The impact of mastery feedback on undergraduate students’ self-efficacy beliefs

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A B S T R A C T

This study examined the relationship between midterm examination results and the self-efficacy beliefs of undergraduate accounting students. Students enrolled in a mandatory introductory accounting course were surveyed regarding their self-efficacy beliefs before and after receiving their midterm exam results in a 13-week semester. The analysis showed that there was a positive relationship between midterm examination results and student sense of self-efficacy at the end of the course, even after taking into account their self-efficacy beliefs before receiving their midterm results. The results are consistent with Bandura’s (1994) theoretical argument that enactive mastery is a source of self-efficacy for individuals. Enactive mastery is mastery that is demonstrated through events and activities, such as a performance, or an examination. The approach taken here stands in contrast to other studies of self-efficacy that seek to examine how self-efficacy influences achievement. Theoretical and practical implications of the findings are explored.

1. Introduction

In this paper, we explore the relationship between feedback on achievement and self-efficacy beliefs in an undergraduate accounting course. Research on the relationship between non-cognitive variables (such as self-efficacy beliefs) and cognitive variables (such as academic ability) typically has posited that the non-cognitive variables influence the cognitive ones (Bandura, 1994; Ransdell, 2001; Stajkovic & Luthans, 1979). Here, we present a study where the traditional relationship between non-cognitive and cognitive variables is reversed in order to see how feedback on achievement influences self-efficacy. We examine Bandura’s (1997) claim that self-efficacy is malleable and that enactive mastery experience is an influential source of information that is used in the formation of self-efficacy beliefs. More precisely, we wanted to see if the receipt of summative enactive mastery information in the form of a midterm grade was related to a student’s sense of self-efficacy. Bandura used the phrase “enactive mastery” to refer to the actual demonstration of ability through events and activities, such as performances, written work, or examinations. Thus, it stands in contrast to mastery that would consist of possessing a skill or ability, but not using it in a given context.

Educational researchers are increasingly recognising the importance of non-cognitive factors in tertiary students’ learning (Byrne, Flood, & Griffin, 2014; Dull, Schleifer, & McMillan, 2015; Lipnevich, Preckel, & Roberts, 2016; Ravenscroft, Waymire, & West, 2012). For more than three decades, social cognitive theory (SCT) has been used to explore the intertwined nature of cognitive, environmental, and behavioural aspects of life (Bandura, 1986, 2011). Self-efficacy is a main construct within SCT, and is an example of a non-cognitive variable that is related to achievement (Kaves, 2002; Paunesku et al., 2015).

Extensive research has shown a relationship between self-efficacy and the academic achievement of university students (see, e.g., Galyon, Blondin, Yaw, Nalls, & Williams, 2012). As a result, questions have been asked about the antecedents and malleability of such beliefs. Bandura (1994) argued that self-efficacy beliefs are malleable, though they become less so once firmly established. He further contended that there are four main sources of self-efficacy: enactive mastery, verbal persuasion, vicarious learning, and physiological and affective states. This study investigates one of these sources: enactive mastery information, and its relationship to the self-efficacy beliefs of accounting students.

In the next section of the paper, we offer a review of literature related to sources of self-efficacy beliefs and describe the development of a matrix of self-efficacy beliefs for tertiary students. Next, we identify our research hypotheses, describe our method, and present and discuss our results. We then conclude with a summary of our key findings.

\textsuperscript{*} The empirical study was conducted at the University of Otago, Dunedin, New Zealand.

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2. Influences on self-efficacy

There has been substantial work undertaken in education and psychology investigating non-cognitive factors of academic success (Heckman & Rubinstein, 2001; Kayes, 2002; Lipnevich et al., 2016; Richardson, Abraham, & Bond, 2012). Paunesku et al. (2015) provided a valuable summary of this literature and findings. Within this literature, SCT has been used to examine non-cognitive variables. SCT is predicated on the idea that there is triadic reciprocity through different aspects of one's life: we shape and are shaped by our personal factors (cognitive, affective, and biological), our environment, and by our behaviours (Bandura 1986, 2011).

Self-efficacy is an important construct within SCT (Stajkovic & Luthans, 1979). Self-efficacy beliefs are a person's beliefs and confidence in their ability to complete a task (Schwarzer, 2014). As such, they are at the core of many aspects of human behaviour, including motivation and emotional well-being (Bandura, 1994). Furthermore, interventions in self-efficacy have been shown to influence and reduce burnout in students and help their engagement leading to higher academic success (Bresó, Schaufeli, & Salanova, 2011).

Given the importance of self-efficacy beliefs, it is natural to ask how such beliefs are formed and what might influence them. As stated above, Bandura (1977, 1994, 1997) argued that influences on self-efficacy beliefs can be divided into four broad categories. These are: enactive mastery, vicarious learning, verbal persuasion, and physiological and affective states. A student may have different levels of self-efficacy beliefs for different tasks, and these may be influenced by any of these four sources. For example, a tertiary student may get feedback on academic success from an assignment or test (enactive mastery feedback), and this information will affect the student’s self-efficacy beliefs (Dull et al., 2015).

Enactive mastery experiences are often the most powerful source of self-efficacy beliefs as they provide the individual first-hand evidence of capability (Bandura, 1997). For example, Bloom’s mastery learning theory (Bloom, 1971) is in part predicated on the notion that success in a course will lead to more confidence and more engagement on the part of students. With regard to the subject area focus of the current research, Dull et al. (2015) showed that accounting students are motivated by enactive mastery of the subject matter. The more that students receive confirmation of their enactive mastery of material, the more their self-efficacy beliefs are likely to grow. A second source of self-efficacy beliefs is verbal persuasion, whereby an individual’s self-efficacy beliefs can be altered through the use of persuasive language (Ahn, Bong, & Kim, 2016). Vicarious learning, a third source, acknowledges the power of seeing another person succeeding with whom the individual identifies (Byrne et al., 2014). It is exemplified by, “If they can do it, I can do it.” Bandura’s (1997) final source of self-efficacy beliefs concerns physiological and affective states. This relates to the influence on self-efficacy beliefs of a physical or affective change in state (Denton, Rostosky, & Danner, 2014). Within a higher education setting, this could be students who suffer increased heart rate and a dry mouth when faced with examination pressure. This physical reaction may be interpreted as evidence of low ability and failure.

Self-efficacy has attracted recent attention in the accounting education literature (Beatson, Berg, & Smith, 2016; Wyn-Williams, Beatson, & Anderson, 2016; Burnett, Xu, & Kennedy, 2010; Byrne et al., 2014; Christensen, Fogarty, & Wallace, 2002). Studies in accounting education have investigated self-efficacy beliefs focused on gender differences (Byrne et al., 2014; Fallan & Opstad, 2014), the professional environment (Subramaniam & Freudenberg, 2007), the use of technology (Lai, 2008; Stone, Arunachalam, & Chandler, 1996), and in the prediction and explanation of performance (Christensen et al., 2002; Mooi, 2006; Ravenscroft et al., 2012).

Beatson et al. (2016) examined self-efficacy beliefs in accounting students through a questionnaire, and found three distinct factors: self-efficacy in ability to do well in the course (academic success), self-efficacy in the ability to participate in the course and seek the needed help to do well (academic help seeking), and self-efficacy in the ability to structure the learning environment in order to achieve (academic organization). Any of these three factors could be influenced by any of Bandura’s (1997) four sources of self-efficacy beliefs. For example, a student may see another student excelling in study skills and habits; this may then have a positive influence on the first student with regard to organizational self-efficacy. The source in this situation is the vicarious learning, and the factor influenced is academic organization. Another example is a student who is eagerly waiting on a course assessment to be returned with a grade. If the student made some changes to the way he/she studied for this assessment, then the information provided in the form of a grade will tell the student if the new study habit “worked”.

The grade represents enactive mastery and whether positive or negative, it may impact upon the student’s self-efficacy beliefs and in turn, future study habits. The combination of Bandura’s (1997) four sources and the three factors from Beatson et al. (2016) can be combined in a matrix. The matrix in Table 1 comprises the 12 relationships that exist among the four sources of self-efficacy beliefs and the three self-efficacy factors identified by Author and her colleagues. They are phrased as research questions. Although the structure of self-efficacy beliefs in other domains may differ from the ones found in Authors’ work in accounting, this table is presented as an exemplar of how one might look at the self-efficacy factors involved in a given discipline and how they might be related to Bandua’s sources of self-efficacy. It may also be the case that the Authors matrix relates directly to other areas of learning, but we do not at present have the data to make such a claim affirmatively.

In the research presented here, we focus on the enactive mastery aspect of Bandura’s theory. This paper offers an alternative to studies of self-efficacy in higher education that consider the impact that self-efficacy beliefs have on academic success. In contrast, we explore the impact of performance feedback on students’ self-efficacy beliefs as they progress through a course of study. Feedback has been shown to help keep students engaged and increase their learning of the course content (Giinig, 2013; Juwah et al., 2004; Nicol, 2010). The enactive feedback that students received in the study presented here was in the form of a grade on participants’ mid-term examination. The examination represents the mastery of the material in the first half of the course. According to Bandura (1997), it should be a powerful source of subsequent self-efficacy for students. Receiving grades is an expected part of the academic semester, indeed, it is very rare to see a course run at tertiary level with no internal assessment and feedback delivered (Falchikov, 2013; Wiggins, 1998). Anecdotal and theoretical evidence is plentiful regarding the importance of assessment from a student perspective (Apostolou, Dorminey, Hassell, & Rebele, 2017; Beatson et al., 2016; Wiggins, 1998). Our goal here is to provide objective evidence to our understanding of the relationship between a powerful form of enactive mastery and subsequent student self-efficacy.

2.1. The present study

The research presented in this paper investigates the first column of the self-efficacy/sources matrix presented in Table 1: Is enactive mastery feedback positively related to students’ self-efficacy beliefs in the factors of academic success, academic help-seeking, and academic organization? This is important as several studies (Beatson et al., 2016; Bong & Clark, 1999; Burnett et al., 2016; Byrne et al., 2014; Christensen et al., 2002; Sullivan & Guerra, 2007; Zimmerman, 1995) have shown that students who have high self-efficacy beliefs in the above factors tend to do better academically than those with lower self-efficacy beliefs. Thus, the hypotheses for this study are as follows:

H1. Enactive mastery feedback in the form of mid-term examination results is positively related to student self-efficacy beliefs concerning academic success.
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