The Usage of Metacognitive Skills in Classroom Settings for both Learners and Educators

Pyong Ho Kim

Abstract

The aim of the present study is to make suggestions of a few metacognitive strategies that both learners and educators could implement in the educational settings. While metacognition, simply defined as ‘learning to learn’, contains a wide range of educational benefits, it is common that learners are not equipped with such strategies. However, researchers show that metacognition can be taught, and educators have discovered a number of teaching methods that could help their students attain related skills. The paper proposes self-questions that could promote metacognition of both learners and educators as its means. The findings showed positive potential of implementing metacognitive strategies in classrooms for both learners and educators in terms of promoting learners’ thinking, acknowledging their learning status, and accurately monitoring learning procedures. Discussing both positive outcomes and hindrance factors for metacognitive strategies to be implemented in classroom settings, the present study attempts to deliver the importance of its usage.

Keywords: Metacognition, metacognitive strategies, education setting, educational strategies, hindrance factors

1. Introduction

1.1 – Defining metacognition

The terminology, metacognition, was firstly introduced in John H. Flavell’s article in 1979, where he defined it as “one’s stored knowledge or beliefs about oneself and others as cognitive agents, about tasks, about actions or strategies, and about how all these...
interact to affect the outcomes of any sort of intellectual enterprise" [1]. The terminology has been receiving attention from both researchers and educators for its potential to improve learners’ information acquisition skills. In his article, Flavell suggested that young children still display limited skills in terms of being aware of cognitive phenomena that surround their environment, and perform a low level of distinguishing between what they understand and do not understand. Because of these findings, researchers need to explore educational as well as academic means that could improve learners’ metacognitive skills, which could be implemented in educational settings. Flavell also emphasized that researches need to be conducted to describe developmental acquisitions in this field in order to find effective methods of delivering metacognitive strategies and related skills to students [1].

More simply speaking, metacognition can be referred as ‘knowing about knowing’. When it comes to preparing for tests, the majority of students repeatedly go over the contents or materials, without necessarily distinguishing what they actually know and what they do not know. This factor alone prevents the students from accurately monitoring which parts they need to invest further for the preparation, resulting inefficient methods of time management(e.g., spending redundantly more time on reading what they know already). Metacognitive strategies are found to be helpful for students who experience similar circumstances.

1.2 - Differences that acquisition of metacognition could result

Joseph(2010) suggested that the orientations students have to learning environment largely affect their academic success: more specifically, those who attempt to examine their thinking to resolve their confusions tend to demonstrate introspective techniques [2]. One of the most competent outcomes these ‘self-regulated’ learners, who acquired metacognitive awareness, display is their cognitive skill that helps them recognize when they are doing well and when they are doing in a wrong direction. They exhibit ability to mirror their own thinking in order to enhance problem-solving skills to overcome learning difficulties they may encounter. On the other hand, those with poor metacognition tend to display ineffective learning strategies, unable to mirror their own thinking procedures to attain given knowledge. A number of incompetent and struggling students have hard time understanding this learning process, resulting in inefficient approaches to their schoolwork, making misuse of their given time in learning environment.
2. Teaching Metacognitive Strategies and Skills

Could learners attain metacognitive skill, or is it considered as a natural intellectual gifts with which they are born? The following paragraphs include the work of Joseph(2010) [2], who has emphasized that students can obtain metacognitive skills, suggested a few teaching methods for instructors to deliver, and proposed a list of questions that have potentials to foster the effects of learner’s metacognitive strategies.

2.1 - Metacognition can be taught

A good news is that both educators and learners do not necessarily have to be disappointed by a common misbelief that metacognition is a natural-born talent. In fact, learners can obtain metacognitive awareness by implementing practicing techniques for introspective learning. Because of the fact that there is a larger cognitive demand for students from one grade to the next, educators are responsible for conveying higher level of thinking skills. Educators can teach students to reflect their own thinking and learning processes while completing their schoolwork: it is evident that practicing metacognitive skills could help students develop self-regulated learning, allowing them to enhance greater intellectual maturity.

2.2 - Metacognition and teaching

Despite the findings that students equipped with metacognitive skills are able to reflect on their work, evaluate their instructional goals, there is a concern that educators rarely teach metacognitive awareness. Because teachers mainly invest their instructional time on preparing for state assessment testing, the emphasis on learning strategies is limited. However, there exist a number of strategies for teachers to develop students’ metacognitive skills that can be implemented in traditional learning activities. Once students attain metacongnition, teachers could better understand their learning procedures because reflective thinking enables offering valuable feedback to teachers regarding which parts need more explanation. Moreover, it could eventually help learners develop effective learning strategies without having to rely on the others in order to overcome academic difficulties that may arise during the learning processes in classroom settings.
2.3 - Realistic advice and encouragement

Joseph also introduced a list of questions that could possibly trigger students' thinking for a purpose of monitoring the level and status of their knowledge [2]. The questions include i) "Did you understand the directions for the assignment?" ii) "What were you thinking when you worked on the assignment?", iii) "Did you feel confident, confused, or frustrated?", iv) "How did you resolve any difficulties you experienced?", and v) "How would you evaluate your ability to concentrate on the assignment?". The author suggested that having the learners review these questions help them perceive their assignment from others' points of view, which is much helpful in terms of objectively criticizing their work. The following table contains a greater depth of questions that are designed to integrate metacognition into course activities.

<table>
<thead>
<tr>
<th>[Table 1] Sample prompts for integrating metacognition into course activities [2]</th>
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<tbody>
<tr>
<td><strong>Pair discussion</strong></td>
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<tr>
<td>- Share how you thought about what the question was asking.</td>
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<td>- Share the process you used to arrive at an answer you wanted to choose.</td>
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<tr>
<td>- How did your ideas compare with your partners’ ideas?</td>
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<td>- What was the most confusing to you about this question?</td>
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<td>- How confident are you in your answer? Why? What else would you need to know to increase your confidence?</td>
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2.4 - Self-questions to promote metacongnition

K.D. Tanner (2012) proposed that ‘learning how to learn’, ‘being able to monitor their own understanding’, ‘being able to reflect what they understand and do not understand’,
and 'being able to strategize about how to resolve their confusions' were a few of major differences she has found between successful and poor students [3]. In order for students to attain such learning skills, the author proposed a series of questions that educators could ask students depending on activities, as shown in Table 2.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Planning</th>
<th>Monitoring</th>
<th>Evaluating</th>
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<tbody>
<tr>
<td>Classroom session</td>
<td>· What are my goals for this class session? How do I arrive at these goals? · What do I think students already know about this topic? · How could I make this material personally relevant for my students?</td>
<td>· What do I notice about how students are behaving during this class session? · What language or active-learning strategies am I using that appear to be facilitating learning? · How is the pace of the class going?</td>
<td>· How do I think today’s class session went? · How did the ideas of today’s class session relate to previous class sessions? · How will what I think about how today’s class session went influence my preparations for next time?</td>
</tr>
<tr>
<td>Overall course</td>
<td>· Why do I think it is important for students pursuing a variety of careers to learn the ideas in my course? · How does success in this course relate to my students’ career goals? · What do I want students to be able to do by the end of this course?</td>
<td>· In what ways am I effectively reaching my goals for students through my teaching? · In what ways is my approach to teaching in this course not helping students learn? · How is my approach to teaching this course different from last time I taught it? Why is that so?</td>
<td>· What evidence do I have that students in my course learned what I think they learned? · What advice would I give to students next year about how to learn the most in this course? · If I were to teach this course again, how would I change it? Why?</td>
</tr>
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3. Components of and Tips for Metacognition

Metacognitive strategies could serve as a much helpful tool to resolve these problems. A vast majority of research results suggested that it is very unlikely that students naturally acquire strategic learning skills, including metacognition and self-regulated learning; it is rather educators’ duty to help them walk develop procedures. The following paragraphs contain a list of components that metacognitive strategies consist, as well as helpful tips for both learners and educators, all of which could result in learners’ educational benefits.

3.1 - Importance of implementing metacognitive strategy training
In order for students better their comprehension skills, particularly in language acquisition realm, it is critical to implement metacognitive strategy training [4]. Cubukçu (2008) underscored the importance of students’ awareness of a knowledge base and their self-awareness of strategies that administrate their learning (e.g., monitoring difficulty level, a feeling of knowing). Metacognitive knowledge contains cognitive learning strategies for learners to regulate the learning procedures for knowledge acquisition, including building links to prior knowledge, or note-taking skills; impact of the metacognitive strategy training could result in bettering these critical academic skills. Cubukçu’s study revealed that systematic instruction in metacognitive language learning strategies supported their reading comprehension; particularly, it helped the students better comprehend the approach and how to apply it to different learning tasks on their reading. The participant students stated that “being aware of which strategy should be used where and when helped them achieve higher grades in the tests” (p.11).

3.2 - Promoting students’ thinking

It is natural for students to avoid the schoolwork in which they do not feel confident, and in turn, they tend to engage in tasks in which they feel competent and confident [5]. Smith and colleague (2007) emphasized that it is important to note that a high percentage of questions that teachers used still remain at the cognitive level, and fail to provide an opportunity for active student involvement. Their work revealed that students who responded to journal questions designed to promote thinking experienced comparatively positive effects in achievement.

Accordingly, the authors suggested that teachers are encouraged to i) commit to structured writing related to content being delivered, ii) provide classroom journals for students, and iii) schedule time in lesson plans for students to respond to questions in their journals. Additionally, teachers must develop i) metacognitive questions that are supposed to help students interpret the information they receive, ii) affective questions that require students’ independent interpretation, and iii) methods to reflect on student-created questions in order to promote their thinking procedures further. Finally, teachers need to i) provide students with questions in more than one format (e.g., board, paper, computer, e-mail, etc.), ii) check that learners are conducting their journals, and iii) provide feedback regarding their learning styles, feelings, and life experiences.

3.3 - The components of metacognition and cognition

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Efklides (2008) pointed out that developmental psychology, experimental and cognitive psychology, and educational psychology have great interests in investigating metacognition, particularly focusing on theory of mind, meta-memory, and self-regulated learning, perspective [6]. Metacognition is a representation of cognition because definitions of metacognition underscore the function at a “meta” level and metacognition and cognition are connected through monitoring and control functions. Both monitoring and control of metacognition are confined within the realm of self-regulation of cognition. The author emphasized that differentiating the facets and levels of metacognitive functions, and its greatest potential for educational benefits include inspiration of newly integrated approaches for development of metacognition and self-regulation.

4. Metacognitive Strategy Training

Huang and Nisbet (2012) have proposed a practical guide to assist educators who are willing to implement metacognitive strategies in their traditional classroom environment [7]. In their work, the authors described the procedures to teach metacognitive strategy that educators could apply, particularly in reading, which is designed to help learners predict, self-question, clarify, evaluate, and summarize [8]. The following five phases elaborate the authors’ work for practical implication of the approach.

4.1 - Phase I: Preparation

The ‘Preparation’ phase is a two-fold approach with one helping students become aware of already-used strategies and another preparing them for strategy instruction. There are two instructional recommendation made for this phase. First, teachers need to elicit students’ prior knowledge. By conducting informal interviews with the students, and by asking questions including “what do you do if you do not know the meaning of a word?”, teachers could generate meaningful feedback from students. Second, teachers are encouraged to provide students with motivation because it is important to build their confidence from the beginning. Telling students that effective readers use various strategies as reading could be a good idea.

4.2 - Phase II: Presentation
For the ‘Presentation’ phase, teachers need to explain the purpose of the learning strategy, using SQP2RS(Survey, Question, Predict, Read, Respond, Summarize) approach, for example. Through these steps, students are told that effective readers survey given text, generate related questions, predict answers to them, all of which to activate their prior knowledge. Teachers also emphasize that during reading, effective readers read the text and examine whether they appeared to make correct prediction; a procedure of confirming and rejecting predictions would help them identify key ideas. Finally, teachers tell students that, after reading, effective readers are to conduct a short-summary of the text in order to help them focus on the main ideas, eliminating unnecessary information they might have acquired.

4.3 - Phase III: Practice

Teachers are to provide students with opportunities to practice the strategy during the ‘Practice’ phase. Students are guided to practice the SQP2RS strategy, using a new reading passage. First, for each step, students are provided with specific directions for them to acknowledge exactly what to do; for example, for survey session, students are asked to view the title, headings, and pictures to discuss with their partners what they think the text would be about. Second, teachers provide authentic reading materials, including newspapers, magazines, advertisements, driver’s manuals, all of which students could find in their real lives. Of course, passages from textbooks could be a decent option to consider. The usage of these materials would be helpful in terms of connecting the use of strategies with real-life tasks, thus enhancing student motivation for academic achievement.

4.4 - Phase IV: Self-evaluation

In ‘Self-evaluation’ phase, the following two components are critical: fostering self-reflection and incorporating student self-assessment. First, a classroom climate needs to be conducted in which learners feel that they can experiment with their learning. Conducting informal interviews or utilizing dialog journals would also provide opportunities to practice skills they have obtained. Second, students need to be provided with opportunities reflect their own learning procedures. Teachers could ask students to indicate how well they had comprehended or used the strategy while reading, reminding them about a list of few methods that effective readers use.
4.5 - Preparation V: Expansion

‘Expansion’ phase encourages students to apply the strategy outside the classroom, and to share with the others regarding how they use the strategy. For this phase to be effective, students are to be provided with a structured learning task that students could apply the strategies in their real-life circumstances. For example, teachers could ask students how they could have applied the SQP2RS strategy as they read a newspaper, a store catalog, or an online article. Also, students could be invited to share their own effective strategy usage with the others. It is important for students acknowledge that no two strategies are identical, and comparing different ideas for adaptation would help them generate even more effective learning methods.

5. Hindrances to Implement the Strategies

Since most of pre-service teachers were less likely to encounter metacognition during their teacher-training periods, they have hard time understanding its strategies and implementing the approaches in their educational settings [9]. In order to overcome this issue, professional development sessions that effectively deliver its contents and applications are needed.

Students may not be familiar with educational approaches that implement metacognitive strategies, mostly because they are used to uni-directional teaching methods. In most education settings, it is common to observe a number of students regularly stopping to make efforts often as they encounter initial difficulties in academic procedures. Because students tend to show resistant attitudes toward changed educational methods, they need to be reminded regarding the importance of this approach. Having students discuss their classwork within school periods also help them overcome this hindering factor [10].

References


