Self-regulated learning: an overview of metacognition, motivation and behaviour

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Abstract

The following review provides a synthesised summary of self-regulated learning in relation to metacognition, motivation and behaviour. It provides evidence regarding the need for, and benefits of, self-regulated learning. The implications for teachers are also specified in the review. These include the importance of acknowledging the social nature of self-regulated learning and supporting learners in setting goals and monitoring progress. The literature emphasises the importance of facilitating intrinsic motivation and avoiding the use of extrinsic motivation such as tangible rewards. Process orientated teaching is also addressed as it is recognised as an effective teacher practice associated with self-regulated learning.

Introduction

The role of the classroom teacher has changed significantly over time. This change has coincided with developments in the definition of learning. While learning was once associated with knowledge absorption it is now recognised as the active construction of knowledge (de Jager, Jansen & Reezigt, 2005). As explained by Boud (2001), learning today needs to be about dealing with challenging situations or problems as opposed to regurgitating or applying objective facts.

This understanding of learning has resulted in a number of pedagogical developments, one being the increased need for learners to be self-regulated. 'Learning how to learn' has become an important educational issue (Vermunt, 1995). Consequently, there is a need for teachers to understand how self-regulation can be promoted in the classroom. A key competency from the New Zealand curriculum that signifies the importance of self-regulation is 'managing self'. This competency encompasses concepts such as self-motivation, self-belief, solving problems, working independently, setting goals and assessing one's own learning. Learners who can manage themselves demonstrate resourcefulness, reliability and resiliency (Ministry of Education, 2007).

The following overview provides a summary of a selection of relevant literature. To begin, the theoretical underpinnings of self-regulated learning will be discussed. This will be followed by a description of the social nature of self-regulation and an examination of meta-cognition, motivation and behaviour in the context of learning and implications for teachers.

Self-regulated learning

In order to actively promote and support self-regulation in the classroom, it is integral that teachers appreciate the theoretical concept of self-regulation in the context of learning. Self-regulated learning focuses primarily on one's ability to think metacognitively, motivationally and behaviourally (Zimmerman, 1990). Self-regulation is a mindful process in which learners use a range of strategies such as self-evaluation, self-monitoring (Watson, 2004), goal setting, time management and organisation (Gibbs & Poskitt, 2010). The literature provides strong support for the proposition that it is important that learners make use of self-regulatory processes and behaviours. However, there is also evidence that many teachers are neglecting to teach their students how to learn autonomously (Zimmerman, Bonner & Kovach, 1996).

A theme that frequently arises in the literature regarding self-regulated learning is the idea that it is not "asocial in nature" (Zimmerman, 2002, p.69). Dignath, Buettner and Langfeldt (2008) completed a meta-analysis on self-regulation training programmes. From their research, they determined a number of characteristics that made programmes more effective. One of these characteristics was having a programme based on social-cognitive theories. This finding is supported by Zimmerman's (1989) theoretical account regarding a social cognitive view of

self-regulated learning. Zimmerman (1989) explains that self-regulation is not a process that occurs at an individual level but is determined by interactions with the environment as well as personal and behavioural influences. Self-regulation is something that can be learned through modelling, scaffolding and direct instruction (Watson, 2004). It can be learnt through observing and interacting with parents, teachers, coaches and peers who demonstrate these behaviours (Zimmerman, 2002).

Metacognition

Another recurrent idea in the literature is the close link between metacognition and self-regulated behaviour (Zimmerman, 1990; Dignath et al., 2008). The term metacognition in relation to self-regulated learning refers to a learner's ability to think consciously about their cognition and have control over their cognitive processes (Zimmerman, 1989). Metacognition is associated with the learner's ability to monitor, plan, organise and evaluate their own learning (Boekearts, 1996; Zimmerman, 1989). Watson (2004) investigated the principles of effective practice in helping leaners to be become self-regulated. They looked particularly at the learning goals of students and how these contributed to their self-monitoring and self-evaluative abilities.

One of their pertinent findings was the need for the explicit teaching of required skills and strategies. This idea is shared by Boekearts (1996), who asserts that academically and socially orientated learning goals should be explicitly communicated by the teacher to encourage learners to form a mental representation of these goals. This helps to support learners in adopting or self-setting goals that are reflective of the overall learning goal (Boekearts, 1996). Dignath et al. (2008) also found evidence that it is advantageous for learners to be provided with more than the strategy itself. Their research suggested that learners should be provided with information regarding how to apply these strategies and the benefits of applying them.

Self-monitoring, another important metacognitive process in self-regulated learning (Zimmerman, 1990), enables learners to decide whether there is an incongruity between their self-set goals and their current level of knowledge in that particular domain (Moos & Azevedo, 2007). When learners are able to recognise and acknowledge this incongruity they can then plan an appropriate strategy in order to reach their goal. There are a number of practical things that teachers can do to promote metacognitive processes. Firstly, guidance around goal setting is integral. In the classroom there should be settings that are both formal and informal to provide learners with ample opportunity to reflect on their learning (Nilson, 2013). It is also essential that learners are provided with the opportunity to self-assess in order to self-monitor and evaluate their set goals (Nilson, 2013).

Motivation

As previously stated, another important concept related to self-regulated learning is motivation (Zimmerman, 1990). In the context of self-regulated learning, motivation refers to a learner's self-efficacy and autonomy (Bolhuis, 2003; Zimmerman, 1990). Motivation is also closely linked to a learner's goals, particularly those that are mastery orientated. Learners who set goals that are based on mastering a task through self-improvement tend to be more highly skilled in using cognitive and self-regulation strategies (Bolhuis, 2003). When learners can observe the progress that they are making

towards their self-set goals they are more inclined to engage in strategies that will help to improve their learning (Pintrich, 1999). In contrast, extrinsic rewards, such as tangible incentives, are not an appropriate source of motivation. This often draws learners away from being motivated by their goals (Bolhuis, 2003) and decreases opportunities to develop important cognitive and self-regulatory skills (Pintrich, 1999). Intrinsic outcomes, such as increased self-efficacy often result from working towards mastery orientated goals. Increased self-efficacy is closely linked with academic achievement, engagement and motivation (Gibbs & Poskitt, 2010; Zimmerman, 1989) and therefore is key to positive learning outcomes. Teachers should consider this in their practice and avoid using extrinsic rewards as motivation.

The literature also evidences the importance of agency and autonomy in motivation (Bolhuis, 2003; Gibbs & Poskitt 2010). When learners feel as though their perspectives are acknowledged they are more likely to be motivated and engaged in learning (Carrington & Macarthur, 2012). In order to foster motivation and high levels of self-efficacy among learners, teachers should first and foremost consider the learning environment. Nilson (2013) suggests all teachers should "consciously establish a positive atmosphere of emotional safety, encouragement, trust and support" (p. 79). This suggestion aligns well with the effective pedagogy in the New Zealand curriculum that highlights the importance of creating a supportive learning environment (Ministry of Education, 2007).

Behaviour

A third component of self-regulated learning is behaviour. This is to do with the decisions and actions made by learners in order to optimise their learning environment (Zimmerman, 1990). The current drive for independent learning means that many learners are already required to do this. One teaching strategy that frequently arises in the literature is process orientated teaching. It is suggested to empower learners in making effective decisions when it comes to their learning.

Bolhuis and Voeten (2001) and Vermunt (1995) investigated process orientated teaching. Like learning, it is viewed as multidimensional (Bohuis & Voeten, 2001). It incorporates the deliberate teaching of thinking and learning strategies alongside teaching domain specific knowledge (Vermunt, 1995). This teaching style is characterised by the teacher gradually handing over control to the learner through scaffolding and modelling (Bohuis & Voeten, 2001). It recognises learning as a social phenomenon and encourages the idea of a learning community. It fosters self-direction as well as collaboration and cooperation which are all closely connected to self-regulated learning (Bohuis & Voeten, 2001; Watson, 2004).

Conclusion

The increasing recognition of the need for learners to be self-regulated has required teachers to consider multiple aspects of their practice. A number of these considerations have been discussed in the literature. One avenue of research that should be pursued is investigating what teaching practices are most effective in promoting self-regulated learning. Dignath et al. (2008) completed a meta-analysis which helped to identify some effective and relevant interventions. Further research of this kind would provide teachers with practical guidelines

regarding how to help their learners develop self-regulatory skills.

Teachers should acknowledge the social nature of self-regulation and not regard it as an intrinsic skill. They should also work to understand the metacognitive, motivational and behavioural (Zimmerman, 1990) influences on one's self-regulation in a learning context. Teachers should reflect on the implications of these influences and how they can adapt their teaching styles to help foster self-regulated learning.

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