What makes teacher teams in a vocational education context effective?

A qualitative study of managers' view on team working

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Abstract

Purpose – At a time when secondary vocational education is implementing competence-based education (CBE) on a large scale, to adapt to the needs of students and of the labour market in a modern society, many vocational schools have recognised that interdisciplinary teacher teams are an important condition for this implementation. In order to provide students with the right competences for the labour market, different subject teachers should work and learn together and, by doing so, should be able to develop changes and improvements to ensure the effective implementation of CBE. In spite of the appeal of forming teacher teams in vocational education, studies on this subject show that teams in educational settings are not easily implemented. This paper aims to address this issue.

Design/methodology/approach – In this study, 28 managers from a Vocational Education and Training (VET) college in The Netherlands were interviewed in order to find factors that are related to effective team functioning. The authors choose to rely on a qualitative approach, because there has hardly been any empirical validation of factors that are related to effective team functioning in a vocational education context. In order to determine what factors influence team effectiveness, the results from the interviews have been related to what is known about team effectiveness from the literature.

Findings – By relating the results from the interviews to what is known about team effectiveness from the literature, a framework for future research on team effectiveness in schools is provided. In line with the organisational and psychological literature on team effectiveness, the managers distinguished several aspects in their definition of team effectiveness. Moreover, the findings of the study highlight the importance of the development of task interdependence, transformational leadership, and group efficacy for producing effective teams in education.

Originality/value – Although teams and team functioning have been the focus of researchers from different disciplines and have been studied from different perspectives, studies on the conditions that support or limit the successful implementation of teacher teams in vocational education are still scarce. The results of this study are expected to provide a deeper understanding of the mechanism that underlies the ability of teacher teams in vocational education to function effectively.

Keywords Team building, Team working, Education

Paper type Case study

Secondary vocational schools in the Netherlands are increasingly reshaping the delivery of the instruction and coaching of their students into a team-based organisational structure. Instead of being responsible for instruction in one or two subjects, teachers are part of an interdisciplinary team, in which they have to collaborate with other team members to teach students the necessary competences to become a professional in their chosen occupation. As secondary vocational schools are required to design all their courses based on Competence-Based Education (CBE), these teacher teams are expected to be essential to ensure the implementation of CBE, so as to improve the quality of education. CBE has its origin in the European ambition to become the most dynamic and competitive region in the world (Lisbon, 2000). In order to attain this goal, the Dutch government decided to improve the level of its vocational education by changing the way teaching and learning was organised, and assumed that CBE would contribute highly to this improvement. CBE implies an integration of different subjects within courses, and an integration of theory and practice (Ritzen, 2004). Vocational qualifications should consist not just of specific skills, but of "competencies" as well: the qualifications needed to practise a certain profession in an actual work situation (Basoski *et al.*, 2009; Biemans *et al.*, 2004; Van der Meijden *et al.*, 2009; Van Merriënboer *et al.*, 2002). Effective CBE requires the synergy of teachers from different disciplines. Teachers are therefore organised into interdisciplinary teams, responsible for the educational programme of one or more particular subgroups of students.

Moreover, research emphasises that the introduction of teacher teams could stimulate the professional development of teachers (Pelkmans and Smit, 1999; Van de Venne *et al.*, 2001). It is assumed that working intensively together with colleagues stimulates the learning and sharing of knowledge and expertise (e.g. Newmann *et al.*, 2001). Research also demonstrates that, by working in teacher teams that have a certain level of authority and responsibility, educational reforms can be dealt with more efficiently than in traditional, hierarchical educational settings (Porter-O'Grady and Wilson, 1998). Hierarchical educational settings are characterised by the centralisation of authority, which might constrain the organisation's flexibility. Within a team-based organisational structure, decisions and authority no longer rest with a small number of key figures that are high up in the organisation's hierarchy. Rather, there is a flatter hierarchy, in which leadership is much more evenly distributed throughout the educational setting, which allows for better adaptability and continual adjustment (Gronn, 2000; Mayrowetz *et al.*, 2007; Spillane *et al.*, 2001).

In spite of the appeal of forming teacher teams in vocational education, studies on this subject show that teams in educational settings are not easily implemented (e.g. Crow and Pounder, 2000; Scribner *et al.*, 2007; Somech and Drach-Zahavy, 2007). For example, research shows that the level of participation in and contribution to the completion of a team task can be unevenly distributed among teachers. The reason for this is a lack of support for teamwork. This is a recurrent problem with teams in schools, because teaching has always been characterized by a high degree of individual autonomy in the exercise of the profession (Clement and Vandenberghe, 2000). Traditionally, contact between teachers was rather limited, because they performed most of their work (teaching a class) independently. As a result, teachers mostly developed their careers independently of their colleagues (Somech and Bogler, 2002). Teamwork demands a much more intensive form of cooperation and involvement than

most teachers have been used to in the past and requires a "cultural shift" for both teachers and managers. The degree of autonomy and joint responsibility for team results is new to many teachers. The question is how this can be changed and how teacher teams can be more effective in reaching the goals of competence based vocational education.

In this study, we interviewed 28 managers from a Vocational Education and Training (VET) college in the Netherlands, in order to find factors that are related to effective team functioning. We interviewed managers, because they are responsible for the functioning of the teacher teams. Although the teacher teams are expected to function relatively autonomously in deciding how to conduct the training of a group of students, in most cases, the manager is responsible for putting the teams together, connecting the teams' goals with the public assignment of the VET college and creating optimal working conditions for the team to work effectively.

Teacher team effectiveness models

The framework that is used to guide our qualitative study is the Input-Process-Outcome (IPO) model as developed by McGrath (1964). This model is one of the most comprehensive models that has guided research on team effectiveness for over 40 years. It has been used in very many studies from a number of disciplines on team effectiveness, including studies on teacher teams (e.g. Somech and Drach-Zahavy, 2007). In the IPO model, team effectiveness (outcome) is considered to be influenced by both input and process factors. The inputs or antecedent factors enable members' interactions and include factors such as individual team member characteristics (e.g. competencies, personalities), team-level characteristics (e.g. task structure, external leader influence), and organisational and contextual factors (e.g. organisational design features, environmental complexity). These various input factors combine to drive team processes. Process factors describe the interaction between team members and refer to the activities of the team which transform the inputs into outcomes, for instance information exchange or collaboration. The outcomes (team effectiveness) refer to the results and by-products of team activities. Researchers have applied many criteria to define the effects of the input and process factors on team effectiveness (Crow and Pounder, 2000; Somech and Drach-Zahavy, 2007; Van den Bossche, 2006). In general, three categories of criteria for measuring team effectiveness have been distinguished: team performance (e.g. standard of quality), social criteria (e.g. capability of team members to work together in the future: team viability), and personal criteria (e.g. team members' personal well-being) (e.g. Hackman, 1990). It is important to include social and personal criteria in a definition of effectiveness, because Hackman argues that a team that carries out its task well, but is unable to work together in the future, is not an effective team. The stability of a team where members are able to work together well and feel committed to the team is also an important indicator of effectiveness. Moreover, team innovation is often taken as a dimension of team effectiveness in educational settings (Somech and Drach-Zahavy, 2007). Team innovation is the introduction or application within a team of ideas, processes, products or procedures that are new to the team and that are designed to be useful (West, 2002).

Building on the general IPO model, Hackman and Oldham (1980) proposed that the level of effort, knowledge and skills, and performance strategies of teams and team

members are process criteria of effectiveness. Several features of the team and its context can lead to improvements in these process criteria. In particular, Hackman and Oldham proposed three classes of input variables: organisational context factors (e.g. the reward, education and information system), work design factors (e.g. the structure of the group task, the composition of the group and group norms), and healthy interpersonal process factors. Conley *et al.* (2004) used Hackman and Oldham's model to study interdisciplinary teams in middle schools. Findings indicate that two fundamental variables, knowledge and skills applied to the work and performance strategies, are core mediators (processes) in the model. These results suggest that team effectiveness is influenced by the degree of specialised skill and knowledge members bring to bear on tasks and on performance strategy. Two healthy interpersonal process factors were also found to have direct effects on perceptions that teaming had improved teaching and learning. Specifically, weighting/balancing inputs and implementing strategies have a direct effect on teaching and learning effectiveness. Conley *et al.* have shown that, as in previous research (Crow and Pounder, 2000), teachers who perceive their team to be highly participatory and team members to be comfortable sharing ideas, report favourable team outcomes. Recently, Somech and Drach-Zahavy (2007) have found that frequency of meetings and functional heterogeneity (input factors) are positively associated with the four interaction processes: exchanging information, learning, motivation and negotiation, which, in turn, lead to team innovation. Moreover, their study indicates that frequency of meetings is positively associated with exchanging information, which, in turn, enhances team performance.

In this study, we have also chosen to use the general IPO model as a guide to our qualitative study, to categorise factors important for team effectiveness in a vocational education context. We examined what is considered to be team effectiveness and what input and process factors are mentioned in that respect.

Method
Procedure and sample
The aim of this study is to find out which factors are related to effective team functioning in vocational education. We choose to rely on a qualitative approach, because there has hardly been any empirical validation of the factors that are related to effective team functioning in a vocational education context. Therefore, we want to keep an open mind to factors not yet covered by research. However, data collection should be neither entirely unstructured nor spontaneous. The components of the IPO model as described previously were used as a basis for guiding the data collection.

To get insight into the components of the IPO model, semi-structured interviews, one of the most important data collection instruments in qualitative research, were used (Creswell, 1994; Swanborn, 1996). We interviewed 28 managers from one VET college in the Netherlands. This VET college provides vocational education and training in about 20 different branches, covering different vocational areas. At present, the VET college chosen for this study has more than 22,000 students and about 2,000 employees. The school was in its second year of the implementation of teacher teams. In the VET college teachers are organised into interdisciplinary teams, responsible for the educational programme of one or more particular subgroups of students. These groups consist of students enrolled in a programme for a specific field of work, such as

mechanical engineering or nursing. The teacher teams are expected to function relatively autonomously in deciding how to conduct the training of a group of students. Each teacher team usually has a manager (i.e. head of department) as their formal executive. In most cases, the manager is responsible for putting the teams together, connecting the teams' goals with the public assignment of the VET college and creating optimal working conditions for the teams to work effectively. We interviewed 28 managers, who were responsible for the teams from different sectors and departments (see Table I). The semi-structured interviews gave us the opportunity to gather detailed data about the factors that affect effective team functioning. Each manager was interviewed individually. The interviewee were reassured that the interviews were unrelated to any form of performance evaluation, and that the results would only be used for scientific purposes.

The interviews started with some general background questions. Next, questions were asked arising from the components of the IPO framework of McGrath (1964). The interviews focused on managers' perceptions of the effectiveness criteria of teams (outcomes) and the input and process factors. To generate explanations and elaborations, managers were asked to illustrate their statements with concrete examples. On average, the interviews in this study took between 45 minutes and one hour. All interviews were tape-recorded and transcribed verbatim. We applied triangulation to enhance the validity of the data (Krathwohl, 1998). Miles and Huberman (1994) argue that triangulation is supposed to support a finding by showing that independent measures of this finding agree, or at least do not contradict each other. In this study, investigator triangulation was applied to our data by carrying the analysis by two researchers. The first author of this paper categorised the transcripts into the three broad foci of attention: input factors, process factors and outcomes. After categorising all the transcripts, the first author trained a student-assistant to code and categorise together the transcripts further. When the student was not sure about a code, she discussed it with the first author. After coding all the transcripts, we calculated the inter-rater reliability of the coding. We compared 60% of the transcripts coded by the student-assistant with the coded transcripts of the first author. The inter-rater reliability (Cohen's Kappa) was found to be 0.8, which in general is regarded as highly reliable (Miles and Huberman, 1994). The next section presents our findings.

Results
Team effectiveness
The interviews reveal that, according to the managers, team effectiveness consists of more than one aspect. The managers tended to focus on three elements of team effectiveness: performance, viability (members' ability to work together) and team innovation.

With respect to team performance, managers mentioned aspects that are relevant, to the teams in question and to the entire VET college. Managers mentioned for example: "Returns concerning student numbers and absence rates are substantial", "Number of graduates" and "Student and company satisfaction". Managers also spoke of aspects concerning the quality of the primary process. "The primary process is important"; "We should be explicit in what we consider to be good education"; "Think about what competency-based education entails, then shape it and adjust it where needed". Moreover, managers emphasised that teams within vocational education should coach

Manager	Sectors	Departments	Number of teacher teams	Team size (number of members)
1	Hotel and catering industry and hospitality management	Hotel and catering industry	3	15-20
2	Hotel and catering industry and hospitality management	Hair care	2	6-20
3	Hotel and catering industry and hospitality management	Recreation	2	10-16
4	Hotel and catering industry and hospitality management	Cosmetics	2	10-15
5	Hotel and catering industry and hospitality management	Sports	2	9-12
6	Hotel and catering industry and hospitality management	Tourism	1	6
7	Technology	Construction	6	8-12
8	Technology	Media	2	10
9	Technology	Automotive industry	8	6-10
10	Technology	Mechanical engineering	5	10-12
11	Care and welfare	Healthcare	3	10-12
12	Care and welfare	Social care	5	6-10
13	Care and welfare	Laboratory sciences	1	30
14	Care and welfare	Pedagogical work	2	12-35
15	Care and welfare	Arts	1	15
16	Care and welfare	Teacher assistant	3	4-35
17	Care and welfare	Social work	2	12-20
18	Care and welfare	Nursing	4	10-12
19	Care and welfare	Care	3	12-14
20	Economics	Security	4	7-18
21	Economics	Business studies	4	4-10
22	Economics	IT	3	5-10
23	Economics	Business administration	5	5-10
24	Economics	Marketing economics	3	7-10
25	Economics	Commercial economics	2	7-18
26	Adult education	Dutch grammar and vocabulary (Dutch as a second language)	5	10-15
27	Adult education	Secondary education course	4	10-15
28	Adult education	Secondary education course	4	15

Table I.
Managers interviewed

and help students in their individual development. On this topic, managers said the following: "Supervise students on their way to a diploma".

In addition to the previous aspects of performance, managers indicated aspects of team effectiveness that refer to the viability of teams. The analysis shows that 50 per cent of the managers stressed the importance of committed members or, in other words, the ability of team members to work together. Managers mentioned that an effective team is a team that works together smoothly. One manager said: "What will always be most important is that people working in teams have to be willing and able to work together; a group's chemistry is vital".

Finally, managers also mention team innovation as an important aspect of team effectiveness. The managers felt it was very important for teams to keep track of educational developments. Other aspects that were touched upon in the light of these developments were taking the initiative and searching for new ideas and "looking around". However, managers did notice that teams tended to have difficulties with being innovative. As one manager put it: "Teams rely heavily on traditional education with a veneer of competency-based education". This quote shows that teacher teams may find it difficult to implement new forms of education.

In accordance with the literature, our findings show that, according to managers in secondary vocational schools, team effectiveness refers to a combination of team performance, viability and team innovation.

Influences on team effectiveness
Input. From the interviews, a number of input factors can be deduced. The interviews with managers show that the size of a team is important for team effectiveness. Most of the current teams consist of six to ten members. Based on their experience the majority of managers preferred a team of this size to a larger one. One manager indicated: "If a team is too big, some teachers will withdraw. A team consisting of more than ten people is too large, and will result in teachers getting lost in the crowd ". Apart from that, the managers argued that it was not merely group size that was important for an effective team, but team members' characteristics as well: "In fact, it's the type of teacher that determines a group's effectiveness". It was considered an advantage when team members had the same educational view and motivation, and when there was an equal distribution of younger and older, and male and female team members. Younger teachers were said to adopt educational innovations more easily, although one manager did mention: "[...] you shouldn't be too harsh on older teachers, since they bring in a certain calm and expertise – so that's the other side of the story".

Furthermore, the analysis reveals that leadership in a team is an important theme. The managers indicated that, although teams were expected to assume a certain responsibility for managing themselves and their tasks, they did not always do so. The analysis shows that 75 per cent of the managers in this study mentioned that a team could not manage itself without a leader. The managers proposed that a more informal leader should arise from the team and take an active stance, but this did not always happen: "When a team lacks a natural leader, it's impossible for a bunch of teachers to become self-reliant. Then it will just be five or six people sitting together, cackling – that would still be a chaotic structure. There has to be some kind of leadership, somehow". Apart from the importance of leadership for effective team functioning, managers also mentioned clear tasks and a common goal within the team as being

important input factors. According to the managers, everyone should know what their team is supposed to achieve collectively. One of the managers explained: "Cooperation can only be really successful when all work towards the same goal – so when everyone has the same goal".

Finally, the interviews with managers made it clear that a team cannot function properly without effective working relationships. According to the managers in this study, teachers have to know each other's roles and responsibilities, before they can work as a team. To have knowledge of the roles and responsibilities of members of a team, and to know how they will respond, helps team members in effective teamwork. At the same time, managers indicated that building these working relationships was difficult for teacher teams, as a result of limited opportunities to interact. Managers were positive about the working environment when team members were offered workplaces in close proximity to each other, as well as areas in which the team could work together. They were less satisfied with the workplaces when these were far apart, since that was said to hinder communication. Moreover, the managers stressed the importance of formal meetings as well as meetings on a more informal basis (for example communication at the coffee machine) for the effective functioning of teams. According to the managers, teachers might otherwise have a tendency to stay within their own "kingdom". So, the managers in this study agreed on the importance of having adequate working relationships for effective teamwork. To enable their teams to develop working relationships, managers preferred workplaces in close proximity to each other, in order to stimulate interaction between team members.

Processes. In the literature, processes are described as team members' interactions aimed at the accomplishment of tasks. When we look at the quotes derived from the interviews with managers, most of these concern the way managers would prefer their team members to work together. Over three-quarters of the managers who were interviewed mentioned aspects that can be classified under self-management. When discussing self-management, they spoke of the level of a team's independence necessary for good education and to a certain extent "for making decisions and solving problems autonomously. A manager said for example: 'A well-functioning team takes up tasks itself, and doesn't wait for me, the manager, to say so'. The majority of managers indicated that they were satisfied with their team's level of independence concerning teaching. However, the managers did indicate that when a problem arose, all eyes turned to the manager, whereas the focus should be on solving the problem themselves: 'All they really want to do is complain to me and have me take it from there'".

In addition to self-management, managers indicated that feedback is also important in order for teams to cooperate properly. Managers indicated that when things go wrong, teachers should address each other's shortcomings, and stick to the agreements that had been made. For example, most of the managers wanted team members to confront each other about their behaviour. It is important for managers that teachers correct each other's behaviour by providing feedback. However, the interviews prove that this is not always the case. As a manager put it: "It will never be easy for teachers to criticise each other's behaviour. However well they may be working together, distributing tasks, and however informal and friendly their contact may be, it's still tough to go up to someone and say, 'Hey, I don't think you did your job'". Another

manager, on his teams: "The amicable nature of their cooperation makes it hard for teachers to admit, 'I don't feel you did very well on this or that'".

Conclusion and discussion
The aim of this study was to detect factors that may enhance the effective functioning of teacher teams in Dutch vocational education. We interviewed 28 managers and examined what they considered to be team effectiveness and which input and process factors they mentioned that affect team effectiveness. Table II summarises our main findings.

In order to determine what factors influence team effectiveness, we have related the results from our qualitative study to what is known about team effectiveness from the literature. By doing this, we will provide a framework for future research on team effectiveness in schools.

Team effectiveness (outcomes)
In line with the literature on team effectiveness, managers tended to focus on more than one aspect when defining team effectiveness (e.g. Hackman, 1983; Kozlowski and Ilgen, 2006; Mathieu *et al.*, 2008; Zellmer-Bruhn and Gibson, 2006). For example, Hackman

Input	Process	Team effectiveness (outcomes)
Team size: managers prefer small teams (six to ten members)	Focus on the way managers would prefer team members to work together (cooperation): self-management (importance of certain level of autonomy) and giving feedback	Team performance: managers mention for example number of graduates, satisfaction of stakeholders such as students and companies and quality of primary process
Team composition: managers prefer homogeneity of educational view and motivation, equal distribution of younger and older, and male and female members		
Leadership: managers indicate the importance of an informal leader in the team providing guidance		Viability: managers indicate that it is important that a team has committed members and works together smoothly
Team tasks: managers prefer clear direction and common goals in the team		Team innovation: managers indicate that it is important to keep track of educational developments
Working relationships: managers indicate the importance of adequate working relationship or knowledge of members' roles and responsibilities		

Table II.
Summary of findings

(1983) states that team effectiveness can be subdivided into team performance on the one hand, and viability and team members' affective attitude on the other. In their definitions, managers tended to focus on the first two elements. They focused on performance and viability (members' ability to work together), but they also stressed the importance of being innovative (i.e. team innovation). Even though team performance is the most prevalent indicator of team effectiveness (Cohen and Bailey, 1997; Salas *et al.*, 2005), this study shows that criteria such as viability and team innovation should not be discarded, in order to obtain a complete picture of team effectiveness.

Input factors
When managers were asked about the factors that influence team effectiveness, the first important input factor they mentioned refers to the size of a team. According to the managers, an effective team consists of six to ten teachers. This is in line with the study into the effectiveness of teacher teams by Crow and Pounder (2000). They conclude that group size is important for team effectiveness. They argue that teachers prefer small teams (5-6 members) to larger ones (ten members or more) for coordination and planning reasons. Also, according to Hackman (2002), six members would be the ideal number. Hackman argues that members of larger teams waste a considerable amount of time on issues concerning for example planning. Moreover, the managers indicated that teachers in a team should share the same educational view, and a mix of young and older, male and female is preferred. Crow and Pounder (2000) have shown that teams with teachers who share a similar philosophy on education and are in the same phase of their careers have less difficulty planning, agreeing, deciding, coordinating and sharing activities. Still, the literature does mention certain advantages to teams consisting of people with different professional backgrounds, knowledge and skills. These teams will be more innovative than homogeneous teams (Paulus, 2000; Somech and Drach-Zahavy, 2007; West, 2002), because the integration of diverse perspectives creates the potential for combinations of ideas from different domains. This is likely to produce creative ideas.

Furthermore, the managers also emphasised clear and common goals and strong leadership within the team as important conditions for a successful team. In his book "Leading teams", Hackman (2002) underlines the importance of a clear goal. The determination of goals is often done in consultation with the team management. The extent of involvement of the manager in defining clear goals depends on the team's level of self-management. It is important for a manager to be aware of and anticipate a team's level of self-management. For example, when a team has been working together only for a short period of time, the manager will help in determining their direction. It is important for managers to realise that teacher teams do not just materialise and immediately start working together towards a common goal. Scribner *et al.* (2007) state that a team that is left to its own devices will perform below par. In helping teams in determining their direction, it is important for managers to be aware of the developmental process teams have to go through, and to be able to support their learning process and guide the teams through this process (Hackman, 2002). In the literature, this type of leadership is often designated as transformational leadership (Avolio *et al.*, 1999). Transformational leadership leads to a shared vision and trust within the team. When all team members are focused on a common goal, it may

stimulate a team's development. Team members will reflect on how to carry out their work and team processes, which will eventually lead to better team performance (Schippers *et al.*, 2008). So, the role of the manager is crucial for supporting the developmental process of teams in an effective way (Stoker, 1999).

Finally, the managers indicated that having good working relationships and interaction between team members is very important for the effective functioning of teams. Research also has shown that good working relationships and interaction between team members in teams are important for team functioning (e.g. Somech and Drach-Zahavy, 2007). Different scholars have suggested that interdependence is crucial for organising and stimulating group actions and interactions leading to effective team functioning (e.g. Van der Vegt *et al.*, 1998). Interdependence refers to the degree to which the interaction and coordination of team members is necessary for the completion of tasks. Working in teams often requires the use of task interdependence; which refers to the pattern in which team members have to exchange information and resources to complete their collective tasks in teams. However, given the autonomy and often isolated position of teachers, interaction between teachers can be a difficult issue (De Caluwé and Vermaak, 2002). Task interdependence means that teachers are dependent on each other for carrying out their work successfully (Van der Vegt *et al.*, 1998). This is the case, for example, when teachers need to obtain information or advice from each other, in order to be able to carry out their work effectively. Many studies devote attention to the isolated position of teachers, as a result of which task interdependence has difficulty getting off the ground (De Caluwé and Vermaak, 2002). Task interdependence occurs only when teachers need each other, in other words, when there is cooperation. The stronger the task interdependence between people, the more interaction there is and the more they feel responsible for each other's work (Campion *et al.*, 1993). Teachers in educational settings are typically isolated in their classrooms, with limited opportunity to interact with colleagues. The question is therefore how to ensure that interaction is encouraged. The managers underlined the importance of interaction between teachers, which they link to the working environment, which should be arranged in a way that promotes interaction between teachers. They indicated that teachers' workplaces should be in proximity to each other, because this stimulates interaction. Focusing on the operation of task interdependence in teacher teams could provide us with a new and valuable approach to understanding the effective functioning of teacher teams.

Process factors
When discussing process factors, the managers especially stressed a team's required level of self-management. The literature shows that when a team has at least the authority level of a self-managing team, this results in teachers' feeling a joint responsibility and becoming more motivated for team tasks (Crow and Pounder, 2000; Conley *et al.*, 2004; Hackman, 2002). Self-management has been suggested as a means of facilitating productive and motivated team behaviour in schools. However, the degree of autonomy and joint responsibility for team results is new to many teachers. The individualistic nature of teachers' work in the past has led to the development of personal responsibility and the authority of individual teachers in their own classes (Somech and Bogler, 2002). Clement and Vandenberghe (2000) show that such an autonomous work structure is likely to impair teachers' willingness to participate in

teamwork. So, in vocational education, where tasks were often structured for the individual teacher, the transfer to teamwork often implies a process of building motivation for teamwork. In the literature, this type of motivation is often referred to as group efficacy. Group efficacy is based on the self-efficacy construct of Bandura (1982). Self-efficacy can be defined as a person's belief in his or her capabilities to perform a task, whereas group efficacy refer to group beliefs (Bandura, 1982; Guzzo *et al.*, 1993). Group efficacy is not simply the sum of individual beliefs or their capabilities, it is "a shared belief in a collective's capabilities to organize and execute the courses of action". As such, group efficacy perceptions are future-oriented beliefs about the functioning of a collective in a specific situation or context, and can lead to the cultivation of group beliefs in "Yes, we can". Group efficacy beliefs can mobilise the motivation, cognitive resources and courses of action needed to work effectively together in a team. As such group efficacy can be regarded as a very important process factor enhancing team effectiveness (Campion *et al.*, 1993).

Recommendation for future research
The findings of our study have several important implications and directions for future research. First, as with all research, there are some limitations to this study that need to be addressed. In this study, we relied on managers' perceptions to gather our data. The issue here is not the fact that these are the perceptions of managers, since it can be argued that, in this setting, managers are responsible for the teams, and therefore reliable observers. However, for future research, it is recommended that data should be collected from multiple sources, for instance from both the managers and team members, or more objective data can be used, such as students' achievement and the number of dropouts. Moreover, the data used in this study were collected at the same point in time. In order to deal with issues of time and development, it is important to collect data at different points in time. The idea behind this is that the state of a team at any one time is especially influenced by its progress over time. Furthermore, this study was conducted in a VET-college, one may wonder if the results of the research at hand can be generalized to other VET-colleges and other educational settings without any discussion. It is not yet known whether similar results would be found in other VET-colleges and educational settings. Future studies should consider different VET-colleges, to allow generalisation to more VET-colleges.

In addition, the results of the present research have important theoretical implications. First, in line with the literature, the results indicate that, according to managers, team effectiveness within vocational education includes different aspects that refer to the results of tea activities (e.g. Hackman, 1983; Kozlowski and Ilgen, 2006). Most studies into the effectiveness of teacher teams that have been conducted until now have focused on team performance. However, the interviews and the literature suggest that, next to team performance, aspects such as viability and team innovation, may also be considered as valid indicators for team effectiveness (Hackman, 1983; Kozlowski and Ilgen, 2006). Existing research on teacher teams can be extended by including viability or team innovation, in order to add considerably to the understanding of the effectiveness of teacher teams in education. Second, several team composition factors seem to be important for effective team functioning. For example, team size and team homogeneity are an issue. Future research which aims to determine effective team functioning in a vocational education context might therefore be further

enriched by also integrating team composition factors. Third, future research could shed light on transformational leadership that, when present, might increase the probability of developing effective teacher teams. Both research literature and the results of our qualitative study show that the role of the manager is crucial. In the literature, transformational leadership is regarded as an important factor, determining the development of self-management and, eventually, even team effectiveness (Stoker, 2007). To help a team become successful and facilitate its developmental process, it is important to have a transformational leader in a team. A transformational leader can stress a team's direction and thus motivate the team to go the extra mile (Avolio *et al.*, 1999). Given the expected impact of transformational leadership on the effective functioning of teacher teams, future research should explore the relationship between transformational leadership and team effectiveness. Future research might therefore also study the concept of task interdependence in teacher teams. Task interdependence occurs only when teachers need each other, in other words, when there is cooperation (Gersick and Hackman, 1990). The managers who were interviewed stressed the importance of working relationships and stimulating interaction between teachers. In order to take the working relationships between teachers into account in future research, the concept of task interdependence may be studied, as has been done in the organisational literature. Finally, when discussing process factors, the managers especially stressed a team's required level of self-management. Self-management requires team members' active involvement (Conrad and Poole, 2002). In the literature, self-management is often related to a process of enhancing group efficacy beliefs. However, empirical support for the role of group efficacy, as one of the potential mechanisms that could explain the effective functioning of teacher teams, is still scarce. This kind of research could further help in developing an in-depth understanding of topics that are highly relevant to implementing effective teacher teams and building a team-based organisation.

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