Introduction

The concept of self-schema has been extensively researched in social psychological studies since the seminal study of Markus (1977) on independence-dependence schematics. In the past several decades, social psychological studies have established the information-processing functions of self-schemas in relation to the self and others. More recently, social psychological researchers in different applied domains including sports and health have shifted their focus to behavioural implications of self-schemas. However, educational researchers have given scant attention to the research on self-schemas in education, notwithstanding the recent calls of several prominent educational psychologists such as Pintrich (1994). Among the few educational studies on self-schemas, my previous work (Ng, 2005a; 2005b) showed that students’ academic self-schemas play an important role in guiding their motivation and learning. In particular, students with a positive academic self-schema in learning mathematics endorsed adaptive goals, approaches and strategies while their negative counterparts held goals, strategies leading towards superficial engagement and subsequently lower achievement levels. These previous studies were limited by their correlational design and firm causal statements cannot be made regarding the effects of academic self-schemas on motivation and learning.

Aims

The current paper reports the findings of an experimental study that explored how students with contrasting academic self-schemas approached, engaged and responded to a challenging academic task and fabricated negative feedback on their performance.

Research method

Participants: Based on students’ responses to a previous survey, 120 Year 9 students with extreme academic self-schemas (both positive and negative) in learning mathematics were initially selected and contacted for the experimental study. Due to attrition, the final sample in this study involved 82 students, among which 51 were classified as positive schematics and 31 as negative schematics based on their responses to questionnaire items assessing their enjoyment, efficacy, perceived importance and future planning in relation to learning mathematics.

Experimental procedures: The experimental procedures mainly involved the following steps: 1. confirming students’ schematicity using rating and self-description tests; 2. activating their schematic views; 3. assessing students’ perceived level of difficulty, anxiety, anticipated performance and their goals before completing the experimental task; 4. administering the experimental task that contains a series of maths questions; 5. creating cognitive dissonance by
Major hypotheses:

- Positive schematic students will show an adaptive pattern of motivation before approaching the experimental task while their negative counterparts will experience a high level of anxiety and perceived difficulty, but a lower level of anticipated performance;

- Positive schematic students will attribute their failure to malleable factors, while a reverse pattern of attribution is expected to find among their negative counterparts;

- Positive schematic students will demonstrate an adaptive coping pattern on receiving negative feedback, and in contrast, negative schematic students will show a maladaptive coping pattern; and

- Positive schematic students will have a better performance than their negative counterparts.

Research findings

The experimental findings confirmed the hypotheses. In particular, it was found that positive schematic students approached the experimental task with a low level of anxiety, low level of perceived difficulty, and high level of anticipated performance than did their negative counterparts. Positive schematics completed the experimental tasks with a strong mastery orientation while their negative counterparts focused more on their performance or ways to avoid showing their inabilities. In terms of their responses to the fabricated negative feedback, negative schematics attributed their poor performance to test difficulty, low level of interest, perceived unimportance, the lack of ability. Positive schematics attributed their failure to the lack of practice. These two groups of students also differed in how they coped with negative feedback. Positive schematics reported that they would seek help, expend further effort and re-take the test while their negative schematics would ignore the test result and consider it unimportant and would not retake the test. In terms of achievement, positive schematic students had a better result than did their negative counterparts in this experimental task. The results will be discussed in term of the role and function of academic self-schemas in guiding academic engagement and persistence.

References

