Exploring the links between students' engagement in cooperative learning, their goal preferences and appraisals of instructional conditions in the classroom[☆]

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Abstract

Previous research suggested that social support, belongingness and mastery goals were related to the quality of cooperative learning (CL). In this in-depth study we explored how to differentiate between four effective CL teams and four ineffective CL teams, in terms of students' goals and perceptions of instructional conditions. Apart from the earlier mentioned goals we found students' preference for social responsibility, learning for a certificate and entertainment goals to be salient in the CL setting. Mastery and social responsibility goals were prevalent in effective teams, while learning for a certificate and entertainment goals were prevalent in ineffective teams. Moreover, the type of task, group composition and teacher support were mentioned as reasons for effective or ineffective CL.
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1. Introduction

In a study on the quality of cooperative learning in secondary vocational school in the Netherlands one of the students commented during an interview: "*It is just dead boring at school, I don't think I actually learn anything at all, I hope I will at least learn something in my traineeship*". This statement indicates a mismatch between students' goal preferences and the goals that are set by the school, which may result in low levels of student engagement and, eventually, in a state of disengagement. This comment points at a common problem in secondary vocational schools where the drop-out rate is alarmingly high. In the Netherlands, about 37% of the first-year students quit school (School Inspectorate, 2002). Many of these dropouts reported that they had experienced their study as uninteresting, too theoretical, too difficult and non-supportive for their future career (Voncken, Van der Kuip, Moerkamp, & Felix, 2000). Dropping out of school often is an outcome of underlying motivational problems that students experienced during their school history. We view motivational processes as an intricate part of the students' self-regulation process, namely that part that is steered by their values and goal preferences. It is generally assumed that students steer their

behavior in the direction of valued goals and away from non-valued goals (Boekaerts, Pintrich, & Zeidner, 2000). We assume that students' motivation levels at school largely depend on their perceptions of the connection between their personal goals and the school goals.

In the present in-depth study we will focus on students' engagement levels in cooperative learning settings in secondary vocational education. We refer to cooperative learning (CL) as a set of teaching principles that describe *how* students might learn from and with each other while, through working together, accomplish academic tasks (Hijzen, Boekaerts, & Vedder, 2006). This broad definition of CL captures the broad range of CL settings in secondary vocational schools. In this study the quality of CL is defined as a self-reported score on the quality of CL, and students' observed engagement scores in a CL setting. CL settings may promote students' involvement with and motivation for school and learning as well as facilitate integration and prevent discrimination, by functioning as an activity setting where students are able to connect with each other and learn from each other's abilities and skills. CL methods are also believed to foster a mastery goal orientation which is related to positive educational outcomes (Midgley & Urdan, 1992). CL is a common instructional method in secondary vocational schools in the Netherlands. Of the first-year students in secondary vocational schools, one third works up to 45 min per week on CL, one third between 45 and 90 minutes per week and one third works between 45 and 90 min per day (Hijzen, 2006). Often CL methods involve hands-on tasks, in which students can develop their professional skills. In CL settings students depend on each other for learning and the conditions may encourage them to attend school regularly. Unfortunately, placing students in CL groups does not automatically create a favorable condition for learning. Many students do not actually work together when asked to collaborate (Witteman, 2003). They are engaged in task-irrelevant behavior instead. In this study we will approach this problem from the perspective of motivational self-regulation in context. As stated before, it is expected that students' engagement in the quality of CL depends to a large extent on the goal preferences that they bring into the classroom. On the other hand we expect that their perception of the classroom context itself, and more specifically the way they perceive teacher behavior and the support they get from teacher and peers, determines the quality of CL as well. In other words, we will explore which goal preferences and which context variables are related to effective CL processes.

1.1. Three types of engagement

We view motivational processes as an intricate part of the students' self-regulation process, namely that part that is steered by their values and goal preferences. Self-regulation refers to a multi-level, multi-component process where students target their cognitions, feelings and actions in the service of their goals (Boekaerts & Corno, 2005). Students are expected to regulate their own learning behavior appropriately, showing higher levels of engagement when their goal preferences are in line with the goals they are expected to achieve in school. Engagement refers to the intensity and quality of students' involvement in initiating and carrying out learning activities (Wellborn, 1991). Ryan (2000) made a distinction between motivation and engagement; the former concerns cognitions underlying involvement in one's schoolwork (e.g., motivational beliefs) and the latter refers to students' actual involvement in their schoolwork (concrete actions, engagement). Hence, engagement can be perceived as an indicator of students' motivation.

In this study we will focus on students' actual involvement or engagement in CL. Following Chapman (2003) we distinguished between three types of engagement that may occur during CL. The behavior of students who are actively engaged in the task is characterized as *task-relevant* behavior. These students are active, focus on the task and persist when obstacles occur. The behavior of disaffected students is characterized as *task-irrelevant* behavior. These students do not try hard, give up easily in the face of challenges and engage in task-irrelevant behavior like chatting or disturbing others (Chapman, 2003). *Socially oriented task engagement* is related to the first type of engagement. Students who are socially engaged are primarily involved in social activities such as providing help and emotional support.

In this study we will attempt to distinguish CL teams that predominantly show (social) task-relevant engagement during CL (i.e., effective CL teams), from teams that show task-irrelevant engagement most of the time (ineffective CL teams), in terms of their goal preferences and their perceptions of instructional conditions in the classroom.

1.2. Previous studies

In a previous study (Hijzen et al., 2006) we focused solely on students' general cognitions underlying their perception of the quality of CL. It was found that students' scores on the quality of CL were most strongly associated with

their *social support* goals (e.g., "*I want to support my peers*"), followed by *belongingness goals* (e.g., *I want to get along with my peers*) and *mastery goals* (e.g., "*I want to learn new things*"). No relationship was found with students' *superiority* or *individuality goals* (e.g., "*I want to be the best student of my cla*ss"). The relationships found were generally weak relationships between students' goal preferences and the quality of CL. Several reasons were given for this relatively weak link. First, students might not be aware of their goal preferences and therefore did not consider them when reflecting on the quality of CL. Another possibility is that students' goal preferences are context specific while we used a goal inventory insusceptible to this context specificity.

In order to raise students' goal awareness and explore goals' context specificity we decided to use a stimulated-recall procedure. The quality of CL was analyzed using a measure of engagement during CL. In order to discover which types of goals were most salient in the CL setting, we did not limit the range of goals to the traditional mastery and performance distinction (e.g., Ames & Archer, 1988; Dweck, 1986; Urdan, 1999), or to the four goals, that were the object in our previous study. Instead, we explored the full range of goal preferences that students spontaneously mentioned in combination with the quality of CL. With the exception of a few studies (e.g., Dowson & McInerney, 2001; Lemos, 1996), students' subjective goal definitions have not been the subject of research. In this in-depth study, we combined students' self-reports on a-priori goal preferences with the goals that they spontaneously mentioned while reflecting on their own activities in actual CL settings.

As stated before, we assumed that the context plays an important role in students' goal preferences, but also in shaping the quality of CL. As for the context we consider in this study instructional conditions. Earlier research supports the notion that environmental features trigger specific goal preferences, thus influencing the quality of CL (e.g., Ames, 1992; Ames & Archer, 1988; Blumenfeld, 1992; Hijzen et al., 2006). We will pay close attention to students' perceptions of instructional conditions in the classroom that may or may not promote goal preferences that might shape the conditions for effective CL. More specifically we explored the type of task, the type of evaluation/rewards, teacher instruction behavior, teachers' clarity on rules for CL, and students' evaluations of the extent that they were taught CL skills. In the present study a multi-method, context-bound approach was used in order to capture students' thinking about the type of goal preferences and the type of context that stimulate their CL processes best.

1.3. Engagement, goal preferences, and instructional conditions in effective CL teams

By comparing participating CL teams that reported having cooperated very well with teams that reported having cooperated poorly, we will gain insight into the salient goal preferences of these reflective groups, and their perceptions of significant instructional conditions and the reported quality of CL. Based on findings of previous studies we expected that in effective CL teams, students' social and mastery goals will be dominant. For example, McInerney, Hinkley, Dowson, and Van Etten (1998) suggested that a joint mastery and social goal orientation is more productive than mastery goals alone because a sense of belongingness and social responsibility provoked by social goals provides an added drive for academic achievement. Indeed, the foundation for much of the success of CL is the well-known phenomenon that individuals show goal striving for the sake of the group (Hertz-Lazorowitz & Miller, 1992). Wentzel (1989) found that high-achieving students and low-achieving students displayed specific unique social goal patterns. High-achievers tend to focus on getting things done on time and being successful, responsible, and dependable students, whereas making friends and having fun were less valuable goals. Low-achieving students on the other hand reported that the latter two goals were important. In line with these results, we expected that students in effective CL teams combine salient mastery and social goals. We also expect that these team members are more conscious of their goal preferences than students in ineffective teams. Earlier research suggested that formulating mastery goals facilitates students' intrinsic motivation (e.g., Cantor, Norem, Niedenthal, Langston, & Brower, 1987; Sheldon & Elliot, 1997; Sheldon & Kasser, 1995) and at the same time boosts their socially oriented task engagement in CL.

Research on instructional conditions revealed that it is essential for effective cooperation that the *task* elicits positive interdependence (see Cohen, 1994). This implies that students should perceive the task as challenging, interesting but not too complex, and that group assignments are structured in such a way that each group member's actions relate to and are required for task completion, in other words the tasks should be *real* group tasks. Furthermore, the *reward* is an essential ingredient for effective or ineffective CL processes. Slavin (1995, 1996), based on a meta-analysis, concluded that the effects of CL on students' achievement are maximal and the risk at social loafing are minimal, when a group reward is combined with individual accountability for learning and learning outcomes. Also, the group size is an important aspect of CL. Preferably teams are not too big so that effects of social loafing are minimal and team

members get along and support each other (e.g., Chin, Salisbury, Pearson, & Stollak, 1999; Sharan & Sharan, 1992) in a beneficial way. *Teacher (instruction) behavior* has proved to be an important factor in several studies. Teachers should facilitate students to complete the group assignments increasingly by themselves. They also need to monitor their students' learning process and intervene when necessary to provide assistance or to model students' social skills (see Johnson & Johnson, 1994), especially when students are not yet used to cooperating. Students prone to off-task behavior should be monitored in particular. Drawing attention to the teacher's role in CL settings, Webb and Palincsar (1996) illustrated that in order to promote CL, teachers should not only define the group assignment adequately; they should also be clear about the *rules for CL*; i.e., teach the required concepts and strategies and give the criteria for success (see also Johnson & Johnson, 2002). Webb and Palincsar described comprehensive programs of team building and pro-social skill development that improve peer-to-peer interaction and through it students' social goals. Many other scholars (e.g., Gillies & Ashman, 1996; Hoek, Van den Eeden, & Terwel, 1999; Webb & Farivar, 1994) have shown that *explicit teaching of CL skills* coincides with an improvement of the quality of CL. Finally, the quality of CL is expected to be promoted by a social climate that is characterized by favorable academic and emotional support from peers and teachers. Wentzel (1994) and Wentzel and Wigfield (1998) demonstrated that a supportive social climate encourages group cohesion and the use of cooperation skills. In a positive climate students feel valued and supported when asking for support. Perceived relatedness with the teacher promotes pro-social behavior, mostly adaptive help-seeking behavior (Brenner & Salovey, 1997; Newman & Schwager, 1993) and the pursuit of social support goals.

Consequently, based on these reviews of instructional conditions for CL we expect that effective CL teams perceive instructional conditions as promoting mastery and social goals as these are challenging, hands-on, and promoting interdependency (Webb & Palincsar, 1996). Team members of effective teams are also expected to evaluate their teachers as specialists who are guiding the learning process sufficiently, but not too strictly. In other words, they view their teachers as coaches who make appropriate use of scaffolding methods (Brown & Palincsar, 1989) and they evaluate the school climate as transparent and supporting.

1.4. Engagement, goal preferences and instructional conditions in ineffective CL teams

In ineffective teams we expect that team members' social and affective goals are more important than their mastery goals. They are expected to target their cognitions, feelings and actions in the service of task-irrelevant engagement, such as chatting, making friends or just having fun. These students are expected to be preoccupied with their well-being and therefore less involved with the learning process. Furthermore, we expect these team members to be less involved in goal planning, and less conscious of their goals than effective team members. Because superiority goals (i.e., having a performance orientation) are likely to conflict with goals that are salient in CL settings, we expect that students preferring these goals to experience the CL setting as a threat to their wish to be appreciated for their individual performance (cf., Schwartz & Bardi, 2001). Lepper and Hodell (1989) found that students who try to get good grades, because they want to comply or to obtain a certificate are not intrinsically motivated and they may disengage from a task when they judge that task accomplishment does not contribute to achieving the desired goal.

Based on the findings and notions described in the previous section, we expect that members of ineffective teams evaluate the group task as boring and too theoretical. They might experience difficulties in getting along and perceive teachers as controlling or not involved.

1.5. Research questions

Students' perspectives on their goal preferences were taken as a starting point and their task-relevant, task-irrelevant and socially oriented engagement levels were observed during CL and further examined in a stimulated-recall setting. The main research question in this study is: "*Do effective and ineffective teams differ in their members' goal structure and perceptions of instructional conditions?*" The main question can be further specified: a) *what is the relationship between students reported goal preferences (as measured by the questionnaire) and the observed engagement levels in ineffective and effective teams?* b) *Do the goal profiles (as reported in the interviews) differ between these teams?*, and c) What is the relationship between perceptions of instructional conditions in ineffective and effective teams and the quality of CL?

With respect to the three main concepts of the study (students' goal preferences, engagement and instructional conditions) we hypothesize that ineffective teams can be characterized by team members who value social and affective goal preferences more than mastery goals. Their (task-relevant) engagement levels will be low, and they are expected to be preoccupied with the social aspects of the CL situations and less with the academic aspects of the CL process. In other words a lack of motivation for working in a CL setting is related to task-irrelevant engagement in CL. Furthermore, these teams do not feel supported by instructional conditions, which may have caused a lack of motivation in the first place. On the other hand, students in effective teams are expected to be mastery and socially oriented. This combination is expected to be related to task-relevant engagement, since these students are steered by a willingness to learn. Also, these teams are likely to feel supported by the instructional conditions.

2. Method

2.1. Participants

Participants in this in-depth study were 57 second-year students from five different schools for secondary vocational education in the Netherlands. Secondary vocational school starts for most students at the age of 16 after they completed a junior vocational school. Senior vocational school offers courses at four levels. At the first level students train to become assistants (6−12 months). At the second level they have 2−3-year courses for basic vocational training. At the third level students are enrolled in professional training and at the fourth level they participate in middle-management training (3−4 years) or in a specialized training course (1−2 years). Most students finishing secondary vocational school prefer to enter the labour market and do not proceed further studies (For further information on secondary vocational education in the Netherlands, see Eurydice database on education, 2004 website). Secondary vocational schools offer a broad range of program types. Subjects in the present study were enrolled in three different program types; *ICT*, *health and welfare* and *retail and administration* programs, these studies are level 3 and level 4 studies. Five teachers, who often used CL instruction methods, and their classes were willing to participate. In the 5 classes 18 CL teams participated. From these 18 teams we selected 4 teams (9 males; 8 females in total) that reported in the interviews to cooperate very well and 4 teams (5 males; 9 females in total) that said to cooperate very badly or that did not cooperate at all. In other words, the selection for inclusion in this study was basically made by students themselves since they themselves reported to cooperate well or not. Teams that were not included often changed group composition, or were 'neutral' cooperators (not effective, neither ineffective). Two of the teams that said to cooperate very well were enrolled in retail and administration, one in ICT, and one in health and welfare programs. In the teams that reported non-effective CL one team was enrolled in retail and administration, two in ICT and one in health and welfare programs. The eight teams were spread over four different classrooms. Table 1 displays the context of these eight teams.

2.2. Group composition

The CL settings differed from class to class. In the ICT-class we selected three teams of students that worked on a (computer) project for an 8-week period in teams that consisted of four individuals. Students were expected to work on the project for 3 days a week. Teachers were present to assist when help was required. All courses that students attended during the rest of the week were related to the project.

Two CL teams of health and welfare students were selected and were observed during social science classes. The teams consisted of six persons. Students in these classes worked on a variety of group assignments. For example, students were asked to prepare a role-play or to cooperatively work out a treatment plan for an imaginary person with a certain type of behavioral problem. For the assignments the students had to work together.

Two retail and administration classes participated. In one class (two teams were selected) direct instruction was combined with groupwork. This was the only classroom where direct teaching was dominant. In the other (one team was selected) we observed students during a simulation project. A team of six students had to organize their own virtual company and their aim was to make it profitable. The project lasted for almost one school year. Each student had a specific role in the company, with the attached responsibility (e.g., director, secretary, assistant). Different aspects of what they were taught during class were integrated in the project, e.g., working out a business plan. We observed during the weekly meetings when these six students had to evaluate, plan and divide tasks.

Table 1
Contexts of the selected effective and ineffective teams

	Effective teams				Ineffective teams			
	Team 1	Team 2	Team 3	Team 4	Team 1	Team 2	Team 3	Team 4
Program type	Retail and administration	ICT	Health and welfare	Retail and administration	Retail and administration	ICT	ICT	Health and welfare
Level	3	4	4	4	3	4	4	4
School	1	2	3	4	1	2	2	3
Interviewed # team members	2	4	5	6	2	3	3	6
Class	1	2	3	4	1	2	2	3
Type of CL	Modes of direct instruction combined with groupwork	8-week computer project	Variety on group assignments	Virtual company	Modes of direct instruction combined with groupwork	8-week computer project	8-week computer project	Variety on group assignments

Effective teams are ''teams that reported in the interviews that the quality of CL in their team was very good'' and ineffective teams are ''teams that were highly unsatisfied with the quality of CL''. In other words, the difference between these two types of teams is about the perception of effectiveness of the teams themselves. As mentioned before eight teams were analyzed.

2.3. Procedure and instrumentation

In order to capture students' thinking about the type of goal preferences and the type of context that stimulate their CL processes best, students completed a questionnaire, they were interviewed and video-registrations were made of their CL processes. Self-reports and interviews may be somewhat subjective measures, while the combination with the observations may result in a more complete and objective representation of the actual CL process. We will discuss each of these methods in more detail.

In each classroom, we made three video-registrations of the CL teams, with 2 weeks intervals. The first video-recording started at the beginning of the (CL) projects and each recording took 10 min. The students also participated in a self-report study and completed questionnaires on their goal preferences and the Quality of Cooperative Learning. After the last video-registration we confronted students with a video-recording of their CL team and interviewed them about their goal preferences, the quality of CL, influences on their engagement levels and goal conflicts. Table 2 schematizes the order of the data collection procedure.

2.4. Questionnaires

Before students were observed and interviewed they participated in a survey. They completed the Goal Importance and Facilitation Inventory (GIFI) which is based on Fords' taxonomy of broad goals (Ford, 1992; Ford & Nichols, 1991). Students indicate how salient each of the seven broad goal domains are in their current life, namely students' mastery, affective, belongingness, social support, self-determination, material gain, and superiority/individuality goals. Response categories ranged from ''I disagree very strongly'' (1) to ''I agree very strongly'' (5).

2.5. Observational studies

In order to rate engagement levels of the individual students in CL, we developed an 18-item rating list. Items were based on a study by Skinner and Belmont (1993) and the Quality of CL questionnaire (Hijzen et al., 2006). The rating

Table 2
The order of data collection

Start	Week 1	Week 3	Week 5	End
Goal questionnaire	Video-registration 1	Video-registration 2	Video-registration 3	Video confrontation and interviews

list contained three subscales. Items in the first subscale measured students' *task-irrelevant engagement*. A sample item is "this student chats", Cronbach's alpha is $\alpha = 0.89$. A second subscale measured students' *task-relevant engagement*. A sample item is "this student concentrates on the task", Cronbach's alpha was 0.95. The third subscale aims to measure students' *socially oriented engagement*. A sample item is "this student offers team members help", Cronbach's alpha was 0.90. Response categories (4) of the items varied from "almost never" to "very often".

In order to optimize interrater reliability, a scoring guide was developed before the actual rating process started. Examples were listed for each item in the rating list and two raters were trained to identify them. They rated the engagement levels of the 57 students, on one video-tape. This video-recording was the same as the one used in the stimulated-recall session. Cohens' Kappa indicated an acceptable level of agreement between the two raters, $K = 0.66$, $p = 0.006$.

2.6. Interviews/stimulated-recall

Semi-structured group interviews were conducted with the observed teams of students. The video-tape formed the basis for the interviews which contained 16 questions. We asked students about their goal preferences, their perceptions of instructional conditions in the classroom and the quality of the cooperation in their team. Teams were asked to explain motives for task-relevant and task-irrelevant behavior during CL. On average an interview took 45 min. The interviews were taped and transcribed and the interview protocols were restructured by subdividing the statements into broad categories. We distinguished two categories of statements, namely those about students' goal preferences and those about students' perceptions of instructional conditions in the classroom. Interview protocols were analyzed, using a content analysis approach, based on the work of Dowson and McInerney (2001) and Lemos (1996). Table 3 presents the scoring categories.

A scoring guide was developed with examples of each category and statements about goals were counted and categorized, by four raters. Interrater agreement was 83% (($100/n$ statements) $\times n$ agreements). An agreement meant that at least three out of four raters agreed about the classification of a particular statement (see Lemos, 1996). Interrater agreement for assigning statements about contextual characteristics was 94% (($100/n$ statements) $\times n$ agreements).

2.7. Quantitative analysis

We intended to compare goal profiles of individual students in effective teams with goal profiles of individual students in ineffective teams (i.e., two goal profiles). Quantitative analysis of the self-reports and observed scores for engagement consisted of calculating mean scores, univariate analyses of variance and correlation analyses. In line with Lemos (1996) quantitative analyses of the interview statements consisted of frequency analysis and analysis of the profiles' congruency (Serafini coefficient C). The congruence coefficient is a measure of the relative distance between two profiles. A profile considers several variables at the same time and C summarizes the different distances between the profiles. We also calculated the coefficient of configurative similarity (ES), which is a measure of the degree of correspondence between the high and the low values in each of the variables.[1] Goal profiles were derived by calculating the percentage of students' statements on each goal. We counted the proportion of each particular goal type as compared to the total number of goal statements. We hypothesized to find low congruence between the two types of profiles.

3. Results

All data of this study were analyzed at the individual level. In this section, we will compare goal profiles and perceptions of instructional conditions of effective and ineffective teams.

The first selection criterion was students' statements on the effectiveness of their teams; effective teams are "teams that reported in the interviews that the quality of CL in their team was very good" and ineffective teams are "teams

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[1] C and ES values range from 0 to 1: from 0.90 to 1.00: perfect congruence/perfect configurative similarity. From 0.70 to 0.89: high congruity/high configurative similarity. From 0.40 to 0.69: moderate congruity/moderate configurative similarity. From 0.20 to 0.39: low congruity/low configurative similarity. From 0.00 to 0.19: no congruity/no configurative similarity. For more information on calculating congruence and configurative similarity coefficients see Lemos (1996).

Table 3
Student statements referring to goal preferences

Goal preferences	Sample from the interview
Achievement/mastery	
Academic learning	"Yes, I like to learn new things all the time". "I am here to learn stuff, so I will be able to do it myself later in my career".
Achievement/performance	
Academic/to get a certificate	"It want to engage in school tasks, because getting my certificate is very important, just to have something in my pocket, eh well yes it is just handy and easy. I don't know what I want to do later".
Superiority/individuality	"I want to be a better student than others".
Academic/to prepare for a future education	"Before this school I was in Pre Vocational Education, and eventually I want to go to higher vocational education. So this is just a stepping stone".
Academic/complying	"I will engage in the group task, other wise I get kicked out of the classroom" (see Lemos, 1996).
Academic/working	"So that I don't have to do homework" (see Lemos, 1996).
Work avoidance	"Minimize the effort, I just try to do as little as possible" (see Dowson & McInerney, 2001).
Well-being goal domain	
Tranquility	"Minimize the effort, I just try to do as little as possible" (compare work avoidance goals of Dowson & McInerney, 2001; Ford, 1992).
Entertainment	"I want to enjoy and laugh as much as possible. I would like to say that I enjoyed my time at school" (compare enjoyment goals of Ford, 1992; Lemos, 1996).
Affective goals	"I want to feel at ease and self-confident, I express myself better than"
Social goal domain	
Social responsibility	"It's all about cooperation, alone you are nothing. Therefore it is important to learn how to do it" (Ford, 1992).
Social support	"It is important to support each other, like 'Can I help you?'"
Belongingness	"I think it is very important that you like your group members".
Self-determination	
Self-determination	"I like to use my creativity, so If I already expect that the teacher has written some boring things down and there is no challenge at all then I loose my motivation".
Context	
Type of task	"The task is not really a group task, otherwise we would have to ask each other questions, and answer them, this is just answering questions from a book and that is difficult for groupwork".
Type of reward	"I want more guidance; I think we have too much freedom now. She (the teacher) was never there".
Group composition	"The quality of our cooperation is much better, since we got to know each other better, we all like each other in this group".
Reward	"I think it is good that with a group task, everybody still receives an individual reward, so you know exactly who did what and when". "We work much harder when we received a reward afterwards".

that were highly unsatisfied with the quality of CL". An additional selection criterion for distinguishing the two types of teams was that the mean scores on task-relevant and socially oriented engagement in the effective teams should be above 3, and in the ineffective teams below 3. By contrast, task-irrelevant engagement should be higher in the ineffective teams as compared to the effective teams. Table 4 presents these teams' engagement scores.

In ineffective teams task-relevant and socially oriented engagement tended to be lower and task-irrelevant engagement higher than in effective teams. Univariate analyses showed that only the difference with respect to socially oriented engagement was significant ($F(1, 20) = 9.44$, $p = 0.006$, $\eta^2 = 0.32$).

Table 4
Effective teams' and ineffective teams' observed engagement scores

CL engagement (observation)	Effective teams ($N = 4$, 17 persons)		Ineffective teams ($N = 4$, 14 persons)	
	M	SD	M	SD
Task-relevant engagement	3.46	0.87	2.98	1.24
Task-irrelevant engagement	1.57	0.86	1.92	1.01
Social-task related engagement	3.18	0.88	2.02	0.80

3.1. Goal preferences and engagement in CL

Table 5 presents effective and ineffective team members' GIFI goal preferences. Effective teams' most prevalent goal preferences were affective, social support goals and self-determination goals, whereas ineffective team member's most prevalent goal preferences were belongingness, affective and self-determination goals. An interesting difference concerned students' belongingness and social support goals. Effective team members tended to report slightly lower scores on belongingness goals than ineffective team members, while the reversed pattern was observed for social support goals. However, no significant differences between goal preferences for effective and ineffective CL teams were found. In order to explore how the different goals are related to the three engagement types we calculated Pearson correlation coefficients for effective and ineffective teams for task-relevant, task-irrelevant and socially oriented engagement, and the goal domains of the GIFI. We expected students' mastery and social goals to be related to task-relevant and socially oriented engagement. Remarkably, only one goal domain was significantly related to students' engagement scores, namely students' belongingness goals. This relationship only concerned the ineffective teams. The direction, however, was not in line with what we predicted. That is to say, preferences for belongingness goals were negatively related to their socially oriented behavior ($r = -0.75$, $p = 0.033$), implying that ineffective team members who report that belongingness goals are salient in their current life demonstrate less socially oriented task behavior than those reporting that these goals are not important in their life. Inspection of Table 5 reveals that in the group of ineffective teams, belongingness goals were dominant over mastery and social support goals, while this pattern is reversed in the effective teams. This finding suggests that wanting to feel at home in the group (belongingness) may hinder rather than facilitate socially oriented task engagement.

3.2. Goal profiles

After the categorization of all statements on goal preferences that students made during the interview, it became apparent that the aforementioned goal preferences were not the only ones that were prevalent in the CL setting. We counted all the statements that referred to goal preferences per subgroup, and calculated the proportion of each particular goal type as compared to the total number of goal statements. Fig. 1 presents percentages of students' statements in effective and ineffective CL teams referring to their goal preferences.

Fig. 1 shows that in effective teams the most prevalent goals were mastery, learning for a certificate, social responsibility and entertainment goals. Interestingly, these goals are largely the same type of goals that were found to be positively related to the quality of CL in previous studies (Hijzen et al., 2006). In ineffective teams, entertainment, learning for a certificate, mastery and work avoidance goals rated high. The most considerable, and expected, difference was the strong prevalence of entertainment goals in ineffective CL teams, they were as salient as the learning for a certificate goals. In the effective CL teams, mastery goals were most salient. Social responsibility goals were not mentioned at all in ineffective CL teams. Another striking difference concerned the percentage of statements on work avoidance goals of students in ineffective teams.

The congruence coefficient (C) (Lemos, 1996) allowed comparisons between the two profiles. The goal profiles of students in effective and ineffective CL teams showed a moderate congruity (coefficient C between the two profiles = 0.55) and no configurative similarity (coefficient ES between the two profiles = 0.09). In other words, students in effective and ineffective CL teams had different goal profiles. Moreover, as expected, students in the ineffective teams were less conscious of their goals; fewer statements referred to goal preferences (27 statements) than in

Table 5
Effective ($N = 17$) and ineffective teams members' GIFI goal preferences ($N = 14$)

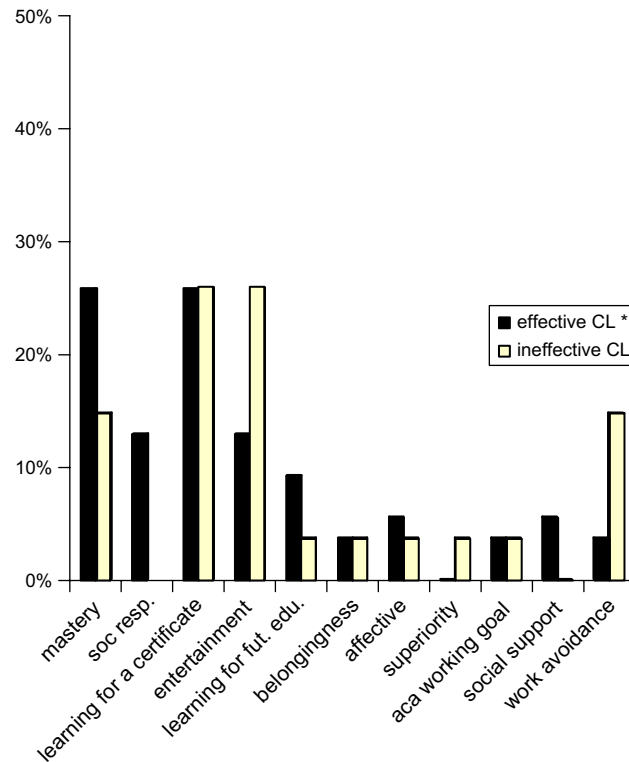| Goal preferences	Effective teams		Ineffective teams	
Affective goals	4.48	0.72	4.30	0.69
Social support	4.42	0.73	3.86	0.73
Mastery	4.29	0.60	3.91	0.85
Self-determination	4.43	0.53	4.25	0.62
Belongingness	3.80	1.07	4.52	0.74
Material gain	4.05	0.77	3.94	0.66
Superiority	3.50	0.96	3.16	0.92

Fig. 1. Goal profiles (interviews) of effective CL teams ($N = 4$) and ineffective CL teams ($N = 4$). * Total number of goal related statements in effective CL teams: 54. Total number of goal related statements in effective CL teams: 27.

effective teams (54 statements). Also, the range of different goal preferences mentioned was smaller for ineffective teams than for the effective teams. Obviously, we have to keep in mind the low number of individuals, teams, and statements used for presenting these results.

When asked to reflect on the actual CL setting students mentioned out of the goals that they reported using the GIFI mastery, social support, belongingness and affective goal preferences. Surprisingly, self-determination, superiority/ individuality and material gain were not mentioned at all in the CL context. Conceivably, these goal preferences are not important in the CL setting. Furthermore, it was noted that mastery goals were more prevalent in the actual learning situation compared to the students' scores reported on the GIFI, a finding that was also reported by Lemos (1996). She found that "the confrontation with the real classroom activities strengthens the focus of students' behavior within the academic dimension" (p. 167).

3.3. Instructional conditions and engagement in CL

Important to note is that goal preferences were rarely spontaneously mentioned while reflecting on task-relevant, task-irrelevant, or socially oriented task engagement during CL sessions. Groups pointed far more often at the context for explaining their CL.

Statements that explained successful CL *in the effective teams* referred to the group composition (17 statements). The size of the team ("*In a large team it is harder to keep your promises.*"), and the types of relationships among the team members were mentioned as reasons for cooperating successfully ("*We are friends, therefore we cooperate better*". "*You dare to say more, for example when somebody did not complete his part of the project*". "*We understand each other very well and our communication is exceptionally good, I think that is an important part of the success*"). Students alluded to particularly motivated persons in the group who contributed to successful CL (two teams), to improvements in teacher support in the sense that the teacher became less dominant (one team) and to students'

improvement of cooperation skills (one team). Improvement of school climate was also mentioned as an explanation for improvement in CL (more transparency). Several times students stated that they simply were good at working independently.

Instances of ineffective CL in these teams were explained by the task (five statements). Or rather the fact that these tasks were not real group tasks. Furthermore they mentioned the teacher (eight statements) as a reason for ineffective CL. According to some of the participants teachers were just not capable of teaching. Their lessons were unstructured, unclear and chaotic. On one occasion students suggested that receiving a reward for some tasks made them less engaged. Twice they suggested that the chaotic social climate and regulations caused ineffective CL.

More statements referring to instructional conditions were made in the *ineffective CL teams*. These referred to the curriculum (13 statements). Many tasks were not real group tasks, they could easily be accomplished as individual tasks and no consultations were required to complete the task. The group tasks were often experienced as boring, non-supportive for a future career, too easy or unstructured. "*I think that the lessons de-motivate me. The tasks are just dead boring. Often I do not understand the purpose of the lessons*". Teacher support was mentioned as a reason for ineffective CL 12 times. Complaints varied from too little coaching "*I would like to get more support from the teacher. I mean … When I have a question and this person just gives you a book and says ''It is in here'' and walks away. What kind of help is this*", to chaotic lessons "*I really would like to know what the purpose is, I think that when she (the teacher) changes her teaching method all of a sudden, that she can not expect that the class will take her seriously*", and boring teaching methods "*Literally, reading the book, not knowing other ways to explain what we should do and how*". It was found that in case of too much autonomy, students were the opinion that more teacher involvement was required. This was the situation in the ICT-class. Students were unsatisfied with the quality and quantity of help they received from teachers. They were unable to get support from the teacher when they were looking for help. For these students autonomy tended to correspond to teacher negligence. The group composition was mentioned seven times as explaining task-irrelevant engagement. Problems ranged from regular absenteeism of one of the group members or the dominance of group members who were absolutely not motivated. One team mentioned that they were rewarded individually while they worked on a group project. This was perceived as frustrating the team work. Six students blamed the chaotic and unstructured school climate for ineffective CL instances. A statement referring to this issue is "*The organization at school is dreadful, you never know what to do, nothing gets settled, and I get so annoyed by that*". Some teams acknowledged that they chatted too much or were not serious enough (six statements). Two of the ineffective CL teams admitted that the most important reason for ineffective CL was that they were just not capable of working independently.

4. Conclusions

4.1. Students' goal preferences in effective and ineffective CL teams

Our main research question was "*Do effective and ineffective teams differ in their members' goal structure and perceptions of instructional conditions?*" With respect to students' goal structures the main question was specified by a) *What is the relationship between students reported goal preferences (as measured by the questionnaire) and the observed engagement levels in ineffective and effective teams?* and b) *Do the goal profiles (as reported in the interviews) differ between these teams*. The analysis of goal profiles showed that in ineffective teams students' entertainment and work avoidance goals were popular goals, while in effective teams mastery goal preferences took precedence over the other goals. In the latter teams we also found a strong prevalence of social responsibility goals. Students in these teams reasoned that in their future career people will expect them to be able to cooperate. In ineffective teams, on the other hand, social responsibility was not mentioned at all. Effective CL teams seem to be engaged because they have a genuine interest in what they learn and they understand the value of CL. This finding seems in line with findings of a study of Levy, Kaplan, and Patrick (2004) who found that mastery oriented students' evaluated cooperation in the first place based on its contribution to their academic goals. 'Mastery-oriented students seem to be concerned more with their learning and understanding and less with impression-management and social relationships' (p. 132).

Our findings confirmed the notion that effective CL processes depend on a combination of students' goal preferences and the appropriate learning context. With respect to students' goal preferences we predicted task-relevant engagement to depend on a combination of social goals and mastery goals. We found that the difference between

effective and ineffective CL teams lies precisely in the combination of these goals. However, it is very important to distinguish between different types of social goals. Comparison of effective and ineffective team members' self-reports suggested that belongingness goals were more popular in ineffective teams. In these latter teams belongingness goals were more important than their mastery goals. While in effective teams, mastery goals were more important than belongingness goals. A negative relationship between students' belongingness (GIFI) goals and socially oriented task engagement in the ineffective teams was found. On first sight this finding may seem strange but it actually corroborates the findings presented by Wentzel (1989), namely that to low-achievers making friends and having fun are important goals. It seemed that belongingness goals interfere with task-relevant engagement. It is important to keep in mind that this result only concerned the teams who classified themselves as ineffective CL teams. Perhaps these students are concerned with their well-being and social relationships and forget about the quality of CL and its meaning as a learning task.

Students in ineffective teams seem less conscious of their goal preferences than students in effective teams. Also students' goals were very broad; getting a certificate was in both type of teams one of the most popular goals, how and why they wanted to achieve that goal was of inferior importance. So, an important finding of this study is that not all students devote much thinking to choosing their goals and reflecting on their goal systems (Conti, 2000). Its significance is further clarified when confronted with the notion and research finding that formulating goals, especially goals that connect with and well-represent one's sense of self, can facilitate students' intrinsic motivation (e.g., Cantor et al., 1987; Sheldon & Elliot, 1997; Sheldon & Kasser, 1995).

4.2. Instructional conditions and engagement in CL

A third question was "*What is the relationship between perceptions of instructional conditions in ineffective and effective teams and the quality of CL?*"

One of the major points made in this article is that students' engagements cannot be understood separately from the environment. *Type of task*, *the teacher*, and the *group composition* were the most frequently mentioned aspects of the learning environment causing or supporting factors for explaining effective or ineffective instances of CL. These findings are in line with previous results (e.g., Chin et al., 1999; Cohen, 1994; Johnson & Johnson, 1994; Sharan & Sharan, 1992; Webb & Palincsar, 1996). Effective and ineffective teams clearly had different appraisals of instructional conditions that impacted on their quality of CL.

In ineffective teams, students explained their task-irrelevant engagement as a result of the group tasks. According to the students, many tasks were not genuine group tasks, because they could be dealt with as individual tasks. Also they complained that many group tasks were boring, not supportive for a future career, too easy and not sufficiently challenging. Ineffective team members had many complaints about their teachers, who were often not there in case they needed help. A healthy balance between teacher guidance and student autonomy seems crucial for CL. Students in ineffective teams desired to get more assistance while they cooperate. Also they experienced a lack on clarity on the purpose of the lessons. Teachers' sloppiness in this respect was a recurring complaint. Students often did not know how to proceed because teachers were not clear enough about the purpose of the tasks, before they started. More teacher involvement was required in a situation of too much autonomy as in the ICT-class. Again, the teacher should economize that type of behavior and perhaps when students are used to cooperate a bit more, they can decrease guidance and increase students responsibility in the learning process.

The group composition was very important in explaining successful CL. Students in effective teams usually work longer in the same teams and feel more at ease with each other. This study also clarified that a lack of cohesion in a team easily results in problematic CL. In ineffective teams, students had to cope more frequently with absent or badly motivated group members.

The quality of CL also depends on students' general abilities to cooperate. Students in ineffective teams mentioned that they were just not good at working independently, and that they preferred having a fun time instead of learning. This finding points at the need to teach students the skills and knowledge allowing them to cooperate effectively as well as to the desirability of teachers guiding students' CL processes (Gillies & Ashman, 1996; Hoek et al., 1999; King, 1990; Webb & Farivar, 1994).

We conclude that the quality of CL can best be explained by a combination of instructional conditions and students' goal preferences.

5. Discussion and recommendations

5.1. Goal profiles

In interpreting the findings of this study it is important to bear in mind that its nature is mainly descriptive and exploratory. The goals that were identified in this study are *students' goals*. They differ somewhat from the goals that were specified prior to the research in the GIFI. Lemos (1996) suggested that students bring a set of general goals to the classroom and implement these when faced with the real classroom setting. However, we think that this notion of the use of general goals is not representative of the present study. First of all it is not evident that students bring a set of general goals to the classroom. With the GIFI we tried to draw up a list of these goals, but the results hardly reflected personal commitment to these goals; students' general goals differed somewhat from the goals triggered by CL. The interviews and the stimulated-recall setting possibly gave a type of context and relevance to thinking about goals that made students more aware of goals and their importance in the specific context of the CL situation, than the situation presented to them in the survey with the Goal Importance and Facilitation Inventory.

Ideally, reflection on students' goal preferences should be a recurring element of the curriculum, especially in secondary vocational education where the drop-out rate is very high. As explained in Section 1, dropping out of school often is an outcome of underlying motivational problems that students experienced, which can be caused by a mismatch between students' goal preferences and school goals. Goal reflection can be a means for enhancing students' motivation, so that students become more aware of the goals they want to achieve and think of strategies how to achieve these. Discussing goal preferences in order to make students aware of the role these goals play in the learning process might be an important step towards more successful CL (Hijzen et al., 2006). Optimizing students' self-regulation of their learning means that they know about their goals and how they are linked to school goals. Students should therefore be invited to think about their own goals and about the links between goal preferences and the goals presented to them by teachers, instruction methods, course books, and other students. Such reflection might help them to adopt teacher-set learning goals and self-regulate their learning more efficiently (see Boekaerts & Corno, 2005). The stimulated-recall setting situation in this study might be seen as a proto-type approach to encouraging it throughout the school program in order to make students more aware of their goals.

5.2. Limitations and future directions

All data in this study were analyzed at the individual level. Although we are aware that this is not state of the art, particularly when dealing with teams and classes of students, multi-level modeling was not possible due to the small *n*. Moreover, this study largely had an explorative character.

Another possible limitation of the present study is that students' were asked about their individual goal preferences and perceptions during a group interview. This may have resulted in interindividual dependency of goal reports and a more homogeneous set of goals reported between students than if students would have been interviewed individually.

CL may be a way to enhance students' motivation for learning, provided that students are aware of their goal preferences and CL is well-implemented. In order to predict the quality of students' CL processes more accurately, more (longitudinal) research on these instructional conditions is needed. Important to note is that the quality of CL differed within settings. It may well be that a combination of personal goal preferences and instructional conditions explain the quality of CL best. If, for example, students' most important goal is to have fun, they will easily get distracted by ill-designed group tasks and poor teachers, while students whose mastery goals are salient, will probably try harder and are willing to put more effort to cope with ill-structured CL settings. Important to note is that the quality of CL is not a stable feature; it strongly depends on the activities that take place during CL processes, stimulated by social interaction. In any case, a well-designed CL setting is very crucial, because it triggers, promotes, stimulates or hampers certain goal preferences in the first place.

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