European declarations and reflected in the latest legislation on universities (*Ley Orgánica de Universidades, LOU*, 2001).

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Secondly, at the paradigmatic or conceptual level, the EHEA implies a new vision of the teaching-learning process at university level, embracing the educational paradigm shift taking place across education as a result of the new characteristics of the society of knowledge and learning (González & Wagenaar, 2003).

The pivotal element on which this new paradigm turns is that students achieve lifelong learning. The new educational model, at university as well as at lower levels, therefore highlights the need to stress *learners' personal involvement in and commitment to their own learning, as well as the need for students to be capable of autonomous learning*. The backbone of the new educational approach can be summed up by the need to empower people to learn autonomously and in a lifelong fashion. In order to achieve this, academic training needs to overcome the paradigm that saw education as a process of acquisition and transmission of knowledge, and adopt a new paradigm, becoming a generator of new ways of thinking and acting better suited to the modern era, training those competencies and skills that make possible ongoing or constant education throughout the whole of one's life.

TOWARDS AUTONOMOUS AND LIFELONG LEARNING

In the field of the Psychology of Education, this goal is based on the idea of learners as active and fundamental participants in the learning process. It is focused on the learners, not only on what they are learning, but above all on how they learn (Cochram-Smith, 2003). From a psychoeducational perspective, therefore, autonomy refers to the skill of *learning how to learn* (Martín, 2003; Pozo, 1990), or the ability to regulate one's personal knowledge construction process (Schunk & Zimmerman, 2003; Zimmerman, 2002). The most characteristic feature of an education whose goal is to help students continue learning autonomously throughout their lives is that it must provide them with the skills necessary for *learning how to learn*. As Pozo and Monereo (2002, p. 11) point out, "if we had to choose a slogan, a mantra that would inform the objectives and goals of 21st-century education, that which would undoubtedly be most widely accepted [...] among educators and researchers [...] would be that education has to be aimed at helping students learn how to learn". More specifically, this learning skill is included in one of the main research areas in educational psychology today, namely, *self-regulation of learning*.

The construct of *self-regulated learning* is linked to independent and effective methods of academic learning that involve metacognition, intrinsic motivation and strategic action (Perry, 2002). It is defined as an "active process in which students set the objectives that guide their learning, attempting to monitor, regulate and control their cognition, motivation and behaviour with a view to achieving them" (Rosário, 2004, p. 37). It refers to a conception of learning focused on the cognitive, motivational and behavioural components that provide individuals with the capacity to adjust their actions and goals so as to achieve the desired results, given the changes in environmental conditions (Zeidner, Boekaerts & Pintrich, 2000). In this perspective, the focus of educational analysis shifts from a perception of the learner's ability and learning environments as invariable elements to processes and actions shaped and carried out by students in order to enhance their skills and performance, taking into account the learning environment (Zimmerman, 1989, 1990). Thus, self-regulated learning attempts to explain "how people improve and increase academic achievement by systematically applying a learning method" (Zimmerman, 2001, p. viii).

The essential characteristics of such self-regulating students show that they participate actively in their learning process, monitoring and regulating the learning process in a results-oriented way (Pintrich & Schrauben, 1992), acting in a strategic manner and maintaining motivation towards important goals (Blumenfeld & Marx, 1997; McCombs & Marzano, 1990). To achieve this, self-regulation of learning could be described as an open process requiring a cyclical activity on the part of the learner that occurs in three main phases, each of which includes a series of processes and subprocesses (Schunk & Zimmerman, 1998; Zimmerman, 2000) (see Figure 1). All of these processes, as well as the subprocesses involved in each one, are not only interlinked, but also display a cyclical structure in response to the continual adjustments required as a result of fluctuations in the personal, behavioural and contextual components.

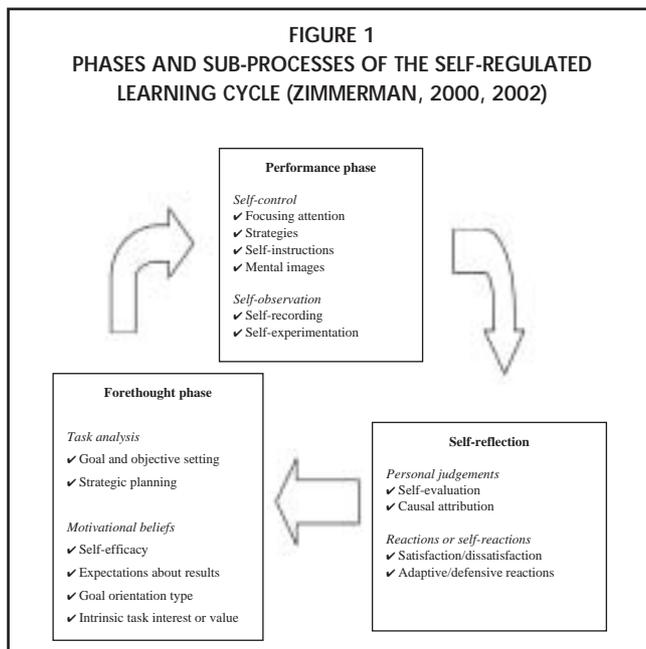
The forethought phase of the cyclical model of self-regulation is divided by Zimmerman (1998) into five types of aspects or beliefs. *Goal setting* "cements" the student's intention to achieve specific learning outcomes (Locke & Latham, 1990). There is evidence of improved academic performance for pupils organizing their learning tasks by setting proximal goals, such as subdividing the subject

matter to be studied into time slots. The literature describes how students with learning-focused goals concentrate more on their own learning progress than on competition with peers, and tend to learn more efficiently than those students who focus on completing the task. In *strategic planning*, students select a range of learning strategies or methods that allows them to achieve the goals set (Zimmerman & Martínez-Pons, 1992). These two strategies (goal setting and strategic planning) are affected by many personal beliefs, such as perceived self-efficacy, *type of academic goals*, or the value attached to the task by the student (Rosário, 2004). *Perceived self-efficacy* – the belief in one’s own capacity to learn or to achieve certain levels of academic performance – is one of the most important variables in the forethought phase, given that it conditions the level of involvement, and usually the academic results of the students (Bandura, 1993). The final variable, called *intrinsic interest* in the task, is a feature of the behaviour of those students who persist in their learning efforts even in the absence of tangible rewards (Zimmerman & Martínez-Pons, 1990).

The second phase, volitional control, includes the processes that help students focus their attention on the learning task, thereby maximizing academic performance. Kuhl (1985) sees attention focusing as a need to protect students’ intention to learn from the distractors competing with the learning task in hand. Students with low academic performance are more easily distracted from their activities and tend to focus more on the errors committed than those students with high academic performance (Corno, 1993; Heckhausen, 1991). “Research on academic learning shows that students able to regulate their own learning in the face of multiple distractors and difficulties in the classroom achieve better results and learn more rapidly than those students who do not display such self-regulatory competencies” (Pintrich & Zusho, 2002, p. 249). Self-instructions are verbalizations of the steps to be taken while carrying out school tasks (Schunk, 1998). Research suggests that self-instructions improve learning, since vocalization of rules (e.g., algorithms, chemical formulae) contributes to a reduction in the number of errors made (Schunk, 1984). Self-monitoring provides information about progress and failures relative to specific reference criteria (e.g., school grades, curriculum goals, academic achievement of peers) (Winnie, 1995). As learners acquire more academic skills and make problem-solving routines more automatic, self-monitoring of learning tasks

becomes less necessary and decreases. This increases the likelihood of errors, since students relax the attention they pay to the task in hand, allowing themselves to be distracted by concurrent secondary tasks.

The third phase, self-reflection, comprises four different types of process. Self-evaluation of academic results is normally one of the first self-reflective processes and involves comparing the information monitored with a concrete educational goal (e.g., contrasting the results obtained in an exercise with the answers given in the textbook). Causal attribution processes play a fundamental role in self-reflection processes, since attributions of failure at school and low levels of cognitive competence can bring about negative reactions and a lack of commitment to school work (Zimmerman & Paulsen, 1995; Zimmerman & Kitsantas, 1997). As with the other processes described, causal attributions are influenced by personal and contextual factors (e.g., the academic goals that students set themselves, or the atmosphere and competitiveness prevalent in the learning context). Students that self-regulate their learning take their academic results as a consequence of their efforts, attributing a specific poor result to causes that can be changed, for example by increasing the time invested in private study. Causal attributions focused on learning strategy also help students identify sources of error and reorganize their learning strategy profile. Self-regulating learners are normally better equipped to adapt to learning tasks because they evaluate their performance



more frequently and effectively. Finally, we can complete our overview of the phases of the self-regulating process with the observation that favourable self-reactions encourage positive beliefs about oneself as a student, raise perceptions of self-efficacy, promote orientations more focused on learning objectives, and boost intrinsic interest in schoolwork. Self-reactions also take the form of defensive or adaptive responses to learning (Rodríguez, Valle, Cabanach, Núñez & González-Pienda, 2005). The former relate to efforts to protect self-image, avoiding exposure to learning and performance activities (e.g., skipping exams, delaying the handing in of work), while the adaptive reactions refer to adjustments aimed at increasing the effectiveness of learning methods, changing or simply modifying a learning strategy that is not helping to meet the goals set (Pintrich & Schunk, 2002). Increase in personal satisfaction in learning raises motivation, while a decrease in task satisfaction undermines the learning effort (Schunk, 2001). As previously mentioned, these self-regulatory processes are cyclical, and as such tend to have a knock-on effect, either facilitating or hindering subsequent phases of the cycle (Zimmerman, 2002).

To sum up, the forethought phase prepares the student for and influences the volitional control phase. This in turn affects the processes employed in the self-reflection phase, which interact with the next forethought phase, boosting the quality of learning.

WAYS OF PROMOTING TEACHING THAT PREPARES STUDENTS FOR AUTONOMOUS LEARNING

In 1997, Simpson and colleagues presented a review of the literature on programmes and interventions in the field of study skills, using the transfer of established learning strategies to other contexts as an organizing principle. They presented a taxonomy organized in five general categories. The first included learning how to learn courses, covering interventions focusing more on their development than on the reduction of the deficits in the area of learning strategies. The type of courses included in this category are oriented towards the development of processes and towards the encouragement of self-regulation through the use of a repertoire of learning strategies that are adaptable to the task in hand. Students are taught the skills for identifying and employing strategies appropriate for different learning tasks and contexts. This orientation aids the transfer of learning to other contexts insofar as students develop a metacognitive awareness of the conditions

associated with each specific learning task and practice using different options according to their objectives and contextual limitations. The literature reports that participants on courses under the general title of learning how to learn show an improvement in their academic performance (Weinstein, 1994).

The second category includes courses similar to those above, but centred on the mastery of specific content. These courses also focus on how processes are developed, training the application of learning strategies, but in a specific field of study or knowledge, without working deliberately towards the transfer of this learning to adjacent contents or contexts. In accordance with this, no evidence was found to show that these competencies were transferred to other fields of study (Hattie, Biggs & Purdie, 1996; Simpson Hynd, Nist & Burell, 1997).

The third category includes specific, "one-off" interventions, summer courses or bridging courses between educational levels (e.g., secondary to higher), aimed at filling skills gaps. These courses are characterized by remedial aspects, focusing on improving isolated strategic aspects (e.g., reading techniques or writing skills). Research shows that the frequency of such courses/modules does not favour the transfer of the skills learned and practiced to adjacent fields. The explanation for this may be related to both the duration of the interventions (generally short courses) and the low level of specific training in strategic application to other fields.

The fourth category groups courses that integrate the exercise of reading and writing skills, aimed at boosting efficiency in writing and thus academic performance. However, as Ackerman (1993) points out, these programmes do not present consistent results.

The fifth category includes support services in the field of study skills offered by specialized departments or consultants. Such services are usually isolated and non-theoretical, since they are neither based on a theoretical framework nor have an evaluation system that allows conclusions to be drawn regarding their impact on students' academic performance (Simpson et al., 1997).

Inclusion in the curriculum is another method, not described in the typology outlined, used for helping students to develop effective learning strategies. Teachers and educators who choose this methodology instruct their students in motivational aspects and cognitive strategies related to their field of study (Entwistle & Tait, 1992). In a review of the literature on different interventions related to learning strategies, Hattie and colleagues (Hattie et al.,

1996) suggest that these programmes are more closely linked to academic success when they are focused on a specific context or mastery of specific content. The literature (Simpson, 1997; Hadwin & Winnie, 1996; Hattie et al., 1996) suggests the importance – indeed, the urgency, in our opinion – of incorporating the teaching of learning strategies in teacher training courses to ensure that they can later be included in the respective curricula of subject areas.

FINAL COMMENTS

Self-regulated learning has become a fundamental concept in both research and educational practice (Pintrich, 2000; Reynolds & Miller, 2003), since it offers solutions to the psycho-educational needs involved in enabling individuals to adopt a considerable degree of autonomy in their training and to develop a series of tools that will allow them to continue learning beyond their formal education. It is also a unifying concept, given that it links different research fields (cognition, learning strategies, motivation, etc.), which together provide a coherent framework of how a student manages the complex activities inherent in academic study. Furthermore, all of these self-regulation skills constitute a crucial factor for the student's learning and academic performance (Paris & Paris, 2001; Pintrich & DeGroot, 1990; Pintrich & Schrauben, 1992; Zimmerman & Martínez-Pons, 1990; Rosário, 2004; Rosário, Núñez & González-Pienda, 2004; Schunk & Zimmerman, 1998). Thus, as well as permitting autonomous and lifelong learning, these self-regulation skills enable students to improve their performance and academic success through the use of different strategies, to control and regulate many aspects of their cognition, motivation and behaviour, to select and structure learning environments, mediating between contextual and personal characteristics, and to set goals and monitor their achievement.

The capacity to self-regulate is considered to play a key role in academic success and in other important contexts (Nota, Soresi & Zimmerman, 2004). Therefore, it is necessary for students to arrive at university with these skills so that they can learn autonomously and independently. However, at present it is all too clear that the vast majority of students entering higher education are not adequately prepared for what is required of them at university, since they are unable to self-regulate their own learning process (Allgood, Risko, Álvarez & Fairbanks,

2000), and this shortcoming in relation to learning strategies is seen as being largely to blame for failure at university (Tuckman, 2003).

Despite the fact that research results and current educational legislation highlight the importance of students being taught to self-regulate their learning on the basis of deliberate and systematic training, few teachers actually instruct their students in the skills that would permit them to learn in a customized and independent manner (Zimmerman, 2002).

Furthermore, as mentioned previously, the application of educational proposals along these lines has in reality not been sufficiently successful. Advances in cognitive research frequently fail to result in an improvement in students' quality of learning, and not because the recommendations lack epistemological validity, but rather because they have been formulated without properly taking into account the way in which schools and their constituent elements (students, teachers, departments, management, etc.) work. At present, the research community is making great efforts to remedy this situation, and many researchers have started to employ "collaborative research" (e.g., Confrey, Castro-Filho & Wilhelm, 2000) as a means of linking cognitive research and the teaching-learning process. The basic idea is that cognitive research should guide educational reform with regard to the teaching-learning process, but this will only be possible if we are capable of carrying out applied research with the involvement of schools and university or laboratory research teams on equal terms.

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