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Optimising student learning and engagement in initial vocational education

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Chapter 4

CREATING STUDENT ENGAGEMENT IN COMMUNITIES OF LEARNERS FOR VOCATIONAL ORIENTATION

This chapter reports on a design experiment on communities of learners conducted over two successive school years at two schools for initial vocational education with the goal of enhancing student engagement in learning. Working as a community of learners is supposed to encourage students to participate in vocational practices, stimulate them to explore the personal and societal meanings of that practice, and support them to acquire the knowledge and skills to fully participate in that practice. In the design experiment four curriculum units were designed to foster communities of learners for 9th grade students, and were redesigned in the next year. It was investigated whether and how working as a community of learners in initial vocational education contributed to student appreciation of the content of learning, appreciation of the way of learning, and their investment in learning. Quantitative analyses of questionnaire data (N=132) indicated that working as a community of learners enhanced student engagement. Stimulated recall interviews with pairs of students (N=16) about one unit and its redesign showed that in particular interaction with real clients helped the students to become aware of personal motives for engaging in the vocational practice. Nevertheless, the learning settings that were designed did not always manage to change students' often traditional scholarly attitude. This finding prompted a further specification of the community of learners model for initial vocational education in which emotions and tensions are deliberately evoked to encourage students to learn.

1. INTRODUCTION

One of the most pressing issues confronting teachers today is student engagement in school. Young people less willingly and less silently adhere to the daily order of the classroom. Some of them abandon school altogether. For students in the lower tracks of secondary education it is sometimes difficult to see the value of schooling for their future. They feel to be stuck at the bottom of the ladder. Education does not broaden their images of their future selves as a matter of course. In our view, an immensely challenging task for teachers and schools is to engage students in learning. One way to do this is to design learning environments in which both the personal and the societal meanings of what is learned can be experienced (cf., Rogoff, Paradise, Mejía Arauz, Correa-Chávez, & Angelillo, 2003; Wertsch, 1998).

The concept of a 'community of learners' has been developed to allow students to share in knowing and knowledge building as a cultural, human practice, which is supposed to enhance their engagement. Although this idea has mainly been discussed for general subjects such as science and mathematics (e.g., Brown & Campione, 1994; Roth & Lee, 2006; Scardamalia & Bereiter, 1991), can also be relevant for vocational education (Wardekker, Boersma, Ten Dam, & Volman,

2012). In this study, we designed learning environments to foster communities of learners for students in initial vocational education and evaluated whether we succeeded in enhancing student engagement: Does working as a community of learners for initial vocational education enhance student engagement, and if so, how?

2. LEARNING AND ENGAGEMENT FROM A SOCIOCULTURAL PERSPECTIVE

According to sociocultural approaches, engagement arises in a dialectic between the individual and the features of the activities in which he or she participates (Leontiev, 1978; Roth, 2011; Roth & Lee, 2006). Instead of improving students' willingness to attend school, stimulating perseverance or promoting effort regulation, the focus is on the personal meanings that a student can attach when participating in learning activities. The aspect of meaningful participation is typical of sociocultural theory.

From a sociocultural perspective, participating in learning activities should fulfil a need of the students. It is argued that learning will only happen if it is related to a personal motive (Edwards, 2005). A student needs to be able to understand the relationship between what she deems important goals in her own life (personal motives) and the goal of the learning activity as she perceives it (object motive). Learning becomes meaningful for the student if she brings the object motive that she attaches to the learning activity in line with her personal motives. However, when a learning goal is unclear or does not align with the personal motives of a student, the student will either drop out of the activity or transform it into a different type of activity. Students may then either see schooling as an instrument for 'societal success' (and thus, focus on the exchange value of schooling, as defined by Engeström, 1987) or use school for quite different activities, such as having fun with classmates. They will only see the use value of what is being learned, i.e. that learning helps them to make sense of the world, when learning activities are related to questions that they may encounter or have encountered in their prior, current, and imagined future lives.

An educational design that is intended to be an elaboration of sociocultural theories of education should, thus, explicitly try to create these relationships for the students. One way to do this is to engage students in meaningful activities that occur inside or outside the school. This 'authentic' learning takes its inspiration from forms of learning that supposedly existed before schools became the primary place for learning. Rogoff & Lave (1984), for example, have suggested that the medieval model of apprenticeship had advantages over modern age schooling practices because for students, it was easy to see the practical relevance of what they were doing and learning.

The immediate meaningfulness that is created by 'authentic' situations is, however, not enough. The task of the school is to motivate students to go beyond what they can readily see as being relevant to their own lives because the scope of what they can imagine may be limited by their social and cultural background and previous experiences (Volman & Ten Dam, 2007). As Ziehe (2004) argued, the school should give students access to areas of culture that are not a part of their everyday cultural consciousness. Additionally, at school, students can be shown that

in every cultural practice, there are different roles and that they are not necessarily confined to the roles that they may believe to be suitable for themselves due to their social background. Both of these tasks for the school are important in light of what Van Oers (2009) qualified to be the ultimate aim of education: to help students develop agency in cultural practices. The combination of the elements of authenticity and ‘transcending the constraints of the everyday’ can be labelled as a ‘second generation apprenticeship model’ (we owe the term to Juan Daniel Ramírez Garrido from personal communications).

2.1 Fostering learning in communities of learners

The above line of thought makes it necessary to regard the school as a setting in which engagement in learning can and must be created. This directs us to the concept of ‘communities of learners’. In particular, a sociocultural model of a community of learners can guide the design of learning environments for students in initial vocational education, in which experiencing the personal and societal relevance of learning is the goal. In sociocultural approaches to learning, the notion of ‘community’ is inherent to the definitions of both knowledge and knowing. Wells construes ‘knowing’ as “the intentional activity of individuals who, as members of a community, make use of and produce representations in their collaborative attempts to better understand and transform their shared world” (1999, p.76). Learning communities that are conceptualised from a sociocultural perspective are characterised by the following set of emphases.

A *meaningful setting* is a key characteristic of sociocultural communities of learners. It entails participation in ‘social practices’ in the sense of historically and culturally evolved constellations of human activities that have a particular value and meaning within society (e.g., business, art, care). ‘Meaningfulness’ is a two-sided concept, however, with the other side being that participation in such practices must be personally meaningful to the students themselves (see Leont’ev, according to Van Oers, 2009; Van Oers & Wardekker, 1999). In a school context, activities organised in such a manner that allows students to learn something meaningful are of primary concern (e.g., having students run their own school cafeteria that encourages them to practice mental arithmetic and bookkeeping). Working with the ‘big ideas’ of a discipline within a community of scientific researchers is one example of meaningful settings that are worthwhile. In addition, especially for students in initial vocational education, meaningful roles may also include the roles of organiser, trader, caregiver, etc (Wells, 1999). As ‘legitimate peripheral participants’ (Lave & Wenger, 1991), students can assume a variety of roles in social practices. The idea that is essential to any role is that students’ own (spontaneous or elicited) questions are used as a starting point for learning.

The *social setting* does not refer primarily to the group of students that is involved in the collaboration, but refers to the activity itself. The social setting encompasses knowledge, concepts, instruments (tools), etcetera. These resources that students use are social products that are meaningful within the activities of the community (Rogoff, Goodman Turkkanis, & Bartlett, 2001). Students can master these tools by putting them to use within a relevant setting and by having a clear image of the goal that is to be achieved (‘prolepsis’, Stone, 1993). With regard to the

instructional format for such a social setting, the teacher, other more capable adults or peers play a critical role in supporting the participation of students. The support for learners can be explicitly provided in the form of ‘scaffolding,’ which entails helping students perform tasks that they are not yet capable of performing on their own or - in Vygotskian terms – helping students perform tasks that are within their ‘zone of proximal development.’

When advocates of a sociocultural approach to communities of learners claim that such communities enhance learning, they refer to the improvement of the quality of students’ participation in social practices. Student learning does not aim at building a shared knowledge base that encompasses ‘big ideas’ but rather at, for example, being able to run a store with one’s own products, organise a school trip to France or create an exhibition. Acquiring knowledge and skills is perceived to be the result of being involved in these activities. Not only do the student’s knowledge and skills undergo development but the manner in which the student participates in an activity and related to this the identity of the student, which is the motor for subsequent learning processes, also undergo development: learning is identity building (Wells, 1999). Some authors further emphasise the fact that the participants in an activity can and should learn to be critical. The focus of learning should be the transformation of students into critical agents (Edwards, 2005; Vianna & Stetsenko, 2011). Therefore, the rules for participation in an activity are of importance, but the degree of freedom that is associated with students’ participation in an activity is also of importance (Van Oers, 2009).

2.2 Fostering engagement in communities of learners

Scholars from sociocultural traditions assume that learning environments that are shaped to foster communities of learners stimulate students to engage in learning. In the literature, various arguments can be found that support the assumption that working in communities of learners will be engaging for students. First of all, in a community of learners, the teaching-learning process is designed in such a way that students learn to use knowledge for goals that are meaningful and authentic. Thus, knowledge is used as a tool. Secondly, it is emphasised that learning should be personally meaningful. It is precisely the participation of students in a community of learners that provides them with the opportunity to work on realistic goals in such a manner that they want to be a part of that community (e.g., Wardekker, et al., 2012; Wertsch, 1998). Thirdly, because cognition is assumed to be distributed, participants in communities of learners do not have to rely upon their own knowledge and capacities alone; other sources of knowledge are distributed among the students and, therefore, are available to use to solve problems (e.g., Cole & Engeström, 1993). Fourthly, learning as a community of learners is assumed to provide students with the experience that learning does not need to occur, by definition, in a vertical, hierarchical, one-way relationship, but it can also occur in horizontal interactions (Daniels, 2001). Finally, it is emphasised that education has little to no meaning for students without the students being able to picture the objectives to be achieved, or ‘prolepsis’ (Stone, 1993). In a community of learners students are shown where their learning is supposed to guide them (see, e.g., Daniels, 2001).

On the basis of the above claims, we formulate three specific assumptions with regard to how working as a learning community might create student engagement. First, we assume that functioning as a community of learners for initial vocational education helps students to appreciate the value of what they learn. In the intended community, learning activities are framed as vocational activities in which students may become involved as professionals in the future. Students are stimulated to discern the object motive that vocational professionals generally have for engaging in the vocational activity. Consequently, developing vocational knowledge and skills becomes relevant in order to pursue the goal of the vocational activity at hand and to become able to participate in the vocational practice in the future. While engaging in the activity, students might discover that they have affinity with and are potentially capable of working in the vocational area and find personal motives for participating in the vocational practice. In short, it is assumed that working as a community of learners in initial vocational education helps students to become aware of personal and object motives for engaging in school and vocational practices.

Second, it is assumed that students will value the way of learning as a community of learners for initial vocational education as a way of learning that fits them. Learning as such a community entails legitimate peripheral participation in real vocational practices. The final responsibility for accomplishing the activity lies with the teachers and professionals. However, the students are offered the opportunity to be as active and autonomous as they want in regard to accomplishing the vocational activity and, thus, learning. In fact, they are encouraged to develop agency and to align the object motive that they attach to the vocational activity with their personal motives.

Finally, we assume that students in the proposed learning community show investment in school because school learning as a community of learners contributes to the students realising their personal motives.

In this chapter, we first investigate whether working as a community of learners for students in initial vocational education contributed to students' appreciation of what they learned, their appreciation of how they learned and their investment in school. Secondly, we focus on how working as a community of learners enhanced students' engagement.

3. METHOD

3.1 Intervention

In a design experiment conducted over two consecutive school years the model of communities of learners for students in initial vocational education was put into school practice at two schools for initial vocational education. The newly designed curriculum entailed organizing authentic events outside the school, whereas in the regular curriculum units students used to practice vocational skills and apply vocational theory in simulated workplace settings at school.

During the first school year, the teachers and researchers jointly designed parts of the 9th grade curriculum of the vocational subject 'Care & Welfare' at their school. This resulted at each school in two units, each containing approximately 40 lesson hours, designed to foster the proposed communities. School A developed a

Coffee Morning unit for elderly people from the neighbourhood and an Activity Morning unit at a primary school. School B developed the Steinhagen Family unit, in which students had to guide members of one specific family to social services, and Young meets Old, a unit in which the students organised an afternoon with activities for elderly people. Each unit was implemented and formatively evaluated by the students, teachers and researchers. During the second school year, the units we initially designed were optimised (redesigned) based on the evaluations obtained during the first school year. This resulted for school A in Coffee Morning II (relocating the activity to a nursing home) and Activity morning II. School B developed Young meets Old II and the unit ‘Make A Difference Day’ (MADD) which replaced the Steinhagen unit. Thus, in total eight units, and concomitant learning environments, were designed to foster communities of learners for initial vocational education, implemented and evaluated during the design experiment.

Overall, the students reported that they learned as intended in the communities of learners for initial vocational education in the units we designed significantly more than in the regular units (Boersma, Ten Dam, Wardekker, & Volman, 2016). However, certain units fostered this learning better than other units did. According to the students, Activity Morning I and in particular its redesign, Activity Morning II, facilitated working as a community of learners best. Due to this feedback, we decided to examine these units in depth.

Figure 1 outlines Activity Morning I and its redesign, Activity Morning II. During these units, students prepared for a morning full of activities for 6 to 8 year old school children at their primary school site. The students actually managed the event as well and evaluated their experiences. The goal for students was to learn about school children and their development and to become oriented toward working with children.

3.2 Participants

At each of the two participating schools, and in each of the two school years of the design experiment all students in the 9th grade ‘Care & Welfare’ tracks joined the design experiment (N=132, see Table 1). Each of the four groups was investigated by means of four repeated measurements. The students were mainly female, 14 to 15 years old and in their penultimate year of Dutch initial vocational education. 16 pairs of students in school A were interviewed.

Table 1. Overview of students in the participating groups

	Design year 1	Design year 2	Total
School A	28	38	66
School B	40	26	66
Total	n=68	n=64	N=132

3.3 Data collection procedures

To answer the question whether working as a community of learners for initial vocational education contributed to students' appreciation of the value of what they learned, their appreciation of the value of how they learned and their investment in school, we compared the students' experience of working as a community of learners and their engagement during the curriculum units we designed to those during regular units. All students were asked to complete a Learning Community questionnaire and an Engagement questionnaire on four repeated measurement occasions: right after the regular unit that preceded the first unit we designed (O1), after the first unit we designed (X1 and Y1) or redesigned (X1' and Y1'), after the regular unit that preceded the second unit we designed (O2) and after the second unit we designed (X2 and Y2) or redesigned (X2' and Y2'). The first two measurements took place in November and December, and the last two measurements took place in May and June (See Figure 2).

Activity Morning I

Meet and greet

Students were told at the start of the unit that they would organise a real event at a primary school. The students were shown a video that contained clips of the primary school and the teacher and children with which they were going to work.

Planning

During a class session, the teachers gave the students a plan that was created by the teachers beforehand and discussed with the students how they could work toward the Activity Morning event at the primary school.

Brainstorm

Small groups of students had to create several activities for the school children. The teacher prompted students to elaborate on their former experiences with children. Eventually, the class as a whole decided which of the proposed activities would be used during the event.

Worksheets

Small groups designed their children's activity on a professional worksheet. The worksheets enabled groups to use each other's activities. The small groups gave feedback on other groups' worksheets. Then, they prepared for their activities (collected all of the necessary materials, etc.).

Experts

Small groups were assigned different theoretical topics to study that concerned the development of

Different in Activity Morning II

Meet and greet

In addition, the students received photographs of the children who were assigned to their small group. The primary school teachers informed them about several details regarding the school children, responded to the students' questions and treated them as teaching assistants.

Planning

The planning was only roughly structured by the teachers beforehand. The students were allowed to create their own plan during this period. Several lesson hours, which were called 'Free hours', were reserved for small group and individual tasks that had to be planned by small groups.

Brainstorm

In between creating activities and deciding on the final set of activities, the small groups had to make a case for one of their activities, which needed to be based on explicit criteria.

Worksheets

Instead of receiving feedback from other small groups, the small groups discussed their activity and initial worksheet with a primary school student-teacher.

Experts

In addition, the final groups undertook the consequential task of adjusting their activities

school children. Next, the students regrouped. Each new group consisted of students who were experts on one of the topics. They were expected to share their knowledge, which would allow each group of experts to cover all of the topics.

Role-play

Small groups of students acted in role-plays wherein a teaching assistant responded to school children who demonstrated difficult behaviour (i.e., shyness, hyperactivity, clowning).

Competencies

Students had to put five teaching assistant competencies in writing and share those with group-mates. The teacher combined the competencies in a list. Halfway during the preparations, just prior to the event, and following the conduct of the event, the students were asked to monitor their developing competencies by means of the competence list.

Try-outs

Students acted as teaching assistants and children while conducting their activities in small groups, and they acted in the carousel form that they would utilise during the event.

Event

Students performed the Activity Morning event in the primary school. Students guided 'their' children in all activities – developed in the different small groups – constituting the event.

Evaluation

The experiences at the primary school were evaluated in a whole class discussion, which addressed the students' affinities and capabilities regarding their work with the children.

based on what they had learned about 6 to 8 year old children.

Role-play

The students role-played the responding of a teaching assistant to young children demonstrating the difficult behaviours. Other students were encouraged to give advice during the role playing process and observe the results. The teacher and students then discussed different manners to work with young children.

Competencies

The competence list from Activity Morning I was used by the students to monitor their developing competencies. The competencies of the list were also written on cards and distributed to the students before the role plays. Afterwards the teacher and students discussed the competencies which the students felt were important during the role play.

Try-outs

The activities that the students deemed to be most difficult were practiced by two small groups (one as assistant teachers and one as children) and observed by the others, followed by a discussion. In such a way, they optimised the conduct of their activity and manner of guiding primary school children.

Event

Same.

Evaluation

In addition, a poster that contained questions concerning how the activity went, such as: did the children participate enthusiastically, and what would you do differently next time, was used. Small groups wrote down their experiences at the primary school. Subsequently, the posters were evaluated in a whole class discussion, which addressed the reasons for conducting the activities in different ways and interacting with the children in different ways.

Figure 1. Assignments during Activity Morning I and Activity Morning II

Group in School A, Year 1		Group in School A, Year 2	
December/January	May/June	December/January	May/June
O ₁ X ₁	O ₂ X ₂	O ₁ X ₁ '	O ₂ X ₂ '

Group in School B, Year 1		Group in School B, Year 2	
December/January	May/June	December/January	May/June
O ₁ Y ₁	O ₂ Y ₂	O ₁ Y ₁ '	O ₂ Y ₂ '

Figure 2. Four repeated measurement occasions for each of four groups of students.

To determine *how* working as a community of learners enhanced students' engagement, we zoomed in on the experiences of students during the Activity Morning I and II units. In semi-structured interviews, students were asked about their perceptions of the learning setting for each assignment. The learning setting and students' behaviour were captured by video recordings of all of the lessons. Particular video clips were used as stimuli in the interviews. These so-called 'critical incidents' (Angelides, 2001) helped students recall their experiences and, thus, enhanced the validity of the data that were gathered (Calderhead, 1981). In total, 16 interviews with pairs of students were conducted, and all of them were conducted within the few days after the Activity Mornings. The interviews were fully audiotaped and transcribed.

3.3.1 Instruments

Learning Community questionnaire

The students' perceptions of learning as a community of learners for vocational education were assessed by using a Learning Community questionnaire (36 items, $\alpha=.74$). Students could indicate on a five point Likert scale how often they had been learning in the intended way (meaningful, social, etc.) during the unit at stake: 1 '(almost) never', 2 'sometimes', 3 'regularly', 4 'often' of 5 '(almost) all the time'. Sample items include 'In this unit, we learnt things that are of use to us.' and 'The assignments made us wonder whether we have the qualities needed for working in Care & Welfare.'

Engagement questionnaire

The students reported their engagement in a questionnaire that contained three scales: Valuation of what students learn, Valuation of how they learn, and Investment in school. Students' valuation of what they learn was assessed in terms of the perspectives that the curriculum's content revealed for them. We used the 'Short-term time perspective on school and professional career' subscale from the Time Perspective Questionnaire (TPQ; Peetsma, 2000). The subscale captures the degree to which students value school and a professional career, intend to reach goals in school and a professional career, and have specific feelings and emotions toward these goals (6 items, $\alpha=.86$). The items were slightly reformulated for the learning setting in this study. Sample items include: 'The things I learnt during this

unit play a major role in my life.’ and ‘I was pleased that I learnt a lot of new things during this unit.’

To determine students’ valuation of how they learn, the Valuation scale by De Bruijn et al. (2005) was used. The scale reflects the extent to which students are comfortable with the way of teaching and learning in vocational education (6 items, $\alpha=.84$). In this study, the items were formulated in order to specify the particular units. Sample items include: ‘I found the way of teaching and learning during this unit stimulating.’ and ‘The way of teaching and learning during this unit fits me well.’

Students’ investment in school (Roede, 1989) was operationalised by three aspects: the onset of students’ behaviour, students’ degree of intensity of their behaviour, and students’ perseverance. In the present study, the original scale ‘Investment students put into working in a certain subject in the classroom’ was reworded to be specific to the subject of Care & Welfare (8 items, $\alpha=.74$). Sample items include: ‘I worked hard during this unit.’ and ‘When I had to do an assignment during this unit, I completed it without delay’.

The items of all of these three scales were rated by using a Likert-type response scale that ranged from 1 (do not agree at all) to 5 (fully agree). The scales yielded satisfactory Cronbach’s alpha reliabilities.

3.3.2 Interview scheme

An interview scheme was developed on the basis of the theoretical framework of a community of learners for initial vocational education (Boersma et al., 2010) in which we addressed all assignments of the unit: did the students appreciate what they learned during the assignment, appreciate how they learned during the assignment, and put investment in doing the assignment? The scheme continued with the questions after why they did so, whether they did so more than during regular assignments, and what made them do so. The interview ended with a question after suggestions for improvement of the unit. As we tried to collect the own story of the students, we tried to formulate the questions in an open, value neutral, and understandable way.’

3.3.3 Analysis

Statistical analyses

The assumption that student engagement was enhanced by working as a community of learners for initial vocational education during the units we designed was investigated by the use of a correlation analysis. ‘Gain scores’ were calculated as the difference between the mean scores of each pair of regular unit and unit we designed for both ‘Working as a community of learners’ and the three scales of ‘Engagement’, i.e. the valuation of what students learn, the valuation of how they learn, and their investment in school. Secondly, the data were split into two sets for the purpose of cross-validation.⁴ The correlation analysis was completed for both data sets.

⁴ One data set contained the gain scores for the first units we designed in year 1 (X1 and Y1) and the second units we designed in year 2 (X2’ and Y2’), and the second set contained the scores for the

To examine the extent to which each particular unit we designed enhanced student engagement, and completed an analysis of variance for the mixed design, with the group of students and unit we designed as independent variables and the gain in the valuation of what the students learned, the valuation of how they learned, and their investment in school as dependent variables. First, an analysis that concerned all of the units was conducted. Then, separate analyses were completed for Activity Morning I and II. Cohen's f was calculated as a measure of effect size ($f = .10, .25, .40$ imply small, medium and large effects, respectively). For all of the three engagement aspects the assumption of normally distributed gain scores was satisfied. The independence of students was assumed. Dropout was considered to be random. All of the analyses were completed by using SPSS 22.

Table 2. Coding scheme for the three aspects of engagement

Aspect of engagement	Description
Valuation of what	Students reported the need to cooperate and to contribute to the group work in light of a shared goal. They reported discussion on their small groups cooperation and the group process.
	Students felt that their contributions as well as those of fellow students, teachers, and vocational professionals were valued and discussed. They felt treated as valued members of the whole community, including teachers and vocational professionals.
Valuation of how	The students felt they could understand the goal of a vocational activity by participating in that vocational activity for real.
	The students felt encouraged to take up the role of a professional and master vocational tools in order to anticipate social interaction with people like clients and professionals.
Investment	Students felt leeway and support to explore both their own and established ways of doing things, and combine the pursuit of their personal goals with those of the vocational activity.

Content analysis

To investigate how working in communities of learners for initial vocational education enhanced student engagement during the Activity Morning units, the transcripts of the interviews were systematically analysed by using matrix-display techniques (Miles & Huberman, 1994). Atlas.ti 6 was used to reduce and display the data. Firstly, the authors elaborated upon and tried to form a coding scheme based on the different aspects of engagement until a consensus was reached. The first author coded all of the transcripts by using the coding scheme (see Table 2). A research assistant coded 25% of the transcripts a second time, which led to a satisfactory interrater reliability (Cohen's kappa of 0,83 [0,70-0,96]). Secondly, we displayed the data in a matrix with the assignments on one axis and the aspects of engagement on the other axis. Thirdly, we verified the assumed dynamics of engagement by interpreting the ordered data. The data of each Activity Morning unit were first analysed separately, and then, they were compared to each other. We

second unit we designed in year 1 (X2 and Y2) and the first unit we designed in year 2 (X1' and Y1'). By using this method, the problem of dependency between unit gain scores due to using repeated measures was solved as well.

looked for patterns and contrasts. We also sought examples and counterexamples. In addition to using these tactics, we followed up with students who provided unexpected responses in order to find other insights with regard to enhancing engagement. For validity reasons, the assumptions were checked against the raw data. Because content analysis is an iterative process, the third step was repeated several times. The initial assumptions and conclusions were replaced, if appropriate, to create our final conclusions.

4. RESULTS

4.1 Increased engagement

Was student engagement enhanced during the units we designed because the students worked as a community of learners for initial vocational education? Table 3 displays the results of the correlation analysis of the questionnaire data. As assumed, an increase in working as a community of learners for initial vocational education was revealed to be positively correlated with an increase in students' valuation of what they learn ($r=.49$, $p<.001$, $n=106$; $r=.30$, $p<.01$, $n=109$) and their valuation of their way of learning ($r=.39$, $p<.001$, $n=106$; $r=.27$, $p<.01$, $n=109$). In addition, a significant positive correlation between an increase in working as a community of learners and an increase in the investment that students put into the Care & Welfare lessons could be determined only for one data set ($r=.26$, $p<.01$, $n=106$). The analysis, furthermore, confirmed that increases in students' valuation of what and how they learn are correlated with an increase in their investment in the Care & Welfare lessons ($r=.50$, $p<.001$, $n=106$; $r=.69$, $p<.001$, $n=109$, respectively; $r=.56$, $p<.001$, $n=106$; $r=.54$, $p<.001$, $n=109$, respectively).

Table 3. Correlations between gain scores for Working as a community of learners for initial vocational education (COL-ive), Valuation of what they learn, Valuation of how they learn, and Investment in school for both data sets

	COL-ive	Valuation of what	Valuation of how	Investment
n=106	COL-ive	1.00		
	Valuation of what	.49**	1.00	
	Valuation of how	.39**	.55**	1.00
	Investment	.26*	.50**	.56**
n=109	COL-ive	1.00		
	Valuation of what	.30*	1.00	
	Valuation of how	.27*	.69**	1.00
	Investment	-.06	.33**	.54**

* $p<.01$, ** $p<.001$

4.2 The specific units

According to the students, all of the units we designed, except the first unit, provoked them to work as a community of learners for initial vocational education significantly more than regular units did. Despite that fact, the analysis of variance

could not confirm that the units we designed enhanced student engagement. Overall, no significant increases in students' valuation of what and how they learned could be determined. The analysis of variance did reveal a significant increase in the investment that students put into the units we designed, but with marginal effect size ($F(1,93) = 4.43, p < .05, f = .05$). These outcomes necessitated a closer look at the separate units we designed.

An analysis of variance for the mixed design revealed the extent to which each unit we designed enhanced student engagement. Table 4 displays the mean increases in students' valuation of what and how they learn and their investment in the Care & Welfare lessons for each unit we designed. Clearly, during Activity Morning II and the MADD unit, student engagement was enhanced, whereas students reported no more, or sometimes even less, engagement during the other units.

Table 4. Means (and standard deviations) for students' gain scores for Valuation of what, Valuation of how, and Investment

School A	Year 1		Year 2	
	X ₁	X ₂	X ₁ '	X ₂ '
	Coffee	Activity	Coffee	Activity
	Morning I	Morning I	Morning II	Morning II
	n=25	n=23	n=26	n=31
Valuation of what	.02 (.74)	.02 (.42)	-.51 (.92)	.59 (.98)
Valuation of how	.01 (.57)	-.02 (.65)	-.01 (1.11)	.65 (.82)
Investment	.11 (.49)	-.05 (.48)	-.23 (.70)	.30 (.87)

School B	Year 1		Year 2	
	Y ₁	Y ₂	Y ₁ '	Y ₂ '
	Steinhagen	Young meets	MADD-	Young meets
	Family	Old I	days	Old II
	n=32	n=37	n=26	n=25
Valuation of what	-.35 (1.07)	.13 (1.11)	.32 (.77)	-.27 (.71)
Valuation of how	-.53 (.86)	.27 (.93)	.54 (.62)	.02 (.78)
Investment	-.49 (.96)	-.19 (.60)	.20 (.54)	-.19 (.56)

Because the Activity Morning II unit fostered learning by working in the proposed communities the best (Boersma et al., 2016), a comparison of this unit with its precursor, Activity Morning I, was the most informative with regard to the question of how engagement is enhanced by working as a community of learners for initial vocational education. Although they differ in their practical design and presentation of the assignments, the two Activity Morning units are comparable because they used the same structure and focused on the same learning goals. Both the initial and

optimised unit aimed for students to learn about school children and to become oriented towards working with children. Furthermore, the regular unit that preceded each Activity Morning was used as a baseline to determine the gain scores and remained unaltered.

The students who joined Activity Morning I reported no more or less valuation of what and how they learned (and did not show more or less investment in the Care & Welfare lessons) than they reported during the preceding regular unit. In contrast, the students who participated in the redesign, Activity Morning II, did report significant increases in all of the three aspects of engagement, with a medium effect size for students' valuation of what they learn ($F(1,30) = 3.82, p < .05, f = .28$), a large effect size for their valuation of how they learn ($F(1,30) = 18.27, p < .01, f = .41$), and a small effect size for their investment in the lessons ($F(1,30) = 10.95, p < .001, f = .11$).

4.3 Dynamics of engagements

To find out how engagement could ultimately be explained by the interaction between individual students and the learning setting, we turned to the interview data for the Activity Morning units.

4.3.1 Valuation of what

The Activity Mornings entailed organising a morning full of activities for primary school children (i.e., an activity that the students could become involved in as future professionals). The students were prompted to reflectively participate in the activity as teaching assistants. This was supposed to help them attach an object motive that a teaching assistant generally has to working with children in primary schools and become aware of personal motives that are related to working with children. The use of learning about school children's development would become clear when viewing these motives.

The first Activity Morning unit began with a video of the participating primary school classes to offer an image of the primary school teachers, children and activities. Additionally, the teachers explained how the Activity Morning event would be organised in general: after a joint introduction, small groups of students would take small groups of children along a carousel of activities, and they would finish together at the end. The students were invited to organise the event and, specifically, to invent and prepare the activities, in consultation with the primary school teachers. How did the students respond to the unit?

Although a few students of Activity Morning I did come to understand the use of what was to be learned when organising the event and working with school children in general, most students did not understand this. It seems that the students did not attach a professional object motive to organizing the event. There had not been direct contact between the students and the primary school teachers about their plans. For practical reasons, the vocational teachers had functioned as messengers between the secondary and primary schools. The object motive of teaching assistants (i.e., contributing to children's development) seemed to have disappeared due to this way of communicating. As a result, the students did the preparatory assignments without realising that the assignments helped them to develop the

competencies that were necessary to accomplish the event in a way that encouraged children to learn and work at a primary school.

The curriculum content was also assumed to appeal to students' personal motives. However, some students did not discover whether they had affinity with and were potentially capable of working with children. Other students, however, did imagine a future of working with children and, thereby, realised whether working with children would be satisfactory work for them.

Oumaima: 'Now, I have an image (of working at a primary school), much better than if we would have learned about it at school. I found it went well. I found out I could do this. I wasn't nervous when I saw the children, for example. I just liked it.'

Notably, it was only during the event of Activity Morning I, and not during the preparations, that these students found a personal perspective regarding possible continued schooling and a professional career. The interaction with children during the event seemed to contribute to their perspective because it enabled students to take the role of the teaching assistant.

Soraya: 'I felt I could really try being a teacher assistant, because you actually were the master for these kids and they really listened well.'

This did not happen during the preparatory assignments, however. Although these were all about working with the children, the children themselves were not directly involved. The introductory video came closest to affecting the students, but it was evaluated as follows:

Soraya: 'You just saw them play outside and you saw the classrooms, nothing else. The children, you just saw them run and did not come to know who is who.'

Concerning students taking the role of the teaching assistant and finding personal motives for working with children, it seems that the assignments need to enable students to personally connect to the children.

The second Activity Morning was designed with these results in mind. In Activity Morning I the poor opportunities for interaction with the primary school teachers seemed to have caused the students to not discern the professional object motive for primary school activities. It also appeared that the personal contact during the event and the emotions that this contact evoked allowed students to become aware of their personal motives for working with children. In Activity Morning II, we, therefore, ascertained more direct and personalised contact between the students and the primary school teachers and children, starting at the beginning of the unit. In addition to the general video of the primary school classes, the small groups of students were given photographs of the children for whom they would plan activities and were asked to make an invitation and name tag for the children in their group. Additionally, a primary school student teacher was invited to speak with the small groups regarding their activities. Furthermore, the primary school teachers visited the students to inform them about several details regarding the children and responded to the students' questions as if the students were teaching assistants. These efforts clearly did allow students to appreciate the perspectives that the curriculum content would open up. Many students of Activity Morning II perceived

the content of the optimised unit to be useful in regard to organising and performing the event at the primary school and working with children in general.

Tamar: 'How to work with shy children, that they all have their own personalities, that's what you learn here, but also for later, if you're gonna do this kind of work.'

In contrast to the students of the first Activity Morning, most students of the second unit did discern and attach the most evident object motive related to organising the Activity Morning event: helping children learn.

Jennifer: 'This girl, she did not know the difference between left and right, and she did not dare to ask what was what again. Because everyone knew that by then, except for her. So I thought 'Well, I'll practice that another two or three times', and then it went alright.'

In addition to helping children learn, and in some cases, instead of helping children learn, many students believed that providing children with enjoyable activities was the object of their efforts. Nonetheless, the gain of Activity Morning II with regard to the initial unit was the fact that students at least did attach an object motive to the activity.

The efforts to optimise the students' interaction with the primary school teachers during the preparations seemed to be effective, but these efforts seemed to affect another motivational force even more. Meeting the children's teacher encouraged students to focus on working with the children as the object of their preparations.

Madelief: 'What master Wouter said about the children, if someone is allergic and so on, that was really important to know. Then, you knew that you had to attend to that.'

In addition to object motives, students became aware of personal motives for working with children. They expressed that they realised the use of what they learned during the Activity Morning unit in their own lives now and in the future.

Joyce: 'I always wanted to become a hairdresser, but since my internship and this, I started to consider it (working with children). Now, I found I, in fact, enjoyed being with children. I do not have that much patience, however, so I'm not sure if I'm good.'

Although the introduction of the unit had been changed to enable students to personally connect with the children earlier, the introduction did not immediately make them aware of having an affinity for or the competence to work in primary education. Obviously, the interaction with the children during the event encouraged reflection on personal motives, which was absent during the one-way contact of the introduction.

4.3.2 Valuation of how

The Activity Morning units were designed to offer students space to work cooperatively and to be as active and autonomous as they wanted to be in organising the event at the primary school. As the primary agents of their actions, they would be able to attach object motives to the Activity Morning event that align with their personal motives and, thus, adapt learning to their needs.

Although the assignments of Activity Morning I were pre-structured, students were encouraged to influence the content of the assignments. They were invited to propose and design the ‘what’ and ‘how’ of the event at the primary school. The instructional method of Brainstorming, for example, guided the students from individually creating children’s activities via thinking them over in small groups to deciding, as a group, which activities should be planned for the event. As the next step, the small groups were required to fill out professional worksheets, which helped them plan their activity in a structured way. How did this unit we designed affect the students?

The initial response of most students to the Activity Morning unit was that it was fun. They appreciated the fact that they had a say in the content and organisation of the event.

Anna: ‘I appreciated most that we had to arrange everything during the event and the teachers were not really there. That was fun, because if they would have, they would point at all kinds of things, saying you need to do this or that. I don’t like that. Now, we could go our own way, make the round along all activities ourselves. I liked that, that we actually got freedom.’

As a result, the students could be proud of their accomplishments, which further raised their appreciation.

Oumaima: ‘During the preparations I thought it would be boring at the primary school. I also became afraid that the kids would not listen. But it was fun, because they listened well and really joined in.’

The cooperative way of working together was positively valued as well.

Tom: ‘I agreed with how we suggested ideas to each other, how we added to each other’s comments, because then you express what may be optimised and what is impossible, you help each other.’

Many students also appreciated the more active, practical way of working when it was compared to their regular pen-and-paper work.

Anna: ‘It’s just fun, because you do not need to sit still, you are just busy all the time.’

Accordingly, the more theoretical, scholastic assignments that had to be completed, such as the Experts assignment for which they had to study theories on children’s development, were evaluated less positively.

Although students appreciated the cooperative, active, and practical ways of working, they did not become agents who plan their actions in the pursuit of a certain goal.

Anna: ‘I just did the assignments, without realising that they had something to do with the event at the primary school. I wasn’t aware of why we did them, and that it was important to give it all serious consideration.’

They just completed the assignments because they were supposed to complete them and did not relate them to the goals of the Activity Morning event or to the goals that pertained to their personal development and future. It seemed that the assignments were, in fact, pre-structured to the extent that students were not aware of the steps in the process of working towards organising the activity. As a result,

they did not realise that they had agency in that process, which would allow them to work in a way that would have met their personal motives.

Considering the following remarks, students did not seem aware of the fact that they were learning during the process of preparing, handling and evaluating the event.

Oumaima: 'I liked it quite alright, but there was so much repetition, it took too much time and kept us from the things we got a test about.'

The fact that the Activity Morning unit was described as fun appeared not only to create but also to diminish appreciation for the way of working during the unit. According to students, it stood in the way of 'real' learning.

The results of the first Activity Morning suggested one main point of improvement for the second unit: to make students aware of their role as agents in the process of working and learning with regard to the event at the primary school. We decided to design Activity Morning II in a way that would still use the assignments, but the decision of when to complete the assignment was left to the small groups. The teachers provided the small groups with a format to scaffold their planning. During 'Free Hours,' students could work on the assignments based on their own planning. The teachers, thereby, intended to help students in a reflective, rather than prescriptive, way. This allowed students to become aware of the process of learning and working towards a well-prepared primary school event and of their role in that process.

As it turned out, the students of Activity Morning II described the way of working as 'much better than regularly' and 'actually fantastic'. In addition to the event at the primary school, the most appreciated element of Activity Morning II that was mentioned by the students was working according their own planning during the Free Hours.

Madelief: 'We found making our own planning convenient and better, because then you are not continuously assigned to do this or that and therefore, everyone could do it in a different way.'

Jennifer: 'You learn more, remember more, if you do it yourself. You start considering things more. I actually appreciated the Free Hours, in the end you see all that you have done, and that is really nice.'

Apparently, the students appreciated the efficiency, overview and control that they acquired by creating their own planning schedules. Planning also helped students gain insight regarding how the assignments helped them to prepare for the Activity Morning event.

Miranda: 'The lessons which we prepared for each other about children's development were useful, they were of use to the class, because that was what is was actually about, that you could put it to use during the morning at the primary school.'

Nevertheless, the freedom to decide when to complete each assignment did not encourage students to align personal goals with those of the Activity Morning event. The students became aware of the process of learning and working towards a well-prepared primary school event, but they were not aware that they had an active role in that process. They only, unconsciously, adapted the assignments to the object

motive that they attached to the Activity Morning event. The design of the unit did not prompt them to incorporate motives that pertained to their personal development and future.

4.3.3 *Investment*

It was assumed that students would invest in school because school learning as a community of learners contributes to the realisation of personal motives.

The students of Activity Morning I said that they invested as much, in the unit we designed as they did in regular units. They reported that they worked hard during the event at the primary school, in particular.

Soraya: 'If it had not been for school, I would have done it anyway, so it was fun. It was just something for yourself. During regular class, you think 'yeah... I'm at school again', so you really feel like 'don't bother'. But there, at the primary school, you are really happy, you're with the children. Just the atmosphere with the kids and all.'

The students were evidently activated by the thrill of being with the children in the primary school and the atmosphere that accompanied this activity.

During the preparations at their own school, however, students did not get excited. The Activity Morning unit did not change their perception of school being a place where everything is obligatory.

Anna: 'You just do it, because it is at school, you just have to, so you don't think of putting more effort in it.'

The students were only enthusiastic during the preparations because they could create their own ideas.

Oumaima: 'You also like it because it's your idea. You then just know how you will set about it, you also have an image, because you like it. When you don't like it, you only think 'How bad! It's not gonna work out. Just very negative. Then you don't feel like anything anymore. But because it's yours, you do like it and get it going.'

Regarding the rationale behind these findings, students explained that they invested in the lessons because they created plans that they perceived as nice and feasible, in contrast to their perception of most teachers' plans.

The students of Activity Morning II felt encouraged to put more effort into, the units we designed than the regular units. Similar to Activity Morning I, students reported that they demonstrated the most effort during the event at the primary school. In addition, however, students said that they put considerable effort into the preparations as well.

Miranda: 'I feel like I did a whole lot more than in regular units, because then I just talk and then I hardly do anything, to be honest. I do just what I am required to do. I would never do more, but now we continued until everything was done. We even spent extra time as not everything was finished yet. But we really did not mind that at all, because you did it for something, so...'

During the preparatory assignments, the students were not as excited as they were during the event. Nevertheless, the introduction made students aware of having a good reason to work: living up to the expectations of the children.

Miranda: 'Now it was for real, you do it for the children, and they really expect something from you. In the regular units, you just learn unthinkingly, because then it's just for your exam.'

Furthermore, during the unit, students did not only find a good reason to work, but they also felt the authority and responsibility (i.e., the opportunity and accountability) to pursue that reason.

Miranda: 'When you plan it yourself, you don't mind to do some things in your spare time. Then you do it for yourself and not for school.'

The Activity Morning II unit clearly shifted students' perceptions of school being a place where they passively receive information to school being the place where they could act as agents of their own actions.

5. CONCLUSION AND DISCUSSION

The results of our design experiment indicated that working as a community of learners for initial vocational education did indeed enhance students' engagement. Overall, the extent to which students experienced working as a learning community was associated with their appreciation of what and how they learned. Students who valued the content and the way of learning more reported more investment in the Care & Welfare lessons. A direct association between working as a community of learners for initial vocational education and investment in school could not unequivocally be determined.

Our study also shed light on how working as a community of learners for initial vocational education enhanced student engagement. Firstly, we argued that students would appreciate the value of what they learned during the units because working as a learning community should have made them aware of personal and object motives for engaging in vocational practices. This only turned out to be the case in the unit we redesigned. Our analysis suggested that the interaction with professionals (the primary school teachers) helped the students attach professional object motives to the activity only when they felt treated as professionals. The interaction with real 'clients' (the school children) helped them become aware of personal motives for engaging in the vocational practice.

Secondly, we assumed that students would come to value the way of learning as a community of learners for initial vocational education as being a way of learning that fits them. Working as a community of learners is supposed to encourage students to align their personal motives with the object motives of the vocational activities in which they engage. The students did appreciate the freedom they received in regard to shaping the event and working according to their own planning. However, this appreciation did not extend to their opportunity to be agents who pursued personal goals that are consistent with vocational goals; the appreciation only extended to the overview and control that they received in regard to personalising and completing the partly prescribed assignments (e.g., more choices).

Finally, we our theoretical framework suggested that students who actually become aware of personal and object motives and align both of these motives would invest in school. This was indeed the case in both of the units. The thrill of working

with school children encouraged students to invest during the event at the primary school. Only in the unit we redesigned, however, did the preparatory assignments prompt the students to set a goal that was related to the event and offer them the opportunity and responsibility to pursue that goal; the activity became more than a school assignment.

These results led us to the conclusion that learning environments that are designed on the basis of our model of communities of learners for initial vocational education do not necessarily enhance student engagement in all aspects. The dynamics of engagement demonstrated that students often perceived the learning environments we designed to be similar to the regular school context in regard to learning, and they responded accordingly. It is difficult to change the image of school that students have formed over the years by using a unit of only 40 lesson hours.

Nevertheless, our results suggest a further specification of the learning community model used regarding the design of learning environments that can contribute to changing students' traditional scholarly attitude. Working as a learning community should provide emotional experiences, such as starting a unit with having students interact in person with clients and professionals. Emotional valuations arise from and reflect the assessment of such experiences, and they mediate the selection of goals and actions that shift the results of an activity toward the anticipated outcome (Roth, 2011, p.52). Learning environments that prompt emotional experiences could enable students to frame and interpret their participation in the vocational activity (cf., Smagorinsky, 2011) and, thus, to explore personal and object motives for engaging in a vocational activity from a professional's point of view.

This further specification of the learning community model is related to concepts, such as 'boundary experiences' (Meijers & Wardekker, 2003), 'ruptures and transitions' (Zitoun, 2008), and 'dialogic provocations' (Matusov, 2012), which all refer to tensions that call for learning or a revision of one's self-concept. The community of learners model should enable teachers to design learning environments that prompt such tensions and, thereby, create the conditions for student learning to occur.

A research agenda that aims at enhancing the engagement of students in initial vocational secondary education by organising teaching and learning in communities of learners, we would like to raise two issues. First, investigating differences in the engagement of students in communities of learners is needed. How are these differences related to individual preferences and social positions, and how can teachers address them? Moreover, how can teachers use the tensions and contradictions within a community as a motor for learning?

Second, to fully reveal the personal relevance, as well as the societal relevance, of school-learning and to contribute to the emancipatory mission of education in modern society, we need to develop ways to prevent communities of learners from fixating on existing motives, and further explore and evaluate ways to develop new motives in the students. Teachers can prompt students to try new roles and to explore and discuss alternative perspectives (Ziehe, 2004). The ability to step back and reflect is necessary for students to broaden and deepen their motives and to develop new motives.