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Teacher support and its influence on students' intrinsic value and effort: Dimensional comparison effects across subjects



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ABSTRACT

While positive influences of teacher support on students' motivational development have been widely shown, existing research has not yet considered that students' school experiences are interrelated across classrooms and subjects. The aims of this study were, thus, twofold: (a) To investigate the effects of teacher support on the development of students' intrinsic value and effort; and (b) based on dimensional comparison theory, to examine potential cross-subject contrast effects of teacher support in one subject on students' intrinsic value and effort in another subject. Using a sample of 1155 German students assessed in Grade 5 and 6, multilevel latent change models revealed positive within-subject associations between teacher support and intrinsic value and effort. Furthermore, support for contrast effects was found. Higher levels of teacher support in one subject were related negatively to intrinsic value and effort in another subject, calling for the examination of students' classroom experiences as interrelated across subjects.

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1. Introduction

"Math vs English classes: Which did you prefer in school?"

"English easily for me just because in grade 12 my English teacher was great. [...] Treated us like adults instead of kids which was a huge difference compared to my math teachers."

Comments found in online discussion forum

Every former student knows from personal experience how different teachers can be. While some teachers are easy to talk to, others make subject matters seem very boring. These interpersonal experiences are just one example for the manifold influences that students are exposed to in the classroom setting. It is a key assumption in educational research that characteristics of the classroom shape students' behaviors, feelings, cognitions, and more generally their success at school. A substantial body of research has examined the role of classroom factors in children's

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and adolescents' motivational development (see Wentzel, 2009). While research has shown that a positive perception of the classroom environment is generally positively related to student outcomes, the amount of teacher support students receive within a classroom appears to be one especially important influence that can shape the development of students' motivation (Roorda, Koomen, Spilt, & Oort, 2011). However, experiences within a single classroom with a specific teacher should not be seen as isolated incidents as students are exposed to a number of different classroom environments and teachers throughout their school day and career. The aim of the present study was to consolidate and extend previous research by not only investigating the effects of the classroom environment on the development of students' motivation and effort, but also by investigating potential effects of one subject's classroom environment on students' motivation and effort in another subject. Based on dimensional comparison theory (Marsh, 1986; Möller & Marsh, 2013) we will argue that contrast effects are likely to occur, such that more positive perceptions of one classroom environment are related to lower motivation in another subject. Examining relationships between the classroom environments that teachers in different subjects create, draws a more realistic picture of the social complexity of the school environment.

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1.1. Student motivation and effort in adolescence

Students' intrinsic value — one central dimension of students' motivation — and their effort in the classroom are regarded as crucial outcomes securing students' academic success. Students' intrinsic value describes their affective attitude towards a specific school subject, whereas effort refers to the effortful and diligent behavior that students show within the academic setting.

According to the expectancy-value-theory of achievement motivation (Eccles et al., 1983), students' intrinsic value is one crucial factor driving students' choices and behaviors in the academic setting. Students' intrinsic value describes their emotional attachment to a specific subject or task. Intrinsically motivated behaviors are inherently driven by and done for the sake of their enjoyment and not as a means to an end (e.g., praise, good grades). High levels of intrinsic value are linked to a host of positive student outcomes (Ryan & Deci, 2009), such as student achievement (Chiu & Xihua, 2008; Steinmayr & Spinath, 2009) and students' career and course choices (Harackiewicz, Barron, Tauer, & Elliot, 2002; Watt & Eccles, 2008).

Student effort describes the quality of students' behavior in the academic setting. Students showing high levels of effort will complete their learning activities diligently and persist in the face of obstacles. Students' academic effort is related to the somewhat stable personality trait conscientiousness. Highly conscientious students typically show higher levels of academic effort (De Raad & Schouwenburg, 1996). Research has shown a positive relation of students' academic effort to their academic achievement (Hughes, Luo, Kwok, & Loyd, 2008; Noftle & Robins, 2007; Richardson, Abraham, & Bond, 2012).

Despite these positive effects on academic achievement and choices, students' intrinsic value and their effort generally decline across adolescence (Fredricks & Eccles, 2002; Upadyaya & Salmela-Aro, 2013; Watt, 2004). This developmental decline is seen to be part of a natural maturation process as students grow older. Students become more realistic in their appraisal of their competencies in relation to their immediate social environment and their understanding of the efforts needed to successfully engage deepens (Frenzel, Pekrun, Dicke, & Goetz, 2012). This leads to a differentiation of their interests, which ultimately affects their attitudes, i.e., motivation, and behavior in the classroom setting (Baumert & Köller, 1998). This development appears to, however, be further corroborated by environmental factors. As students move from elementary to secondary school the features of the school environment typically change (see stage-environment fit theory, Eccles et al., 1993). Due to a change of instructional methods and classroom size, teaching becomes less personal and more achievement oriented leading to a decline in the quality of individual student-teacher relationships. Making personal connections, however, is one important factor for the development of motivation. While this developmental trend generally paints a rather bleak picture, at the same time, certain features of the classroom environment are malleable – opening up potential opportunities for interventions. Classroom environments in which socio-emotional relationships are fostered might help in buffering against the motivational decline found in adolescents.

1.2. Teacher support and its relation to student motivation and effort

Teachers shape students' experiences in the classroom through their teaching as well as their interactions with students. According to current motivational theories, a supportive student-teacher relationship is particularly relevant for student motivation. Being able to feel connected to significant others in one's immediate surroundings is a prerequisite to successfully engage (see selfdetermination theory; Ryan & Deci, 2000). If people are in an environment where they feel cared for and important, the likelihood for the experience of intrinsic motivation increases. Moreover, Lynch and Cicchetti (1997) point out that "as children develop, their relationships with others continue to affect their ability to be actively engaged in school" (p. 83). In line with these assumptions, research has found positive student-teacher relationships to be associated with higher student achievement (for overviews see Cornelius-White, 2007; Hattie, 2008) and socio-emotional constructs such as students' intrinsic value and effort (see Osterman, 2000; Roorda et al., 2011; Wentzel, 2009).

A number of studies using elementary, middle and high school samples have found a host of supportive teacher behaviors ranging from emotional to academic support to be related to higher intrinsic motivation (Katz, Kaplan, & Gueta, 2009; Reeve & Jang, 2006), higher levels of interest, including affective components (Den Brok, Levy, Brekelmans, & Wubbels, 2006; Midgley, Feldlaufer, & Eccles, 1989; Wentzel, 1998; Wentzel, Battle, Russell, & Looney, 2010), and higher levels of academic effort (Klem & Connell, 2004; Patrick, Ryan, & Kaplan, 2007; Reyes, Brackett, Rivers, White, & Salovey, 2012; Skinner & Belmont, 1993; Skinner, Furrer, Marchand, & Kindermann, 2008; Tucker et al., 2002). Only few studies investigated the associations of teacher support with student effort and their emotional involvement simultaneously finding positive predictive effects for both outcomes (Furrer & Skinner, 2003; Garcia-Reid, Reid, & Peterson, 2005; Murray, 2009).

These empirical findings indicate a clear positive association between teacher support and students' intrinsic value and effort. However, students are situated within a complex educational environment with constantly changing influences. Students' school experiences are not shaped by single teachers, but they develop relationships with multiple teachers, which potentially stimulate comparison processes. The quality of the relationship with their teacher, thus, will likely not only be influenced by the behavior of the specific teacher in question, but also by their experiences with other teachers. As most of the previous studies investigated only relationships with specific teachers in specific subjects, little is known about how such differential experiences influence student motivation and engagement.

1.3. Cross-subject contrast effects on student motivation and effort

Comparison processes, such as comparing one's own achievement with classmates' achievement or with own achievement in other subjects, are part of everyday school life (Möller & Marsh, 2013). These comparison processes typically inform students' beliefs about their own abilities: For example, research has found that the higher students' math skills are the higher is also their math self-concept (Möller, Pohlmann, Köller, & Marsh, 2009). However, the same research showed that not only students' math skills, but also their verbal skills impact their math self-concept - in a negative way: Better achievement in the verbal domain is associated with a lower math self-concept. Dimensional comparison theory (Möller & Marsh, 2013; originally developed as the internal/ external frame of reference model by Marsh, 1986) seeks to explain such contrast effects with dimensional comparisons, according to which people compare their ability in a target domain with their ability in a standard domain. If the student is better in English than in math, he or she will use this feedback information and lower their math self-concept. In line with theoretical assumptions, a significant number of longitudinal, experimental, and diary studies have shown that achievement within one subject can negatively affect students' self-concept in another subject (e.g., Marsh & Yeung, 1998; Möller & Husemann, 2006; Möller & Köller, 2001; for an overview see Möller & Marsh, 2013).

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