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Team learning and its association with the implementation of competence-based education

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HIGHLIGHTS

- Team learning is associated with the implementation of competence-based education.
- Information processing facilitates the implementation of competence-based education.
- Disagreement about competence-based education is higher in larger teams.
- Task interdependence and storage and retrieval facilitate agreement in teams.

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ABSTRACT

Competence-based education (CBE) is the leading paradigm for education reform of Vocational Education and Training in European countries. This study addresses the association of collective team identification, task interdependence, team learning, and team size, with the implementation of CBE (N = 1008 teachers, 93 teams). Information processing in teams was positively associated with the implementation of CBE. Furthermore, trends revealed that information storage and retrieval, task interdependence, and smaller team sizes were associated with less disagreement within the team about the CBE-level of the educational program. These results provide further insight into the importance of team learning for education reform.

1. Introduction

Competence-based education (CBE) has become the leading paradigm for education reform in the Vocational Education and Training (VET) sector in many European countries (e.g., Biemans et al., 2009; Brockmann, Clarke, Méhaut, & Winch, 2008; Sturing, Biemans, Mulder, & De Bruijn, 2011; Wesselink, 2010). CBE is an educational paradigm in which the competences (e.g., skills, knowledge, and attitudes) needed in later professional practice form the basis for curriculum development instead of academic subjects, such as English or mathematics. By taking vocational competences as the starting point for curriculum design, learning becomes more meaningful for students and the transition from school to work is facilitated. It is therefore expected that CBE increases the employability and motivation of students and minimizes student dropout (Biemans et al., 2009).

The transition to CBE has not gone smoothly (Truijen, Sleegers, Meelissen, & Nieuwenhuis, 2013). Because courses in CBE require integration of theory and practice and of different subjects, teachers specialized in different disciplines need to take part in interdisciplinary teacher teams that are collectively responsible for enabling students to acquire the required competences (Wesselink, Dekker-Groen, Biemans, & Mulder, 2010). These competences are not exclusively focused on technical skills or knowledge, but also include communication or language skills that are needed to function successfully within society and the future profession. This implies that more general subjects such as (foreign) languages need to be adapted to a vocational-specific context so that students learn to communicate adequately within the context of a selected occupation and hence this requires that teachers from different

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disciplines work together to implement and deliver the educational program. However, because traditionally teaching is often approached as an isolated task instead of a team responsibility, teacher teams are not easily implemented (Gajda & Koliba, 2008).

In addition to taking vocational competences as the starting point of curriculum development, in CBE students are encouraged to take responsibility for their own learning process, such as determining own study pace (Van der Sanden, De Bruijn, & Mulder, 2003; Wesselink, Van den Elsen, Biemans, & Mulder, 2007). Teaching roles therefore become more complex as teachers need to take on the role of coach instead of solely focusing on knowledge transmission. Previous research has demonstrated that teachers often struggle to get their daily teaching practice in line with the curricular changes of CBE (e.g., Misbah, Gulikers, Maulana, & Mulder, 2015).

Nevertheless, working in teacher teams might promote the successful transition toward CBE. For example, collaboration among teachers has been positively associated with adopting student-centered teaching strategies and students' achievement (for a review see Vangrieken, Dochy, Raes, & Kyndt, 2015). However to facilitate the implementation of CBE, simply forming teacher teams might not be enough. Within the team, teachers need to engage in team learning activities, such as sharing and discussing their expertise and pedagogical views on teaching and the educational program (Havnes, 2009; Meirink, Imants, Meijer, & Verloop, 2010). The level of team learning that can be achieved, is likely to be determined by the extent to which teacher teams are able to operate as a team, such as their level of task interdependence, identification with the team (Vangrieken et al., 2015), and team size (Rentsch & Klimoski, 2001).

In the current study we investigate how task interdependence, collective team identification, and team size are associated with participation in team learning activities, and how this in turn affects the implementation level of CBE in educational programs. Before presenting the design and results of the present study, we first describe the role of CBE in general and in the context of VET in the Netherlands. Second, we discuss team learning and how it might be associated with the implementation of CBE in educational programs. Finally, we explain how task interdependence, collective team identification, and team size might affect team learning and subsequently the implementation of CBE.

2. Competence-based education in the Netherlands

2.1. Competence-based education

Competences are seen as integrated performance-oriented capabilities that include the knowledge, skills, and attitudes that are required for the performance of a task (Mulder, 2001). Wesselink et al. (2007, 2010) developed a framework to determine the extent to which educational programs are designed according to CBE principles. This framework was further tested and refined by Sturing et al. (2011). Within this framework, CBE is characterized by four content and six instructional features. Content principles of CBE state that (1) vocational core problems should be the organizing unit for the (re)design of the educational program and that (2) the competences for the study program should be defined. In addition, it is stressed that (3) knowledge, skills, and attitudes should be integrated in the learning process and assessment. Moreover, (4) in CBE a basis for a lifelong learning attitude needs to be realized not only by focusing on competences needed for job performance, but also by paying attention to acquiring career and citizenship competences and communication and learning skills.

The instructional principles describe *how* CBE should be implemented. Specifically, instructional principles emphasize (1) the role of regular assessment (i.e., before, during, and after the learning process), (2) learning in different authentic situations, offering students opportunities for (3) self-reflection, and (4) self-directed learning. Moreover, instructional principles include (5) the adjustment of guidance to students' learning needs. To this end, teachers need to be able to fulfill the roles of both expert and coach. Finally, (6) the flexibility of the educational program is included in the CBE framework. Flexibility refers to the opportunity for students to perform learning activities at their own pace and alter the program for their specific needs.

Many European countries have implemented CBE in their VET sector (Mulder, Weigel, & Collins, 2007) as it is believed that CBE will help to bridge the gap between the labor market and education (Biemans et al., 2009). Moreover, CBE principles are aligned with European education policies that advocate that students do not only need to obtain domain-specific knowledge and skills, but also need to be prepared for lifelong learning given the fact that the knowledge and skills required to do their jobs evolve as a function of today's fast changing environments (European Commission, 2001; Organisation for Economic Co-Operation and Development, 2013). For these reasons, the Dutch government (n. d.) requires all VET institutes to adopt a competence-based qualification structure. Nevertheless, as yet it is unclear whether CBE can fulfill its goals in terms of reduced dropout, increased motivation, and development of lifelong learning skills and the usefulness of CBE has been debated (e.g., Hirtt, 2009).

2.2. The Dutch context

In the Dutch educational system two routes can be identified after primary education that lead to either university or a job: the general education and vocational education route. The vocational educational route consists of preparatory secondary vocational education (4 years, age 12–16 years) and senior secondary vocational education (1–4 years; age 16 years and older; see Wesselink et al., 2007). In the current study we focus on the senior secondary vocational education sector (MBO in Dutch).

Since August 2012, all Dutch senior secondary VET institutes have adopted a competence-based qualification structure (Dutch government, n. d.). Each profession has its own qualification structure that is similar for all VET institutes that offer training in that profession. The competence-based qualification structure for VET educational programs are developed by knowledge centers that aim to improve the quality of vocational education by establishing connections between education and professional practice.

VET institutes use the qualification structures to organize and design their curricula. Although all senior secondary VET institutes in the Netherlands have to adopt the competence-based qualification structure, in practice teacher teams have autonomy in *how* these competences are taught. Therefore, teacher teams differ in the extent to which they implement CBE principles in their curricula (Sturing et al., 2011; Wesselink et al., 2007, 2010).

3. Team learning in teacher teams

In general, a team can best be defined as three or more individuals who are interdependent in their tasks and share responsibility for the outcomes (Cohen & Bailey, 1997; Kozlowski & Ilgen, 2006). Teams see themselves and are seen by others as a social entity embedded in a larger social system (e.g., VET institute), with connections to a broader system context (e.g., government) and task environment that drive team task demands. In the current study, teacher teams are defined as consisting of at least three teachers who are collectively responsible for the design and delivery of the same educational program in a VET institute.