I'm motivated because of who I am: The effects of domain specific self-schemas in students' learning engagement patterns

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Abstract

It is proposed that students' self-knowledge will have motivational effects on their learning behaviours (Wigfield & Karpathian, 1991). Research on self-schema has substantiated this claim (Ng, 1997, 1998). This paper reported two studies that revealed the causal effects of self-schema on why and how students engaged in learning. A survey study found that self-schema would causally link to students' achievement goals and learning approaches, which in turn would affect how they anticipated their year-end achievement levels. The significance of self-schema lies not only in its indirect effects on perceived achievement mediating through achievement goals and learning approaches, but also in its strong direct causal link with students' perceived achievement. A follow-up interview study supported the findings of the survey and shed light on the development of domain specific self-schemas.

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Self-schema is a term coined by Markus Hazel (1977), which is defined as a cognitive generalisation of one's self-knowledge in a specific domain from the past experiences. This type of self-knowledge is dynamic and situational. Self-schema serves as an organizer that mediates and regulates behaviours. In addition, self-schema also provides incentives, standards, plans, rules and scripts for behaviours (Alexander, 1997; Cross & Markus, 1994; Oyserman & Markus, 1993). It has been found that self-schema have bearing on information processing about the self (Markus, 1977), forming perceptions about others (Lewicki, 1983; Markus & Smith, 1981) and drawing inferences from ambiguous social information (Catrambone & Markus, 1987). As such, self-schemas will be relevant for motivation research. This paper reported two studies that look into how students' domain specific self-schemas in learning mathematics affect their learning engagement patterns. Learning engagement patterns are defined in terms of what learning goals and learning approaches students are having in learning mathematics.

Theoretical Model

Diagram 1: The Theoretical Model

Self-schema		Goal Orientation		Learning Approach		Performance

Diagram 1 shows the theoretical model proposed in this paper. Self-schema is taken as an independent variable and its effects on performance is mediated through goal orientations and learning approaches. Students' self-schema in a subject domain and perceived learning purposes will explain why students learn a specific subject, in this case, mathematics. Whereas, learning approaches will explain how students learn it.

The link between self-schema and goal orientations can be justified empirically. Ng (1997) explored the relationship among self-schema, perceived teacher's teaching goals, perceived relationship with teacher, and goal orientations. It was found that self-schema outweighed the other two social variables in predicting students' goal orientations. In particular, self-schema was the most important predictor for mastery goal. Similar results were found in a subsequent study (Ng, 1998). These empirical findings substantiate the postulation that self-schema is causally tied to students' goal orientations.

Little research to the author's knowledge has been done to establish the link among goal orientations, learning approaches and performance. However, the relationships among these variables can be derived from the empirical studies in the respective fields.

The research on goal orientations has successfully contrasted the effects of these two goals, mastery and performance goal, on students' learning strategies. Students' learning strategies have been represented through the use of cognitive strategies (e.g. Meece, Blumenfeld & Hoyle, 1988; Nolen, 1988; Pintrich, 1989; Pintrich & Garcia, 1991;), the use of self-regulatory strategies (e.g. Pintrich, 1989; Meece, 1991; Pintrich & Garcia, 1991), the manipulation of learning resources (e.g. Pintrich & Garcia, 1991; Pintrich & De Groot, 1990), and different types of cognitive engagement (e.g. Greene & Miler, 1996; Meece et al., 1988).

It has been found that mastery-oriented students employ more frequently elaboration and organisation strategies that enable them to have a deeper understanding of the learning materials. Performance-oriented students rely more frequently on rehearsal strategies and as a result are confined to a surface-level of understanding (Pintrich 1989; Pintrich & DeGroot, 1990; Pintrich & Garcia, 1991). Similarly, Nolen (1988) found that mastery oriented students reported more use of deep-processing strategies including discriminating important from unimportant information, integrating new information to the existing knowledge and monitoring comprehension. A performance orientation correlated with the use of surface-level strategies like repeated reading, memorising new words and rehearsing information. In addition, mastery-oriented students always valued the use of the deep processing strategies.

Likewise, a similar pattern prevails when students' goal orientations are associated with self-regulatory strategies and the management of learning resources. Mastery-oriented students are usually more planful. They will set realistic goals and always monitor their process of learning. In addition, they also show greater concern for their management of study time, study environment as well as seeking help appropriately (Pintrich, 1989; Pintrich & DeGroot, 1990; Pintrich & Garcia, 1991).

Given the benefits of cognitive and self-regulatory strategies, it is not surprising to find that mastery oriented students reveal a deeper processing of information and hence a better performance than students stressing performance goals (Graham & Golan, 1991; Nolen, 1988; Pintrich, 1989; Pintrich & DeGroot, 1990; Pintrich & Garcia, 1991). Mastery goals are therefore described as adaptive and performance goals are labelled as maladaptive to

learning. However, recent studies (Harackiewicz, Barron, & Elliot, 1989) have questioned the maladaptive nature of performance goals.

It is important to point out that goal orientations are not directly related to performance. It is the use of various forms of learning strategies that predicts performance level. In other words, the effects of goal orientations on performance are actually mediated through the appropriate employment of learning strategies (Wentzel, 1989; Pintrich & Garcia, 1991). Motivation per se will not guarantee an improvement of performance. Learning strategies are necessary.

Biggs (1987)