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Metacognition and motivation: In context with the academic success of students

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Abstract
Why some students are more motivated to learn or learn more effectively and efficiently than others? The answers to these questions lies in the fact that by integrating and organizing their cognitive, connative and their personality. Lindner and Harris (1992) suggested that the self-regulated learner is "organized, autonomous, self-motivated, self-monitoring, self-instructing, in short, behaves in ways designed to maximize the efficiency and productivity of the learning process". Their description delineates some of the primary dimensions which interest school counsellors and educators today, i.e. metacognition, learning strategies, and personality variables.

Keywords: Meta-cognition, Motivation, Strategic Thinking

1. Introduction
Meta cognition is one of the latest buzz words in the field of the educational psychology. The term finds its existence in the Latin word *Cognocere* which means *get to know*. Literally, it is Meta – self- referential and cognition means mental action or process of acquiring and understanding through thought, experiences and the senses.
We engage ourselves in metacognition activities every day. Metacognition enables us to be successful learners and has been associated with intelligence. It refers to high order thinking which involves active control over the cognitive process engaged in learning activities, such as planning, how to approach a given task, monitoring comprehension, and evaluating the progress of a task towards the completion, which are meta-cognition in nature. Because Meta - cognition plays a critical role in successful learning, it is important to study metacognitive activities development to determine how students can be taught to apply their cognitive resources through Meta - cognitive control in a better way.

2. Rationale
This paper focuses on motivation through the lens of metacognition. By focusing on the metacognitive abilities of students in specific, it seeks to show a variety of ways in which metacognition affects motivation. With this in mind, it has been suggested that instructors explicitly teach metacognitive skills in order to increase motivation among their students.

3. Objective
The objective of the paper is to provide a guideline to teachers to make their students academically successful from very initial stage by motivating them to use their metacognitive skills.

4. Meta-Cognition
In general meta-cognition is 'thinking above thinking'. More specifically, Taylor (1999) defines meta- cognition as "an appreciation of what one already knows, together with a correct apprehension of the learning tasks and what knowledge and skills it requires, combined with the ability to make correct inferences about how to apply one's strategic thinking". To increase their metacognitive abilities students need to possess and be aware of three kinds of content knowledge; declarative, procedural and conditional. Declarative knowledge is factual information that one knows; it can be declared, spoken or written, e.g. knowing a formula. Procedural knowledge is knowledge of how to do things in a proper manner and how to perform the step in a process. Doing any sort of calculations based on that formula is an example of procedural knowledge. Conditional knowledge is knowledge about when to use a procedure, skill, or strategy and in which conditions not to use it. Why a procedure and under which conditions, and why one procedure is better than another.
The students are aware of their thinking process. More they learn, the more they can control such matters as goals, dispositions, and attention. Self- awareness promotes self-regulations. If students are aware of how committed or uncommitted they are to reaching goals, of how weak or strong is their dispositions to persist, of how focused or unfocused is their attention to a thinking or a writing task; they can regulate their commitment, disposition and attention. (Marzano *et al*., 1988). Self-regulation is a process in which students activate, take control and evaluate their own learning. Self-regulation, however, requires some degree of choice or intentional selection of strategies designed to help the learner to achieve a goal or certain behaviour modification.
Self- regulated learners are:-

- Aware of their strengths and weaknesses.
- Utilize meta-cognitive strategies e.g. questioning one's learning and monitoring ones learning to approach academic tasks.
- Attribute their success or failure to factors within their control.

5. Metacognition and Three Types of Knowledge
To increase their metacognitive abilities students need to possess and be aware of three kinds of knowledge; declarative knowledge, procedural knowledge and conditional knowledge. Declarative knowledge is factual information that one knows; it can be declared, spoken or written, e.g. knowing a formula. Procedural knowledge is knowledge of how to do things in a proper manner and how to perform the step in a process. Doing

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6. **Motivation**

Different authors have defined motivation in different ways. David Myers defines motivation as "a need or desire that serves to energize behaviour and to direct it towards a goal." Frank Hawkins (1993) defines it as "what drives or induces a person to behave in a particular fashion... the internal force which initiates, directs, sustains and terminates all important activities. It influences the level of performance, the efficiency achieved and the time spent on an activity."

The most difficult and most important aspect of becoming a teacher is learning how to motivate your students. Students who are not motivated will not learn effectively. They won't retain information, they won't participate and some of them may even become disruptive.

7. Metacognition and Motivation

There appears a positive relationship between motivation and metacognition because metacognition also influences the other personality traits like self – efficacy and self – control too and all these by and large related with the academic achievement of students. Meta-cognitive thinking is strongly related to intrinsic motivation. Peirce (2004) believes that the relationship between meta-cognitive thinking and motivation is derived from the Attribution Theory. When students are given a task, success or failure in the task will push the students to attribute the results of the task; whether success or failure, either to internal causes (ability or effort) or external causes (difficulty of the task). In this context, the attribution a person makes has a significant impact on his success or failure in everything he does. For students, who attribute academic difficulty to their low ability, there is a possibility that they will have low esteem and will not furnish much effort to succeed. In contrast, students who have higher esteem will choose difficult tasks or furnish more effort and perseverance, and apply appropriate strategies of problem solving to face tasks given (Pierce, 2003). Chan (1996) shows that the gifted consider themselves more intellectually capable and less exposed to failure because they are higher self-esteemed

8. Emotions: A Connecting Factor between Motivation and Metacognition

Emotions play an important role as a connecting factor between motivation and metacognition. Self-evaluations, a key component of the monitoring and predicting process of metacognition, are inherently laden with emotions. Students from early childhood start to compare themselves with their peers and incorporate successes and failures into their concept of their own ability. When they perform this kind of self-evaluation, some students may feel proud of their accomplishments and confident about their abilities. They may notice that they read faster than their peers or get mostly positive feedback on assignments. Other students may feel ashamed and frustrated – as they perform self-evaluations of their abilities in comparison to their peers, they may realize that they struggle more on tasks. In any case, this kind of self-reflection and evaluation is far from dispassionate. These feelings are related to students' motivation as well. It seems obvious that students who are confident are also highly motivated to attempt new and challenging tasks in comparison with the students who feel frustrated otherwise for different causes are unmotivated to attempt new tasks because they don't want to risk failure. Therefore, the positive or negative emotions stirred up by the metacognitive self-evaluations have a direct effect on students' motivation. The connection between metacognition and motivation goes beyond just the emotions involved in both. Metacognition also effects motivation by helping students to understand their individual struggles in context and offering solutions and techniques to help them improve. Low achieving students often feel hopeless about schoolwork. They may have incorporated past failures into their self-concept and generalize that they are just not smart enough for taking any sort of risk. This kind of defeated attitude prevents students from becoming motivated. However, by identifying the areas of their strength and knowledge of person variables, students could be helped to overcome this state of low esteem. As Paris & Winograd (1990) point out in their article Promoting Metacognition and Motivation of Exceptional Children, "low-achieving students gain self-efficacy as they learn to understand their own frustrations and to understand that others share those feelings too." Therefore, it would be beneficial for teachers to lead students through metacognitive exercises designed to help them identify their personal areas of strength and weakness, and then have students share their conclusions. By observing that every student in the class struggles with some area and has some area of strength, lower-achieving students come to realize that they are not alone. It would also be helpful for students who have generalized specific failures into a global negative affect, to pinpoint their areas of frustration in order to appropriately manage their emotions and find solutions. This again ties directly to motivation. As students use metacognition to identify and find strategies to improve their areas of weakness, they can find hope and become motivated. When metacognition takes the form of analyzing the most effective learning strategies for an individual, it encourages perceptions of ability that lead to increased motivation. One of the categories that Flavell (1987) suggests is knowledge-of-strategies. This refers to thinking about what learning and comprehension strategies are most effective in particular situations and for a particular learner. For example, some students study best with note cards, others benefit from being able to discuss the concepts with a peer and teach each other, still other students may know that they retain the textbook information better if the skim the reading first. These are all learning strategies that have the possibility to increase student learning and comprehension. However, effective metacognition requires students to not just identify strategies, but also analyze them and choose which strategy best fits their individual needs and the task at hand. Students should be encouraged to try many strategies and make decisions about which ones work best for them and which are less effective. This kind of thinking requires students to acknowledge that ability to learn is not a fixed entity, but rather something that can be changed depending on the strategies implemented. In conclusion, teachers can use this knowledge of the connection between metacognition and motivation to help their students be more motivated in the classroom and achieve more. Because students are able to use metacognitive skills such as self-evaluation at a relatively accurate level, it is not too early to address metacognition in the classroom. In fact, because many

students don't use these skills unless prompted and because the correlation between awareness and performance is not high, it not only can be used, it should be explicitly taught in order to help students use these skills more effectively. It is also important because to incorporate these skills among students during initial stage before their motivation hits a sharp decline in the later stage. This paper outlines four ways in which metacognition and motivation interact. One way they are connected is through emotions. Metacognitive self-evaluations stir up powerful emotions that directly affect students' motivation. Metacognition also increases motivation by helping students to understand their personal strengths and weaknesses. This helps them understand that challenge is a part of learning; find strategies to improve their learning, and avoid generalizing negative feelings. Also, learning about metacognitive strategies promotes views of ability that increase motivation. Finally, experiencing success after using metacognitive skills will increase student's expectations and motivation for more success. With these connections in mind, it is clearly proposed that metacognition can and should be used in classroom from very initial stage to help students become motivated and academically successful.

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