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ABSTRACT

This paper discusses self-assessment--i.e., the act of evaluating or monitoring one's own level of knowledge, performance, and understanding--in a metacognitive framework, taking into account the contexts in which self-assessment occurs. It begins with a brief review of metacognitive and social psychology theories that pertain to self-assessment. An interactive model of self-assessment which delineates some of the possible influences on self-assessment behavior is then offered, and the research implications of such a model on approaches to studying self-assessment are discussed. (5 references) (BBM)

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Understanding Learning and Performance in Context: A Proposed Model of Self-Assessment

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Introduction

The development of constructs that underlie learning, particularly academic learning has always been a hotbed for inquiry, in as much as we humans are characterized by innate curiosity and the capacity to learn and to understand what we are learning. However, while this has primarily been the domain of philosophers, the emergence of cognitive psychology as a research discipline has provided us with more of the pieces needed to understand learning in context of cognitive processes, internal influences (i.e., individual characteristics) and external influences (i.e., sociocultural influences).

More specifically, the area of metacognition has played a critical role in understanding what develops when an individual learns within academic settings like those generally found in the United States today. One of the manifestations of metacognitive thought is self-assessment. Broadly defined, self-assessment is the act ofevaluating or monitoring one's own level of knowledge, performance, and understanding.

In this paper, we will attempt to discuss self-assessment within a metacognitive framework and take into account the contexts in which self-assessment occurs. Towards this end, we will first give a brief discussion of metacognitive and social psychology theories that pertain to self-assessment. We will then offer an interactive model of self-assessment which delineates some of the possible influences on self-assessment behaviors. Finally, we will discuss the research implications of such a model on approaches to studying self-assessment.

Theoretical Orientations

The Metacognitive Literature

Metacognition may be generally defined as any cognitive activity that concerns itself with any aspect of any cognitive enterprise (Flavell, 1979). Metacognition is believed to be active in such activities as communication, reading comprehension, perception, problem solving, social cognition and varying forms of self-instruction. We believe the work of Brown and DeLoache (1978) and the work of Flavell (1979) are particularly pertinent and instructive in positing a model for self-assessment.

Brown and DeLoache (1978). They assert that one of the most fundamental differences between the experienced learner and the naive learner is the increasing capacity for metacognition, which they call self-regulation and control of knowledge. They believe that along with an increase in learning, there is a concurrent increase in metacognitive activity, which allows the individual to monitor problem solving techniques and then modify them.

Brown and DeLoache further state that individuals follow a relatively similar pattern of learning. First the absolute novice shows little self-regulation (metacognitive activity). Then, as he becomes more familiar with the necessary rules and subprocesses required to learn the subject, he increasingly enters a more active period of deliberate self-regulation. Finally, there is a period when the use of rules and subprocesses to access knowledge become mostly automatic. The individual has become an expert. Though their studies have primarily been on children, we believe that at any age, this developmental pattern is operative. What develops seems to be a schema or internalized working model of the individual's self-regulation or, in our terms, the individual's self-assessment process.

Although we may intuitively believe that adults have a sophisticated and fully developed schema of self-regulation or self-assessment, it may not necessarily be the case. What may distinguish the acquisition of this schema may be the constraints of internal influences (individual characteristics) and external influences (sociocultural influences).

Flavell (1979). One of the more renowned theorists in the metacognitive area, Flavell views metacognition in terms of metacognitive knowledge and metacognitive experience.

Metacognitive knowledge denotes the area of acquired knowledge that deals with what an individual knows about how he thinks and how others think. That is, it is the knowledge and beliefs that one has accumulated through experience which concern the human mind and its cognitive processes. Some of this stored knowledge is declarative (e.g., knowing that you have poor memory). Other metacognitive knowledge may be procedural (e.g.,you know how to improve your poor memory by the use of supplementary aids like notes or lists).There is also metacognitive knowledge that is both procedural and declarative (e.g., your ability to know that writing lists helps your poor memory).

Flavell views metacognitive knowledge as roughly subdivided into knowledge about persons, tasks, and strategies.

Persons includes knowledge and beliefs one might acquire concerning what individuals are like as thinkers.

It can be further broken down into knowledge and beliefs about cognitive differences within people (e.g., you know that you are better at one subject than another), between people (e.g.,knowledge about other people's social cognitive skills), and cognitive similarities among all people (in other words, the universal properties of human cognition.

Tasks includes two subcategories. First is the nature of the information to be addressed when facing a cognitive task (e.g., the difficulty of taking a comprehensive exam). Second is the nature of the task demands (e.g., You know it is easier to remember the general theme of a story than its exact wording).

Strategies includes your knowledge of the ways that you can succeed in achieving your cognitive goals (e.g., remembering a poem, comprehending a theory, or solving a problem). The principal role of metacognitive strategies is to help you successfully carry out cognitive activities (e.g., knowing that you must monitor your time during an exam).

Finally, Flavell believes that metacognitive knowledge is not qualitatively different from other kinds of knowledge. Like other knowledge it is probably accumulated in a slow and gradual fashion through experiences in various cognitive activities. It is probably often automatically activated through stimulus response processes that detect and appropriately respond to familiar cognitive situations. Also, metacognitive knowledge can oftentimes be insufficient, inaccurate, not reliably retrieved and not used when appropriate.

Metacognitive experience is a concept which refers to cognitive or affective experiences that occur during some activity that gives insight to that activity. Metacognitive experiences can be brief and simple (e.g., a brief puzzlement about a friend's behavior) or lengthy and comeple (an obssessive desire to understand a friend's behavior). They may also occur at any time before, during, or after a thinking activity (e.g., thinking about how you are doing on different parts of an exam). Many metacognitive experiences tend to include your perpception of previous progress you have made, progress you are currently making, or progress you will make in a given activity. Such metacognitive experiences occur in situations that would be expected to engender careful, conscious monitoring and regulation of one's own cognition. Metacognitive experiences serve useful functions in ongoing cognitive activities. For instance, if you have trouble solving a problem, a metacognitive experience may help you to restructure your thinking so that you can reach a solution. In this sense, a metacognitive experience is adaptive. Moreover, metacognitive experiences tend to be influenced and

shaped by whatever relevant metacognitive knowledge you have acquired. In turn, metacognitive experiences must also contribute information about persons, tasks, and strategies to one's developing store of metacognitive knowledge.

According to Flavell, it would seem that metacognitive knowledge, metacognitive experience, and cognitive behavior are constantly informing and eliciting one another during the course of a task.

Social Psychology Literature

Learning does not occur in a vacuum and is influenced by a number of different components which can be loosely grouped into external influences (sociocultural influences) and internal influences (individual characteristics). The work of social cognitivists and the emerging field of cultural psychology is particular salient to our proposed model for self-assessment.

Social cognitivists like Vygotsky (1962) and Cole and Scribner (1975) bring to cognitive psychology the premise that cognitive activities develop and are modified within sociohistorical and cultural contexts. The effect of these influences can be observed in an individual's choice of activities, motives, and priorities. Thus, the individual's schema for self-assessment is based not only on metacognitive knowledge and experience but also on a variety of internal and external influences. The emerging discipline of cultural psychology also speaks to this issue in that it views individual development and functioning as occurring in particular intentional worlds--that is within unique sociocultural environments that have within them unique communities of individuals with unique beliefs, desires, emotions and purposes (Shweder, 1990). From this perspective, we would expect metacognition to be influenced by an individual's level of involvement and commitment along different social domains (i.e.,school, family, workplace, etc.). In this way, learners (at any age) can be seen as belonging to interconnected systems which influence their learning at every turn.

Possible Model for Self-Assessment

What higher order thinking occurs during an individual's self-assessment? What influences this self-assessment capacity? How can we improve an individual's ability to self-assess, and does this ability hold along different knowledge domains? We believe these questions can best be answered by positing a self-assessment model that takes into account the metacognitive and social psychology theories we discussed above.

In this model, self-assessment behaviors are really manifestations of metacognitive processes involving metacognitive knowledge and metacognitive experience. These metacognitive processes make up an individual's schema for self-assessment. This schema is part of the individual's overall cognitive processes. However, at the same time, the self-assesment schema acts as a mediator of cognitive activities in different knowledge domains. Thus, we may view the self-assessment schema as a generalized cognitive process that is operable along a wide array of knowledge domains.

The operation of this self-assessment schema may occur at two levels. During a task, a person may perform frequent incremental assessments of his performance in order to reach completion. The self-assessment schema is utilized in a <u>formative</u> fashion in order to monitor and modify the on-going task. Once the individual has completed the task, he again utilizes the self-assessment schema to do a <u>summative</u> evaluation of his performance on the overall task. He may then use this summative evaluation to modify his self-assessment schema, which will be used again at some future task.

However, all cognitive processes (e.g., metacognition and particularly self-assessment) do not merely occur independent of other influences, as we mentioned earlier in our social psychology section.

External influences in an academic environment may include the school. Within a school setting, the goals, curriculum, training, faculty-student interaction , etc. may affect the individual's ability to self-assess. The individual's family life, culture, neighborhood, and the media may also impact on self-assessment.

Any task which requires the use of the self-assessment schema is itself embedded within these external influences. The tasks may come from the school (e.g., performance on exams), from the family (e.g., interaction dynamics among family members), or from the neighborhood, etc. The completion of these tasks provide the individual with opportunities to activate his self-assessment schema. Subsequently, he modifies his schema

to account for his task performance and the external factors which influenced this performance.

In addition, internal influences (such as various individual characteristics) can affect the components of the self-assessment schema. A person's temperament, such as whether one is an introvert or an extrovert, may affect how the self-assessment schema is utilized in a given task. In addition, an individual's self-esteem or self-concept, motivation, school achievement, social skills, etc. also play a role in influencing the components and formation of this self-assessment schema, thus ultimately influencing the individual's performance in a task.

Because these internal and external influences act as mediators of the self-assessment schema, they provide opportunities or avenues to intervene by modifying the schema, which , in turn, may change an individual's performance on a task. Moreover, the interactions among the self-assessment schema, the internal influences and the external influences are not just one-way interactions. The self-assessment schema are not only being influenced by external and internal influences. The self-assessment schema (and all other cognitive processes) also impact on these external and internal factors. For instance, modifying an individual's previously ineffective self-assessment schema to a more effective schema may improve his self-concept and his self-confidence (internal characteristics), as well as also improve his performance at school (external environment).

Conclusions and Implications for Research

This paper provided a brief discussion of the metacognitive literature and the social psychology literature as it may pertain to self-assessment as a social cognitive construct. These theoretical frameworks posited (mainly Flavell's metacognitive components and the social cognitivists (Vygotsky, Cole and Scribner) provided the basis for a proposed model of self-assessment in an academic environment. Much of the self-assessment literature out there seems to be limited to describing the manifestations of self-assessment behaviors in various student populations. The utility of providing a model of self-assessment is that it provides a contextual framework in which we could discuss various self-assessment behaviors in a less limited manner. How can we observe developmental change in self-assessment?

Brown and DeLoache (1978), using recommendations made by Cole and Scribner (1975), advocated three components of researching developmental change in competencies. It calls for a synthesis of ethnographic

and experimental methods and for the investigation of particular activities along a range of situations (from natural observations to experimental). First, they believe one should examine the individual's understanding of the experiment or task and his role in this. One should be fully aware of the task demands and how they appear to the individual being tested. Second, they believe in "experimenting with the experiment". That is, researchers should use variations of a paradigm applicable to the individuals being studied. Third, researchers should investigate the same process in a range of situations, whether in naturally-occurrring or experimental situations.

I believe the current self-assessment literature can benefit from conducting research in this manner. The complexity of self-assessment and its importance to learning behooves us to make certain that research in this area goes beyond merely descriptive analysis of self-assessment behaviors. The development of a viable model for self-asessment can be instrumental in enhancing our understanding of what exactly develops when one goes from a novice learner to an experienced learner in a knowledge domain.

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