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Studying motivation in classrooms

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General introduction

1.1 Introduction

For students an important prerequisite to their learning is motivation for school. Unfortunately, many early adolescents are not eager to learn at school and, in particular for the period after the transition toward secondary education, drops in their motivation have been found. In secondary education, it is often found that students have problems with self-regulated learning, perform poorly, or even drop out; especially at the lowest levels (Dutch Inspectorate of Education, 2005). Why is this the case, and how can students' motivation be fostered? Available evidence shows that teaching practices do matter as they have the potential to prevent the declines in early adolescents' motivation (e.g. Vedder-Weiss & Fortus, 2011). More research is necessary, however, about what it is that makes teaching practices effective in this regard.

Each and every school is one-of-a-kind. My personal memory brings me back to grades 5 and 6 of primary school and mine and my classmates' endeavour to visit all schools for secondary education in Amsterdam. I remember some schools feeling safe, others exciting, a few unwelcome, and many muddled; not one school appeared, however, indistinct. Unfortunately, establishing optimal teaching practices is just as difficult as it was for me to decide which school I liked best. What effective teaching practices comprise in one context is not necessarily the same as what they comprise in the next (Dunkin & Biddle, 1974); there is no one-fit-all solution. Consequently, to understand classrooms as contexts and to reveal consequences of the complex interplay of contextual elements, next to research conducted "about" classrooms, research conducted "in" classrooms is necessary (Perry, Turner, & Meyer, 2006). That is, research focusing on (consequences of) what is actually going on in classrooms.

In the present dissertation, the aim is to gain understanding of what makes teaching practices effective in fostering early adolescents' motivation in the complex contexts of classrooms. More specifically, the five studies (one review and four empirical research studies) revolve around five features that characterise this dissertation further. The first of these features is that the focus is on teaching practices taking place in schools and classrooms and not, as often is the case in motivation research, on derived variables, e.g. student perceptions of these practices (see Perry et al., 2006). Thereby a high level of ecological validity is purchased. Second, as motivation is known to contain strong domain-specific components (Bong, 2004) we decided to focus on course-specific instead of general motivation; the courses we focus on are math and mother language as these are considered key in the curriculum. Third, while most studies in the domain have been correlational, the four empirical research chapters of this dissertation share their focus on longitudinal studies. Advantages of longitudinal studies include that they can shed light on developmental trends and on stability

of effects of teaching practices over time. Fourth, for the purpose of gaining understanding from multiple perspectives we applied multiple methods, including in-depth analysis of video-material and multilevel analysis of large datasets.

A final characterising feature of this dissertation is that all presented studies are strongly embedded in (one of) two theoretical frameworks. Adding to the complexity of studying motivation in classrooms is that what is going on is shaped at multiple levels. We aimed to incorporate some of this multilevel structure by including measures at the level of the type of school as well as at the levels of the class and the student. Over the past decades, many schools have adapted towards social constructivism with the aim of enhancing student motivation (Boekaerts, de Koning, & Vedder, 2006). In educational theory, social constructivist views stand in contrast with traditional views. Hence, at the highest level, we compare between three types of schools: Prototypical traditional schools, prototypical social constructivist schools, and schools that substantially combine elements of both. Traditional and social constructivist educational approaches represent contrasts, amongst others as in the former teachers are expected to take a large responsibility for students' learning, whereas in the latter teaching revolves around helping students in organising and regulating their own learning. At the lower levels of the class and the student, we analyse teacher-student interactions from the perspective of Self-Determination Theory (SDT; Deci & Ryan, 1985; Ryan & Deci, 2000). SDT is an encompassing theoretical framework for studying motivation in classrooms as based on SDT characteristics of teacher-student interactions can be linked with students' motivation. More specifically, teacher-student interactions that support students' fundamental needs for autonomy, competence, and relatedness are expected to positively affect their motivation. Below is elaborated further on these two theoretical frameworks that underpin the present dissertation.

In the remaining of this chapter, first, the crucial role of motivation in learning is discussed as well as why teaching and learning should be considered intricately connected processes (e.g. Shuell, 1996; Vermunt & Verloop, 1999; section 1.2). Then, traditional and social constructivist views on instruction are elaborated upon (section 1.3), followed by a discussion on Self-Determination Theory (section 1.4). Further, the period of early adolescence is treated, as well as arguments on why studying the motivation of early adolescents is of particular interest. In addition, attention is given to the Dutch educational system and, specifically, prevocational education (section 1.5). Finally, the remaining chapters of this dissertation are briefly elaborated on (section 1.6).

1.2 Teaching and learning as intricately connected processes and the crucial role of motivation

In modern views, it is emphasised that learning is an active, self-regulated process. Self-regulated learning cannot be understood without taking students' motivation into consideration as, by definition, it involves goals and motivational feelings or beliefs about attaining these goals next to self-initiated learning processes (Schunk & Zimmerman, 1994). Accordingly, along with the increased importance being attached to self-regulated learning, students' motivation has come to be recognised as critical to students' success at academic activities. Research supports the importance of student motivation for learning as it shows positive associations with a wide array of learning outcomes, e.g. school achievement (Richmond, 1990; Steinmayr, & Spinath, 2009; Spinath, Spinath, Harlaar, & Plomin, 2006; Wigfield & Cambria, 2010), transfer of learning (Laine & Gegenfurtner, 2013), and persistence in learning over time (Richmond, 1990).

The history of motivation research consists of many rich theoretical traditions encompassing a variety of motivational constructs. What these theories share is that they consider motivation a process that involves goals, and requires activities that are instigated and sustained (Schunk, Meece, & Pintrich, 2014); what they vary in are their assumptions about the nature of people and about the factors that give impetus to action. While initially theory on motivation was focused on drives and needs, over the past thirty years social cognitive theories have attained a dominant position, focusing, amongst others, on the motivational significance of individuals' beliefs and expectancies, goals, values, and orientations towards learning and performance (Wentzel & Wigfield, 2006). Central to the definition of motivation in the present dissertation is the question whether the factors giving impetus to action are positive, e.g. a task being inherently satisfying or personally valuable, or negative, e.g. avoidance of punishment or shaming. In Section 1.4 is elaborated on this distinction from the perspective of SDT.

Increasingly, views on motivation as being a characteristic of the individual are extended to include the social and situational factors that influence student motivation (Schunk et al., 2008; Perry et al., 2006). Moreover, a slow shift toward situated and social perspectives on learning has been visible (Perry et al., 2006; Maehr, Karabenick, & Urdan, 2008), and it has come to be recognised that no single characteristic of an individual or classroom is sufficient to explain student motivation, but, instead, explanations need to be sought in various combinations of characteristics (Perry et al., 2006). Learning, in this regard, is seen as a deeply socially embedded process in which teacher and learner mutually influence each other (Turner & Patrick, 2008).

Research into the question how self-regulated, motivated learning can be fostered indicates

the importance of providing students with opportunities for self-set learning episodes that trigger their pursuing of personal goals (Boekaerts & Niemivirta, 2000). While allowing students such an active role in their own learning processes fits with modern views on learning, the question how such self-set learning episodes should be organised remains open for debate. Amongst others, for this purpose it has been suggested that learning and motivation should be co-regulated at the start, but once learners have internalised the structural and social supports in their learning environments they are capable of relatively self-regulated learning (Vermunt & Verloop, 1999). Amongst prominent on-going debates in educational literature is the question how students can be allowed a more active role in their own learning processes, without running the risk of providing them with too much freedom and own responsibility too early (Wigfield, Byrnes, & Eccles, 2006).

In research on social or situational factors fostering students' motivation an important recognition is that effects never are direct, and, instead, always are mediated by students' psychological responses to these factors (Deci, 1975; Entwistle, 1991). This recognition brings along a difficulty for researchers examining effects of teaching practices that can be countered in several ways. A first way is to focus on relationships with learning outcomes of student perceptions of teaching practices instead of on the actual practices. In the past decades such research relying on student perceptions has blossomed (Perry et al., 2006), thereby yielding findings of crucial importance for validating educational theory. Among important disadvantages of research linking two variables at student level (e.g. student perceptions of teaching practices and students' learning outcomes) is, however, that the level of the class and what happens there is left out completely. As a result, in this type of research an essential piece of information is missing, namely how these theoretical findings can be translated to practice and what happens when they are implemented in the complex contexts of classrooms. Hence, in this dissertation when interpreting teaching practices as occurring at the level of the class we chose to counter this difficulty in a second way, namely by interpreting teaching practices within the context in which they occurred thereby taking the perspective of the students involved.

1.3 Traditional and social constructivist views on instruction

As alluded to above, among defining features of this dissertation is that at the highest level we compare between three types of schools: Prototypically traditional schools, prototypically social constructivist schools, and schools that substantially combine elements of both. Such a comparison fits with this dissertation's aim of studying motivation in classrooms, as the focus

is on consequences of what is actually going on in these types of schools instead of on students' perceptions of what is going on or on derived variables.

Traditional views on instruction are in correspondence with the stimulus-response framework (see Shuell, 1996; Greeno, Collins, & Resnick, 1996) and relatively much emphasis is put on learning as being a largely reproductive process that results from transmission of knowledge. Teachers are expected to take a large responsibility for students' learning processes and not only explain subject matter, but also structure the course material itself and the way it is provided (Gibbs, 1992; Boekaerts & Niemivirta, 2000; Bolhuis & Voeten, 2001). Social constructivist views on instruction, on the other hand, have emerged in convergence with theorists such as Vygotsky (1962, 1978), as well as the modern cognitive science perspective (see Shuell, 1996; Hickey, 1997). In these views, learning is considered to exist in the active construction and accumulation of knowledge and instruction should focus upon assisting students in organizing and regulating their own learning processes.

Social constructivist views on instruction fit with modern views on learning as being an active, self-regulated process. Further, schools that have incorporated elements of social constructivist instruction have typically done so with the explicit aim of enhancing student motivation (Boekaerts, de Koning, & Vedder, 2006), thereby aligning with the recognition that to foster motivated, self-regulated learning students need to be provided with opportunities for self-set learning episodes. Indeed, research shows positive effects of singled-out characteristics of social constructivist instruction on students' motivation (e.g. Benware & Deci, 1984; Turner, 1995), of the extent to which early adolescents perceived their instruction as social constructivist (e.g. Nie & Lau, 2010), and of social constructivist interventions (e.g. Wu & Huang, 2007). Despite these promising findings, scholars have expressed their concerns as well; particularly prominent in the debate is the concern that social constructivist instruction provides students with too little instructional guidance and too much freedom and own responsibility, thereby undermining instead of fostering their (self-regulated) learning (Kirschner, Sweller, & Clark, 2006; Mayer, 2004; Anderson, Reder, & Simon, 2000). Currently, research on what is going on in types of schools is lacking as is research on effectiveness of implementing social constructivist educational approaches at the level of the school. Such research is, however, crucial as it helps grasp both direct consequences, i.e. inherent in the educational approach, and indirect consequences, i.e. resulting of implementation in practice. Hence, in this dissertation we compare between prototypical traditional, social constructivist, and combined schools.

1.4 Self-Determination Theory

At the lower levels of the class and the student teaching practices are analysed from the perspective of Self-Determination Theory (SDT). SDT is an encompassing theoretical framework for studying optimal conditions for fostering students' motivated learning as teaching practices, as they take place in the context of a classroom, are directly linked to students' motivation. SDT is built on the assumption that humans are inherently active, curious to learn, and inclined to undertake challenges. Central is the view that in the long run it is beneficial not so much to pressure people or make them feel obligated to perform certain tasks, but instead to foster their pursuing of their own interests and goals they (have come to) value. These interests and personally valued goals can either be things people find of interest already, or things they come to value as they internalise the knowledge, customs, and values that surround them. When translated to the context of education, according to SDT, the aim should be to foster or stimulate students' valuing of school-related goals as well as their pursuing of their own school-related interests.

In line with this central SDT-notion, different types of motivation have been distinguished based on their being regulated more autonomously or more controlled. First, a distinction is made between intrinsic motivation, which is considered the most autonomous type as it is regulated by interest in or inherent satisfaction of an activity, and several types of extrinsic motivation. The more autonomous types of extrinsic motivation are regulated either integrated, by motivation to attain personally important outcomes, or through identification, by conscious valuing or acceptance of a goal as being personally valuable. The more controlled types, on the other hand, are regulated either introjected, by avoidance of guilt or shame or to attain ego-enhancements and feelings of worth, or external, by motivation to obtain awards or avoid punishments. Research has consistently shown beneficial effects on student learning of these more autonomous as opposed to more controlled types, including more volitional persistence, more effective performance, and greater well-being (Ryan & Deci, 2002).

Teaching practices foster the more autonomous types of motivation when they support instead of thwart the three fundamental human needs for autonomy, competence, and relatedness (in the preceding referred to as 'need supportive teaching'). The need for autonomy entails the desire to be a causal agent and to experience volition. For students to experience autonomy in their learning, it is of importance that they consider their actions personally interesting or valuable. The need for competence refers to the striving to exercise and elaborate one's interests and to seek challenges (White, 1959), while feeling effective in doing so. Finally, the need for relatedness concerns the desire to connect with and be accepted by others, and to belong (Baumeister & Leary,

1995; Bowlby, 1979; Harlow, 1958; Ryan, 1995). For students to experience relatedness and to feel encouraged to adapt positive values regarding schoolwork, it is of importance to feel accepted and supported by their teachers, as well as stimulated to work on school tasks.

The theoretical framework of SDT was not developed for the field of education, but is applicable much broader. Accordingly, its premises require translation to the context of education. This is of importance, particularly, as classrooms are specific contexts; not only because schools and teachers have unique positions in the lives of children, but also because teacher-student interactions do not occur in isolation but are part of the many things that tend to be happening at the same time and are witnessed by large proportions of the class (Doyle, 1986). In SDT-literature on need supportive teaching is agreed upon the existence of three positive and negative dimensions that complement each other in their effects on students' need satisfaction (Connell & Wellborn, 1991). These are the positive dimensions of autonomy support, structure, and involvement and the negative dimensions of autonomy thwart, chaos, and disaffection or reject. Applying SDT fits with the present dissertation's aim of studying motivation in classrooms as in SDT is recognised that need supportive teaching does not consist in a prescribed set of techniques and strategies (Reeve, 2006) but, instead, should be interpreted in context using a differential approach. In line with this recognition and our focus on (consequences of) what is actually going on in classrooms, in this dissertation an observational measure is used that is designed to assess need supportive teaching in context.

Amongst others, SDT is a useful framework to compare between traditional and social constructivist educational approaches as the dimensions of need supportive teaching incorporate the consequences of providing students with too little or too much freedom and own responsibility. Thereby, SDT can be helpful in answering questions that relate to the debate on how students' self-set learning episodes should ideally be organised. Specifically, providing students with too little freedom would translate into low levels of autonomy support (e.g. incorporating students preferences in the lesson) and high levels of autonomy thwart (e.g. not allowing complaints), while provision of too much own responsibility would result in low levels of structure (e.g. being available when students need help) and high levels of chaos (e.g. not monitoring students' levels of comprehension).

1.5 Early adolescent students attending prevocational secondary education

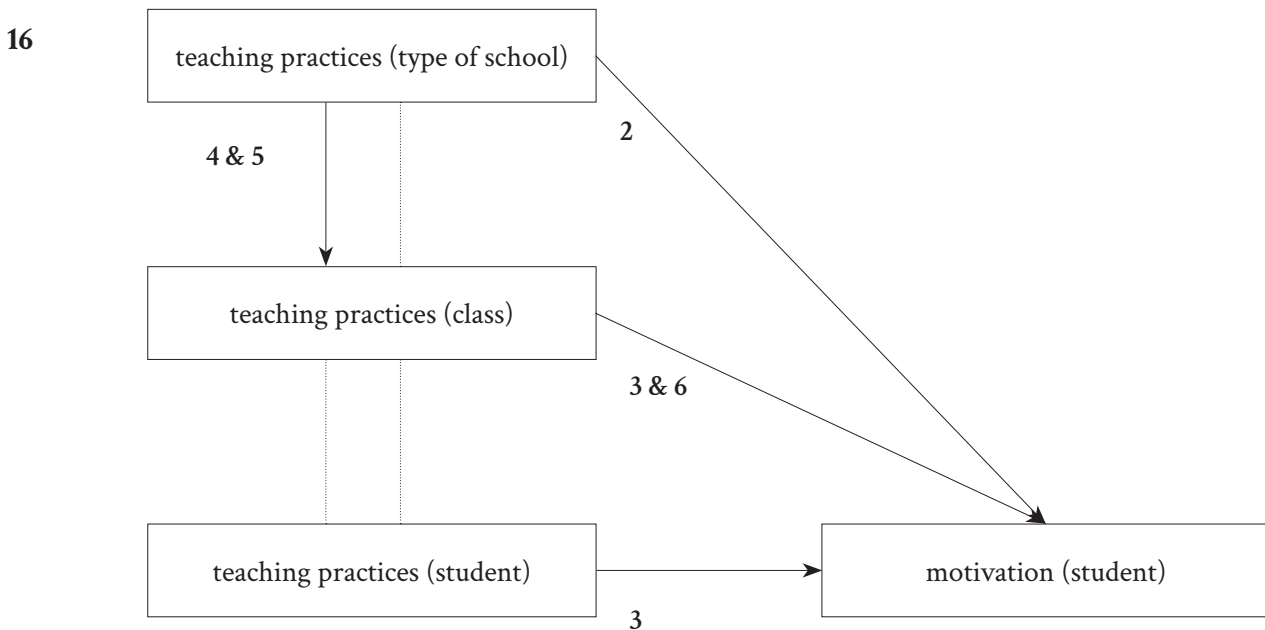
All empirical research studies presented in this dissertation were conducted among early adolescents in their first year after the transition toward prevocational secondary education. In the educational literature, early adolescent students are considered a target group of special interest not only because their motivation has been found to decline (e.g. Anderman & Maehr, 1994; Gottfried, Fleming, & Gottfried, 2001; Peetsma, Hascher, Van der Veen, & Roede, 2005; Wigfield, Byrnes, & Eccles, 2006; Van der Werf, Opdenakker, & Kuyper, 2008), but also because it is in this period that students develop their identity at a rapid pace and shape their cognitive and emotional responses to school (Wigfield, Eccles, & Rodriguez, 1998). In most countries, the transition toward secondary education takes place when students are in their early adolescence, with secondary education typically being characterised by less participation, more excessive rules, and more superficial teacher-student relationships than primary education. It has been argued this is problematic, particularly, for students in their early adolescence who have a high need for independence and meaningful social interactions (Eccles & Midgley, 1989; Eccles et al., 1993). In addition, this group of students faces the changes associated with the onset of puberty that include cognitive changes and changing social relationships. In this light, it might not be surprising that many early adolescents discover new areas of interest, with the school potentially attaining a less dominant place in their lives (Wigfield et al., 1998).

In the Netherlands, it is students attending the prevocational track of secondary education, particularly, that have been reported to lack motivation (Dutch Inspectorate of Education, 2005). In the Dutch educational system, the prevocational track ('vmbo') is the lowest of the three mainstream tracks, and is attended by more than half of the students (Dutch Inspectorate of Education, 2012). Students attending this track are offered an educational program that has a balanced focus on theory and practice. As a group, students attending prevocational secondary education are characterised by their relatively high prevalence of learning- and/or behavioural problems. Further, research has shown this group of students to have relatively high levels of fear of failure while their future perspectives on school- and career in the long term tend to be less positive than those of their peers attending one of the higher tracks (Peetsma, 1996). Finally, levels of school dropout appear three times higher for students attending the prevocational track than for students attending the other tracks (Dutch Inspectorate of Education, 2005).

1.6 Present dissertation

The present dissertation is aimed at studying motivation in classrooms, thereby focusing on effects of teaching practices on early adolescents' motivation. To enhance ecological validity, all empirical research studies are designed to examine (consequences of) what is actually going on in classrooms. As discussed above, at the highest level comparisons are made between types of schools that represent contrasts in terms of the educational approach that underlies teaching practices. At the lower levels of the class and the student, teaching practices as occurring in lessons are analysed from the perspective of Self-Determination Theory. In the schematic overview presented in Figure 1, for each of the five empirical chapters that represent the core of this dissertation it is shown at what levels the explanatory variable and the outcome variable are measured. The numbers in the figure refer to the respective chapters.

Figure 1 Schematic overview of studies presented in this dissertation.



Before (briefly) elaborating on each the five empirical chapters separately, a general overview is provided of the data collection from which data were used for all four empirical research studies that are presented in Chapters 2, 4, 5, and 6. Data were collected in the school year 2010-2011 in 10 schools spread over the Netherlands (with exclusion of the Southern part), 4 of which

prototypically social constructivist, 4 prototypically traditional, and 2 combining elements of both. Selection of schools was based on information gathered by Oostdam, Peetsma, Derriks, and van Gelderen (2006), information from school websites, and information provided by the Dutch Inspectorate of Education (for elaborate information on school selection see Chapter 2). In each school, 2 classes participated, yielding a total of 20 classes. All 20 participating classes were at the prevocational level of Dutch secondary education ('vmbo'). Furthermore, all 20 classes were 7th grade, which, in the Netherlands, is the first grade after the transition towards secondary education. Students attending this grade are aged 12 to 13.

Data were collected in five waves. At each of these five waves, questionnaires were administered to the 489 participating students to assess their motivation. Further, from the 2nd to 5th wave, in each of the 20 classes video-recordings were made of lessons in math and in mother language. The lessons in math were coded using a rating sheet assessing need supportive teaching that was developed for the purpose of the present dissertation (see Appendix). In addition, for one prototypical traditional class and one prototypical social constructivist class lessons in mother language were coded. Because for the studies presented in Chapters 4, 5, and 6 data collected at the 2nd to 5th wave was incorporated only, in these chapters these waves are referenced to as the 1st to 4th wave of data collection.

In Chapter 2, effectiveness in fostering early adolescents' motivation was investigated of prototypically social constructivist, prototypically traditional, and combined schools for prevocational education. For this purpose, multilevel analysis was conducted on the measures collected at the five waves assessing students' motivation (intrinsic motivation, identified motivation, values, and performance avoidance; see Chapter 2 for clarification of these motivational constructs) for mother language and for math in the three types of schools.

In Chapter 3, the aim was to unveil the extent to which available evidence supports SDT, including the gaps that remain. This study presents a fine-grained review of available literature on effects of need supportive teaching on early adolescents' motivation and engagement, thereby incorporating effects of student perceived (level of the student) and observed and teacher perceived (level of the class) teaching practices. Articles were included when they were published in a scholarly journal between 1990 and 2011 and when they reported empirical evidence from studies conducted among students aged between 10 and 14 attending secondary education. Although SDT was used to focus the selection of studies, empirical evidence from other research traditions that fitted with (any of) the three dimensions of need supportive teaching was included as well.

In Chapters 4 and 5, SDT was applied to investigate how teaching practices at the level of the class related to educational approaches of schools. In Chapter 4, for this aim, development of

observed need supportive teaching was examined in the three types of schools. Multilevel analysis was conducted on the ratings of observed need supportive teaching collected in the 20 classes at the four waves.

Chapter 5 concerned a multiple case study aimed at gaining in-depth understanding of typical manifestations of need supportive teaching by relating these to educational approaches of schools. A narrative analysis was conducted of videotaped teacher-student interactions in lessons math and mother language in two contrasting cases: A highly prototypical traditional class and a highly prototypical social constructivist class.

In the final empirical chapter, we returned to studying effects of teaching practices as occurring in classes. The study reported in Chapter 6 focused on associations between ratings of observed need supportive teaching and early adolescents' motivation. For this purpose, multilevel analysis was conducted on the four waves of ratings of observed need supportive teaching in math classrooms in relation to the four waves of measures of students' motivation (autonomous motivation, controlled motivation, amotivation, and performance avoidance; see Chapter 6 for clarification of these motivational constructs) for math.

Finally, in chapter 7, the findings presented in preceding chapters are summarized and discussed. Theoretical and practical implications are provided as well as limitations and directions for future research.

