

A Metacognitive Perspective of Triple Loop Learning

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Abstract

The most crucial factor that influences learning in an individual is the personal factor. What one learns from the environment depends upon how it is perceived by the learner. Depending upon this, there are three loops of learning that determine the depth of learning that has taken place. Educationists should not stop with the first and second loop of learning, rather learners should be made competent in triple loop learning, as it ensures learning through reflection. Triple Loop learning involves focusing on the deeper thought patterns and beliefs that make one arrive at a particular analysis of events /phenomena. To achieve this, teachers need to adopt Metacognitive teaching, so that they can enable the learners to think about the way they think, thereby leading to triple loop learning. Metacognitive strategies would enhance the critical thinking skills of learners leading to meaningful construction of knowledge. The paper endeavours to throw light on the inter-connectedness of the two concepts namely Triple Loop Learning and Metacognition.

Keywords: Loops of Learning, Triple Loop Learning, Metacognition

Introduction

Educationists have always pondered upon the factors influencing learning and the kind of learning that needs to be emphasized, in order that the outcomes of learning are in keeping with the demands of a dynamic society. Different learning theories seem to be attempts to describe universal human traits which are influential in the process of learning. Recent trends in research show an increasing interest in studying individual traits that influence learning. Educational endeavours need to be focussed on producing generations that would have enhanced patterns of thinking and learning. It is therefore necessary to revisit the different paradigms of teaching and learning in order that newer frameworks are evolved.



Loops of Learning

Single Loop Learning: This loop of learning involves one way learning, where the individual gathers knowledge for the sake of it. It is mainly concerned with following rules and regulations blindly and not questioning the assumptions and theories underlying therein. It is all about adapting oneself to changes or knowledge provided, in an unquestioning manner. Reasoning is not applied to the purpose of a learning activity, rather the focus is on performing the learning activity as efficiently as possible. Hence it implies “doings things right”.

Double Loop Learning: In contrast to single loop learning, this involves reflecting on the underlying theories, principles and assumptions of information, any learning activity or educational experience. This was referred to as ‘Deutero learning’ by Bateson in the year 1942. The adaptation to learning is done by carefully examining the knowledge and if need be, changing the outlook or perceptions gained therefrom. Here divergent thinking takes place leading to discovery of new meaning from contexts. Knowledge is accepted only after careful review and considering it from multiple perspectives. It is a proactive form of learning in which learners set goals and strive to achieve them through contemplation and careful action. If contemplation requires modification or resetting of assumptions for the growth of the body of knowledge, then it is necessarily done. The learner looks for frameworks and patterns in a learning activity and then understands, reviews or redesigns the outcome. Here the emphasis is on “doing the right things”. This leads to knowledge creation.

Triple Loop Learning: This loop of learning, simply stated is ‘learning about learning’. It is not just about challenging the existing assumptions and principles, but it is about reflecting on the thought processes that make oneself take such actions. It involves the understanding about what we think, how we think and why we think the way we think about underlying principles and assumptions of any learning activity. It encourages an individual to learn about what makes him/her think in a particular manner. Higher order learning takes place when the learner reflects upon and challenges the assumptions or self-beliefs that guide his/her double loop learning. In other words, the learner reflects upon the validity and sanctity of his/her double loop learning. The process is concerned about the dynamics of the mind. The emphasis is more towards understanding the context that



guides one's thoughts leading to development of wisdom. It challenges the knowledge created by the second loop of learning.

Triple Loop learning is thus a self-regulatory process, wherein the individual becomes aware of the self-beliefs that influence his/her thought patterns and then directs his/her thinking to take objective stand on any learning or at any event. Zimmerman (2011) considered self-regulation as a generic construct including the regulation of social behavior, metacognition, and motivational regulation. Learners can discern how to control their internal states, beliefs, social behaviors, and external environments in the learning process (Zimmerman 2013). As noted in previous studies (Donker et al. 2015), students with better self-regulation may exhibit greater self-efficacy, be more cognizant of their strengths and weaknesses, and be more likely to achieve academic success. This pattern has been acknowledged as a process of planning, monitoring, and regulating actions toward learning objectives (Ziegler, Stoeger, and Grassinger 2011) or a sequenced set of processes when managing internal and external distractions (Ben-Eliyahu and Bernacki 2015).

Metacognition

Flavell (1970) defined Metacognition as “thinking about thinking”, or in other words, an individual's knowledge of and control over one's actions. It is a process of reflecting on one's own thought processes while learning and then regulating them in order to enhance learning. Flavell (1979) according to his definition of Metacognition as ‘cognition about cognition’ categorized metacognition into knowledge of cognition and regulation of cognition.

Metacognition is a thinking activity that is closely related to cognitive constructivism. It involves higher order critical thinking processes that stimulate self-reflection, initiative and self-regulation. Constructivism, as propounded by Piaget involves development of mental structures by an individual, through reflection on experiences. On the other hand, Vygotsky's theory of Social constructivism, emphasizes the role of more knowledgeable others in the learning acquired by learners. In any case, both forms of constructivism, necessitate the learner to actively manipulate the cognitive processes.



Hashempour M., Ghonsooly B., Ghanizadeh A. (2015) found through their study that there is a direct relationship between level of education and Metacognitive awareness. Greater the level of education, greater the Metacognitive awareness. It appears that as learners advance in studies, the thought patterns become more reflective and self-regulatory. It therefore suggests the importance of developing metacognitive awareness in learners right from an early age, so that rather than becoming an incidental development, it becomes a purposeful endeavour.

Nosratinia M., Zaker A., Saveiy M. (2015) found a significantly positive relationship between self-efficacy and metacognitive awareness. The study recommended that students should be “persuaded to analyze and inspect their own learning processes to improve their degree of metacognitive awareness, which may reinforce their sense of self-efficacy.” According to the study, incorporation of learning techniques and metacognition processes in their courses can result in intellectual analytical learners that can overcome their learning difficulties.

Metacognition, according to Flavell (1979), encompasses learners’ awareness of their own thinking processes as well as the executive processes involved in overseeing and regulating cognitive processes. Efklides (2008) later described metacognition under the umbrella of cognition, which functions at a meta-level and is connected to the object-world through metacognitive monitoring and control. Metacognition has been classified into three dimensions: metacognitive knowledge, metacognitive control, and metacognitive experiences. In defining metacognitive knowledge, Efklides (2001) framed it as a type of knowledge retrieved from memory and a standard for learners to know about themselves and others as cognitive beings as well as their relations with various cognitive tasks, goals, strategies, or experiences. This definition resonates with an early proposal that metacognitive knowledge involves how cognitive processes should be understood or controlled (Flavell 1999). Although Flavell (1979) suggested person, task, and strategy knowledge as constituting metacognitive knowledge, Paris, Cross, and Lipson (1984) argued that metacognitive knowledge could be organized into declarative, procedural, and conditional knowledge.

Metacognitive control has been identified as the ability to deal with mental operations in metacognitive processes to attain cognitive objectives (Desoete 2008) or to employ



knowledge to regulate cognitive processes and use metacognitive strategies to control one's learning (Ozsoy 2011). However, triggering learners' metacognitive control processes is challenging, and metacognitive experiences may benefit the self-regulation process (Koriat 2007). Metacognitive experiences have been explained as cognitive or affective experiences consciously stored in a learner's intellectual enterprise (Flavell 1979) or the awareness that follows from a learner attempting to process the information needed to complete a task (Efklides 2008). Brown (1987) suggested that metacognitive control and experiences be subsumed into metacognitive regulation, which reflects how learners identify distracting stimuli (internal and external) and sustain effort for executive functions over time. According to Schraw (1998), metacognitive regulation entails three skills: planning, monitoring, and evaluating. Planning refers to the ability to appropriately select strategies and adequately allocate resources for relevant tasks. Monitoring is how learners employ strategies to monitor task performance. Evaluating taps into learners' appraisal of their regulatory processes and products of their learning.

It has been found that metacognitive knowledge develops good thinkers and lifelong learners who can cope with new situations in this rapidly changing world, (Eggen and Kauchak, 1995 ; Tobias et al., 1999). A great deal of research work has been carried out in the area of learner metacognition. The concept of teacher metacognition has not yet been considered to a significant extent, although some studies have been done with teachers of Science and Mathematics. The studies revealed that individuals' awareness of their thoughts and actions as teachers—i.e., teacher metacognition is a critical layer of professional expertise (Fairbanks et al. 2010). This is because the greater teachers' awareness of themselves and the better their ability to evaluate and adapt their practices, the more effectively these practitioners can enhance their students' own development (Hattie 2012). Thus, metacognition, broadly defined as “cognition about cognition” or “thinking about thinking”, has untapped potential to contribute to understanding how teachers can enhance both their instruction and students' learning processes in a variety of settings (Anderson 2002; Borg 2015; Graham and Phelps 2003).

Teaching involves “doing the right thing in the right way and at the right time in response to problems posed by particular people in particular places on particular occasions” (Duffy et al. 2009, 245). It is thus multi-dimensional as well as contextual. Metacognitive teachers



deliberately and actively monitor what they are doing, reflect on the rationale for doing so, and adapt their instructional repertoire as required by various situational demands (McCormick, Dimmitt, and Sullivan 2013).

Among the components thought to make up teacher metacognition are metacognitive knowledge, metacognitive skills (i.e. metacognitive regulation, metacognitive strategies) and metacognitive experiences. Metacognitive knowledge consists primarily of one's conceptions and beliefs of task structures, and the interaction of one's cognitive goals and abilities (Flavell 1979; Schraw 1998; Schraw and Moshman 1995). Metacognitive knowledge would help teachers to critically analyze the various teaching methodologies with reference to the context of the learners as well as personal strengths and weaknesses. Thus as Pintrich (2002) has pointed out, Metacognitive knowledge is a combination of declarative, procedural and conditional knowledge.

Metacognitive skills, on the other hand, are processes used to guide, monitor, control and regulate cognition (Veenman 2016). As Efklides (2009) explains, "the deliberate character of Metacognitive Skills entails that the person consciously and purposively applies strategies, which ensure that his/her thinking will be in the desired direction and will bring about the outcome defined by the goal set". Metacognitive skills implicate teachers' awareness of their performance, the selection of appropriate strategies that can positively impact their teaching, and their appraisal of classroom outcomes and re-evaluation of strategies that were used (Veenman et al. 2006).

Metacognitive experiences consist of feelings, estimates, or judgments related to the features of a task, the cognitive processing which takes place during the task, and the outcome of the task (Efklides 2009). Depending upon how a teacher feels about the way his/her teaching is progressing, the teacher can take measures to ensure that learning takes place in the right direction. Paris (2002) emphasized that Metacognitive experiences are an important aspect of teacher metacognition because they involve an active awareness on the part of a teacher who is performing a task, thus informing them in real time of their progress toward desired outcomes.

Metacognitive Teaching For Triple Loop Learning

Teachers need to focus on developing in learners the acumen for Triple loop learning, that is learning about the way one's thought patterns are shaped. This is essential in order that the knowledge gained is more authentic and objective. In order that this is achieved, teachers would need to practice Metacognitive teaching which is not just teaching about Metacognition, but teaching Metacognitively. "Teaching with metacognition means teachers think about ... instructional goals, teaching strategies, sequence, materials, students' characteristics and needs, and other issues related to curriculum, instruction and assessment before, during and after lessons in order to maximize their instructional effectiveness" (Hartman, 2001).

Research has shown that Metacognitive skills are transferable (Fisher 1998, Veenman 2016). Metacognitive teachers plan, monitor and evaluate their teaching learning process. They regulate their practices and constantly watch their own thoughts that influence their action. On reflection, metacognitive teachers also know how to regulate their thought patterns in order that true education is not compromised. They set teaching goals in relation to the context of the learners, plan experiences and monitor their instructional flow. They even modify their thought patterns and actions, if need be, in the best interests of learners, through reflection and self-guidance. This in essence is the manifestation of Triple loop learning among teachers.

Besides teaching Metacognitively, teachers should also spend time to teach about Metacognition to their learners. Developing Metacognitive skills in learners will go a long way to develop the strategies for triple loop learning in learners. This however cannot be achieved only through a session or two. It has to be made a regular practice, if true learning is aimed at. These endeavours will have to start young, which means that teachers at all levels of education would have to be trained in metacognitive skills. When teachers are aware of how to think about their thought patterns that influence the way they perceive phenomena / events / information / data, they get into triple loop learning. Such teachers, in turn, influence the learners to get initiated into learning about the way they learn by thinking about the way they think.



Conclusion

It is important that teacher education pays attention to training in metacognitive competencies among future teachers, so that the realm of knowledge remains authentic and relevant to the times. Metacognitive skills can enhance triple loop learning leading to a dynamic learning environment that can challenge existing models and evolve more relevant ones. Teachers with metacognitive acumen can be “capable of both teaching strategically and helping students learn strategically (Ozturk, N. 2018)

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