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What motivates early adolescents for school? A longitudinal analysis of associations between observed teaching and motivation

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ABSTRACT

For many early adolescent students, motivation for school declines after their transition to secondary education. Increasingly, the decisive importance of teachers in shaping early adolescents' motivation is stressed; thus far, however, both longitudinal and observational studies on this topic have been scarce. The present study investigated how early adolescents' interactions with their maths teachers were associated with the development of their motivation for maths. In line with self-determination theory, videotaped teacher–student interactions were coded in terms of their being supportive or thwarting of the three fundamental human needs for autonomy, competence, and relatedness, i.e. in terms of their providing autonomy support, structure, and involvement. To assess need-supportive teaching, at four measurement time-points equally spread over the first year of secondary education, video analysis was conducted of, in total, 137 complete maths lessons in 20 maths classes (40% female teachers). To assess developments in motivation at each of the four measurement time-points, questionnaires were distributed to the 489 students (aged 12–13; 49.9% girls) in the 20 maths classes. Multilevel analysis did not indicate associations of autonomy-supportive teaching with any of the four motivational constructs incorporated in the study (autonomous motivation, controlled motivation, amotivation, and performance avoidance). For structure, associations in expected directions were found with autonomous motivation (positive) and amotivation (negative), but not with the other two motivational constructs. For teacher involvement, associations in the expected direction were found with all four motivational constructs. The findings are discussed in terms of their implications for research and educational practice.

1. Introduction

Motivation is an important prerequisite for learning that has been shown to be predictive of, among other things, school achievement (e.g. Richmond, 1990; Steinmayr & Spinath, 2009; Wigfield & Cambria, 2010), transfer of learning (Laine & Gegenfurtner, 2013), and persistence in learning over time (e.g. Richmond, 1990). For many early adolescent students, however, motivation for school declines after their transition to secondary education (e.g. Anderman & Maehr, 1994; Gottfried, Fleming, & Gottfried, 2001; Peetsma, Hascher, van der Veen, & Roede, 2005; Van der Werf, Opdenakker, & Kuyper, 2008; Wigfield, Byrnes, & Eccles, 2006), making this a particularly urgent period for studying motivation and how it can be fostered. This decline is worrisome, especially because it is in their early adolescence that children develop their identity at a rapid pace and shape their cognitive and emotional responses to school (Wigfield, Eccles, & Rodriguez, 1998). As it is more and more emphasised that social and situational factors can be decisive in shaping students' motivation (Perry, Turner, & Meyer, 2006; Pintrich, 2004), in the present study, we focused on the question of how early adolescents' motivation for maths can be fostered in their maths classrooms. Because in these classrooms the teachers have a central position, we aimed specifically to relate characteristics of teacher–student interactions to various motivational constructs.

Teacher–student interactions can be linked with students' motivation by using the encompassing theoretical framework of self-determination theory (SDT: Deci & Ryan, 1985; Ryan & Deci, 2000). According to SDT, three fundamental human needs exist: for autonomy, for competence, and for relatedness; and students' motivation is affected by whether these are supported or thwarted. A wide array of research is already available, indicating positive associations between early adolescents' motivation and the degree to which they perceive their teachers as need supportive (see Stroet, Opdenakker, & Minnaert, 2013 for a review). Among the prior SDT research, two features render the present study unique. First, to enhance ecological validity and help bridge the gap between

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educational theory and practice, we focused on observed rather than student-perceived need-supportive teaching. Second, we measured the development over the course of a school year of both need-supportive teaching and student motivation to further elucidate how teacher–student interactions affect the development over time of various motivational constructs. We opted to study maths classrooms because maths is considered a very important subject on the curriculum, and in The Netherlands broadly the same material is covered in all schools.

We continue by discussing need-supportive teaching as defined from the SDT perspective (section 2.1) and various motivational constructs and their relationship with students' learning (section 2.2). We then provide an overview of empirical evidence on effects of need-supportive teaching on early adolescents' motivation (section 2.3).

2. Theoretical background

2.1. Need-supportive teaching

What motivates early adolescent students for school? A first interpretation of this question relates to social and situational factors that shape motivation (e.g. Perry et al., 2006). Besides, among other things, early adolescents' home environments and peer groups, research shows that it matters what happens in students' classrooms (Opdenakker, Maulana, & den Brok, 2012; Stroet, Opdenakker, & Minnaert, 2014; Vedder-Weiss & Fortus, 2011). SDT is a prominent theoretical framework in current educational research (e.g. Wentzel & Wigfield, 2009). As mentioned in the introduction, in the classroom, teachers can foster their students' motivation by supporting their students' fundamental needs for autonomy, competence, and relatedness. In the SDT literature, three dimensions of practices of need-supportive teaching are described, on which we elaborate below. Although each of these dimensions can be associated with a specific need, this connection is neither perfect nor unique; rather, the three dimensions complement one another in their effects on students' general level of need satisfaction (Connell & Wellborn, 1991). A need-supportive teaching style may imply beliefs about the nature of student motivation, but it is not a prescribed set of techniques and strategies (Reeve, 2006). When teacher–student interactions are being interpreted in terms of these dimensions, this should be done in context, as a statement cannot be detached from the situation in which it has been uttered (e.g. Malinowski, 1930).

The first dimension, autonomy support versus thwarting, is associated with the need for autonomy. This need finds its origin in people's desire to be causal agents and to experience volition. For students to experience autonomy in their learning, it is crucial that they consider their schoolwork as personally valuable or interesting. Autonomy-supportive teaching includes adopting students' perspectives and providing explanatory rationales when choice is constrained in order to help them meaningfully connect their learning activities to personal goals and prevent them from feeling controlled. For referenced goals not to be experienced as controlling, they should be intrinsic, i.e. satisfying in their own right. Teaching is autonomy thwarting, for example, when it incorporates the assertion of power to overcome students' complaints or when pressure is exerted, such as via guilt induction.

The second dimension, structure versus chaos, is associated with the need for competence. This need refers to people's innate striving to exercise and elaborate their interests and to seek challenges, while at the same time feeling effective in doing so (White, 1959). Teachers can provide structure and help their students to feel effective in their schoolwork by communicating clear and consistent guidelines and expectations, and by being available when students have questions. Further, communicating that success at school tasks depends on internal controllable factors instead of on inborn talent can foster students' competence; providing constructive, non-comparative feedback is also important in this regard. Finally, an important component of structure is the teacher giving step-by-step directions when answering questions on content, thereby adjusting to the student(s). In contrast, teachers provide chaos when they communicate contradictory expectations, are unavailable when students have questions, or are discouraging.

Finally, the third dimension, involvement versus disaffection, is associated with the need for relatedness. This need concerns the desire to form and maintain strong and stable interpersonal relationships, to connect with and be accepted by others, and to belong (Baumeister & Leary, 1995; Bowlby, 1979; Harlow, 1958; Ryan, 1995). The need for relatedness can be satisfied within interpersonal relationships or through feelings of belongingness to social groups. This final dimension of need-supportive teaching concerns the distinction between teachers showing, as opposed to not showing, interest in the individual students, understanding what is of importance for them, and being available to offer support.

2.2. Motivational constructs and their associations with students' learning

A second interpretation of the question of what motivates early adolescent students for school relates to the factors that give impetus to action or lack thereof (e.g. Deci & Ryan, 1985; Wentzel & Wigfield, 2009). SDT differentiates between motivation that is autonomous, i.e. regulated by personal interest or valuing of the task at hand, and motivation that is controlled, i.e. regulated by feelings of pressure by others or obligation to perform a task. In addition, SDT discerns amotivation, i.e. the state of lacking the intention to act. A prerequisite for any type of motivation, whether autonomous or controlled, is that a student must feel competent to perform the task at hand. For motivation to be autonomous, however, besides competence, students need to experience autonomy. Relatedness is central to promoting students' internalisation of positive values on schoolwork (Ryan & Deci, 2002).

The decline in early adolescents' motivation has been shown to be particularly induced by declines in (elements of) autonomous motivation (Corpus, McClintic-Gilbert, & Hayenga, 2009; Gottfried et al., 2001; Opdenakker et al., 2012; Otis, Grouzet, & Pelletier, 2005). Autonomous motivation is considered pivotal to students' learning, as it has been linked with, among other things, creativity (Amabile, 1996), adaptive coping strategies (Boggiano, 1998; Ryan & Connell, 1989), deep conceptual learning strategies (Meece, Blumenfeld, & Hoyle, 1988), and academic achievement (Boggiano, 1998; Gottfried, 1985; Spinath, Spinath, Harlaar, & Plomin, 2006). Controlled motivation, in contrast, has been associated with negative outcomes such as negative emotions (Dowson & McInerney, 2001; Harter, 1992; Ryan & Connell, 1989), maladaptive coping strategies (Boggiano, 1998; Ryan & Connell, 1989), and poor academic achievement (Lepper, Corpus, & Iyengar, 2005), although positive associations with self-regulation (Miller, Greene, Montalvo, Ravindran, & Nichols, 1996) and adjustment to secondary education (Otis et al., 2005) have also been found.

Another motivational construct that has consistently been shown to be a good predictor of students' engagement in learning in general and learning maths in particular is performance avoidance. Need-supportive teaching is expected to have a negative effect on performance avoidance, which relates to students' avoidance of situations where others will notice their shortcomings. In particular, students' performance avoidance seems closely associated with their perceiving themselves as competent and effective in their schoolwork. Performance avoidance is closely associated with test anxiety (Elliot & McGregor, 1999) and has predominantly been found to be negatively related to students' achievement (e.g. Elliot & Murayama,