# The contribution of assessment experiences to student teachers' self-efficacy in competence-based education

Mart van Dinther [a], [*], Filip Dochy [a], Mien Segers [b]

[a] *Department of Educational Sciences, Katholieke Universiteit Leuven, P.O. Box 03772, B-3000 Leuven, Belgium*
[b] *School of Business and Economics, Maastricht University, P.O. Box 616, 6200 MD Maastricht, The Netherlands*

## HIGHLIGHTS

- We studied how assessment experiences contribute to student teachers' self-efficacy.
- This research focuses on the assessment characteristics authenticity and feedback.
- Authenticity and feedback positively influence student teachers self-efficacy.
- Student teacher self-efficacy is influenced during all portfolio assessment phases.
- Results provide a fine-grained view of several types of self-efficacy information.

## ARTICLE INFO

## ABSTRACT

Earlier research argues that educational programmes based on social cognitive theory are successful in improving students' self-efficacy. Focussing on some formative assessment characteristics, this qualitative research intends to study in-depth how student teachers' assessment experiences contribute to their self-efficacy. We interviewed 15 s year student teachers enrolled in a competence based teacher educational programme. Thematic content analysis results reveal that the assessment characteristics 'authenticity' and 'feedback' exert a positive influence on student teachers self-efficacy during all phases of the portfolio competence assessment. The results provide a fine-grained view of several types of self-efficacy information connected with these assessment phases.

© 2015 Elsevier Ltd. All rights reserved.

## 1. Introduction

Cross-national research findings (Jensen, Sandoval-Hernández, Knoll, & Gonzalez, 2012) have demonstrated that on average, nearly 10% of teachers in the first 1–3 years of their teaching leave the profession. In addition, the research findings also questioned the effectiveness of new teachers compared to experienced teachers by showing that new teachers provide less actual teaching and learning time in their classes than their experienced colleagues do. This finding is related to new teachers' low self-efficacy.

Moreover, lower academic results of students are associated with low teacher self-efficacy (see e.g. Muijs & Reynolds, 2001; Ross, 1998; Woolfolk Hoy & Davis, 2006).

A vast amount of research points at the central role of teachers' self-efficacy, usually defined as '*their belief in their ability to have a positive effect on student learning*' (Ashton, 1985, p. 142), in teaching competence and teaching effectiveness (Tschannen-Moran & Woolfolk Hoy, 2001; Woolfolk Hoy & Davis, 2006). According to Bandura (1997) and Woolfolk Hoy and Burke-Spero (2005), teacher self-efficacy may be most malleable during teacher preparation and the first years of teaching. Paying attention to the development of a strong sense of efficacy among novice teachers and student teachers seems to be worthwhile, because once established the self-efficacy of experienced teachers seems resistant to change (Woolfolk Hoy & Burke-Spero, 2005). Social cognitive theory (Bandura, 1997) claims that teachers' self-efficacy can be created by four main sources of

* Corresponding author. Department of Pedagogical Studies, Fontys University of Applied Sciences, P.O. Box 347, 5600 AH Eindhoven, The Netherlands. Tel.: +31 8778 78810; fax: +31 8778 76588.
*E-mail addresses:* M.vandinther@fontys.nl (M. van Dinther), Filip.Dochy@ppw.kuleuven.be (F. Dochy), M.Segers@maastrichtuniversity.nl (M. Segers).

information, namely enactive mastery experiences, vicarious experiences, verbal persuasions and physiological and affective states. Research in higher education (see e.g. Palmer, 2006; Van Dinther, Dochy, & Segers, 2011) evidenced the relevance of these sources for improving students' self-efficacy. Nevertheless, the way students select and interpret the information derived from these sources is an unexplored area in self-efficacy research.

Formative assessment, which refers to assessment that specifically intends to generate feedback on students' achievements to improve student learning (Nicol & Macfarlane-Dick, 2006; Sadler, 1998), has the potency to provide students with several types of self-efficacy information. Recent research results reveal (Van Dinther, Dochy, Segers, & Braeken, 2014) that student perceptions of formative assessment do predict student self-efficacy. Particularly student perceptions of the form authenticity aspect, i.e. the resemblance of assessment to the future teaching profession (Gulikers, Bastiaens, & Kirschner, 2006) and the quality of feedback showed to be the best predictors. The influence of this type of perceptions confirm, as stated by social cognitive theory (Bandura, 1997; Britner & Pajares, 2006), the essential role that enactive mastery experiences and verbal persuasions play in building students self-efficacy beliefs. However it is not yet clear how in students' experiences these assessment characteristics contribute to their self-efficacy.

Among researchers investigating educational contexts there is an international and lasting interest in the role self-efficacy plays in the learning process (Kleinsasser, 2014). Considering the state of the art in self-efficacy research and the relevance of providing student teachers with a strong self-efficacy, the purpose of this paper is to study in-depth how student teachers' assessment experiences contribute to their self-efficacy.

## 2. Student teachers' self-efficacy

The idea that teachers' beliefs about their capabilities as teachers are of interest, has been studied for several decades. Teachers' self-efficacy is a special type of self-efficacy which refers to '*beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments*' (Bandura, 1997, p. 3). Within the educational field, the meaning and measure of teachers' self-efficacy has been the focus of many research studies. Teacher self-efficacy is usually defined as "teachers' beliefs in their ability to have a positive effect on student learning" (Ashton, 1985, p. 142) or as "a judgment of his or her capabilities to bring about desired outcomes of student engagement and learning, even among those students who may be difficult or unmotivated" (Tschannen-Moran & Woolfolk Hoy, 2001, p. 783). There is a considerable amount of research findings pointing at its central role in teaching competence. For example, regarding classroom management, highly efficacious teachers incline to less controlling and more humane behaviour in handling their students than less efficacious teachers (Chacon, 2005; Woolfolk & Hoy, 1990; Woolfolk, Rosoff, & Hoy, 1990). Regarding instruction, compared to less efficacious colleagues, highly efficacious teachers are apt to divide the class for small group instruction and direct teaching (Gibson & Dembo, 1984; Muijs & Reynolds, 2001), spend more time in interactive instruction (Smylie, 1988) and demonstrate higher levels of planning and organisation (Allinder, 1994). Furthermore teachers' self-efficacy is frequently associated with student educational outcomes. For example Caprara, Barbaranelli, Steca, and Malone (2006) found, controlling for previous levels of achievement that teachers' self-efficacy affected student academic achievements in a positive way. Concerning reading skills (Ross, 1998) and mathematics (Muijs & Reynolds, 2001; Ross, 1998), researchers demonstrated that students guided by teachers with high self-efficacy performed

better than students guided by less efficacious teachers. Considering this substantial amount of research findings, it seems important for prospective teachers to develop a robust self-efficacy. However, cross-national research (Jensen et al., 2012) revealed that new teachers reported significantly lower levels of self-efficacy than experienced teachers.

Referencing the target group of this study, student teachers, Bandura (1997) states that their self-efficacy is most pliable at an early stage of the learning process. Students who enter the first year of the teacher educational programme have an early global or general idea of teaching and teaching competences. This early global concept is based on prior knowledge, teaching experiences drawn from their student role and, in general, very limited or no teaching experience as a teacher. First year student teachers encounter new teaching experiences, they interpret these experiences and that forms a new and better understanding of the teaching practice and required teaching competences. In line with Schunk and Meece (2006) who state that students' school experiences help shape their self-efficacy beliefs, it is plausible that the development of teacher competences runs parallel with the development of first year student teachers self-efficacy. This implies, according to the theoretical assumption of Eccles, Wigfield, and Schiefele (1998), that first-year student teachers enter the first-year programme with a more global undifferentiated teacher self-efficacy. As students have more teaching experiences a differentiation takes place from a broad understanding to a partly differentiated self-efficacy (Van Dinther, Dochy, Segers, & Braeken, 2013), finally leading to a more fine-grained sense of teacher efficacy (Duffin, French, & Patrick, 2012; Poulou, 2007).

According to social cognitive theory (Bandura, 1997; Tschannen-Moran & Woolfolk Hoy, 2007) students develop their self-efficacy by interpreting information from four sources: enactive mastery experiences, vicarious experiences, verbal persuasion and physiological and emotional states. Enactive mastery experiences are the most powerful source of self-efficacy information and refer to authentic successes in carrying out particular tasks within particular situations. In general, experiences interpreted as successful raise students' self-efficacy and experiences interpreted as unsuccessful lower it. Next to this source, self-efficacy appraisals are partly affected by vicarious experiences, which refers to observational experiences provided by social models. Verbal persuasion and allied types of social influences serve as the third source of strengthening self-efficacy beliefs, by expressing faith in one's capabilities through encouragement and evaluative feedback. In the construction of self-efficacy beliefs, students rely partly on indicators of e.g. excitement, tension and stress transferred by physiological and affective states. This forms the fourth source of efficacy information.

Self-efficacy information that arises from these sources does not affect self-efficacy directly because it is cognitively appraised. This cognitive appraisal involves the selection of the type of information which students use from the different sources, as indicators for self-efficacy. Furthermore it involves the rules students use to weigh, interpret and integrate the self-efficacy information into creating their self-efficacy. This inferential process goes along with personal and situational factors such as previously created self-efficacy beliefs, perceived task difficulty, effort spent, support received during the task and the outcome of the task (Bandura, 1997; Britner & Pajares, 2006).

In the 1980s researchers started to examine the potency of these sources of self-efficacy information by investigating the situational and instructional factors within educational contexts that could possibly affect students' self-efficacy. The results within the elementary and secondary school settings demonstrated that factors such as goal setting (see e.g. Schunk, 1996), modelling (Relich, Debus, & Walker, 1986), feedback (Schunk, 1995), task strategies