A person-oriented approach to predict socio-motivational dependency in early adolescents

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ABSTRACT

The person-oriented approach was employed to provide a better understanding of inter-individual differences in adolescent students' socio-motivational dependency. The quality of social relationships, academic achievement, and motivation within the classroom environment was assessed in a large ($N = 1088$; mean age $= 13.7$ years; 53.9% girls) sample of students from Brandenburg, Germany, and used as predictors of four types of socio-motivational dependency: (1) peer-dependent motivation type, (2) teacher-dependent motivation type, (3) teacher-and-peer-dependent motivation type, and (4) teacher-and-peer-independent motivation type. For the analyses, we used a recently developed three-step approach, which allows for estimation of a combined measurement model and structural model separately rather than simultaneously. Various school relevant predictors were revealed underscoring the importance of inter-individual differences in the mechanisms underlying the motivational value of other individuals. Students with the highest motivation showed worst academic achievement compared to students with lower motivation. The role of a negative teacher dependency effect is discussed.

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1. Introduction

One of the most important psychological concepts underlying inter-individual differences that can be visible in the classroom environment is motivation. As the long tradition of motivation research has shown, academic motivation is related to various outcomes, such as curiosity, learning potential, perseverance, and academic performance (e.g., Deci & Ryan, 1985), which demonstrates its central role in the area of educational and school psychology. However, the majority of studies examining the impact of classroom environment on academic achievement and motivation focus on purely additive effects by using variable-oriented methods (see Davidson, Gest, & Welsh, 2010), while ignoring interactions between the variables (Raufelder, Jagenow, Hoferichter, & Drury, 2013; Rosato & Baer, 2012). It is important to consider the configuration of traits, abilities, and limitations that emerge from individuals' unique experiences during development. All the characteristics manifest jointly as individual differences in intelligence, creativity, cognitive style, motivation, as well as in the capacity to process information, communicate with, and relate to others (Woolflok, Winne, & Perry, 2006). As a consequence of widely ignored interactions in the variable-oriented statistical analyses combined with an apparent reluctance to employ person-oriented methods in the areas of educational and school psychology

(Rosato & Baer, 2012), our knowledge on the role and the importance of inter-individual differences in students' motivation is limited.

In general, the variable-oriented approach is used for describing overall association between variables in a population. However, the approach has limitations when associations among variables vary across different subgroups within a population (von Eye, Bogat, & Rhodes, 2006). For example, if different subgroups of students show different patterns of motivational orientation that are related to motivation in a unique way, then a population-level covariation between motivational orientation and measures of motivation could be misleading. In contrast, the person-oriented research focuses on homogeneous subgroups. Furrer and Skinner (2003) conducted one of the few person-oriented studies in the field of educational psychology to test for configuration effects and found that positive experiences in one relational context may buffer impacts of negative relational experiences in another context. Namely, children's self-reported higher relatedness (e.g., feelings of belonging, inclusion, acceptance, importance, interpersonal support) to teachers was associated with higher emotional and behavioral engagement in classroom environments despite the same children reporting low relatedness to peers and parents. Furthermore, a longitudinal study by Davidson et al. (2010) demonstrated different long-term patterns of school adjustment for teacher relatedness, peer relatedness, and teacher- and peer-relatedness. Overall, these findings illustrate the potential advantage of the person-oriented approach over the variable-oriented approach. Therefore, the aim of the present study was to employ the person-oriented approach (for more details see Raufelder, Jagenow, Hoferichter, et al., 2013) to understand better the inter-individual differences in the configuration of motivation and academic

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achievement of early adolescent students. More precisely, inter-individual differences in students' socio-motivational dependency were examined through the theoretical concepts of achievement motivation, achievement goal orientation, self-regulation, academic achievement, and the empirical body of research on social relationships in the school context.

1.1. Achievement motivation

Achievement motivation describes the willingness or desire to compare one's own action or the results of one's own actions with the existing standards along with a behavioral tendency to put effort and ensure that these quality standards are met or exceeded (McClelland, Atkinson, Clark, & Lowell, 1953). Thus, the central elements of this motivation are self-assessment of one's own abilities and the associated positive emotions, such as pride and satisfaction. According to Atkinson (1957), achievement motivation is composed of two different aspirations, namely, *hope of success* and *fear of failure*. Hope of success refers to a tendency to feel pride from one's own performance. Students with a high tendency try to achieve and put more effort into doing so than students with low hope of success. In contrast, individuals driven by fear of failure tend more to feel shame in failure situations and, thus, avoid such situations. Both aspirations can be present in the same person, but they would differ in strength. A concept closely linked to achievement motivation but nevertheless distinctive from it is an orientation toward achievement goals.

1.2. Achievement goal orientation

In general, a goal is a cognitive representation of the purpose for doing a task. Thus, achievement goals represent patterns of beliefs about the purpose for achievement and the standards that will be used to evaluate the effective performance (Pintrich, 2000). Achievement goal orientation refers to the representation of achievement goals as well as related persuasions about success, competence, purpose, effort, and ability.

In past research on achievement goals, different terms have been used to describe similar entities. For example, goals that orient a person toward completion of the task in order to learn how to do this task or mastering it have been called *task orientation* (Nicholls, 1984), *mastery goals* (Ames, 1992), or *learning goals* (Dweck, 1986). Goals that orient a person toward her own abilities or performance relative to others have been called *ego-orientation* (Nicholls, 1984) or *performance goals* (Ames, 1992; Dweck, 1986). In the present study we were interested in learning goals because students with a high learning goal orientation tend to invest more effort in tasks in order to increase their performance in the long run, which has a positive effect on the level of performance.

1.3. Academic self-regulation

In school, teachers and educators want students to be motivated to learn. Within the framework of their self-determination theory (SDT), Deci and Ryan (1985) distinguish between intrinsic (internal to the person) and extrinsic motivation (outside the person). Intrinsic motivation is a characteristic of contexts in which an activity is performed because it is interesting and satisfying, for example, an individual is experiencing positive feeling simply from performing the activity. In contrast, extrinsic motivation describes contexts in which an activity is performed in order to attain a specific outcome, for example, to obtain a tangible reward or to avoid punishment.

Furthermore, a distinction is made between autonomous and controlled motivation (Deci & Ryan, 2000; Ryan & Deci, 2000). Autonomous motivation describes a behavior characterized by a strong sense of volition and freedom. Here, people who are intrinsically motivated have their basic need for autonomy satisfied. In contrast, controlled motivation describes a behavior characterized by pressures or forces that are perceived as external to the self.

1.4. Social relationships at school

The nature of the social relationships that one creates and maintains at school can enhance or undermine his or her academic motivation (Deci & Ryan, 2008; Reeve, 2006). On the one hand, the role of peers in one's academic motivation and social engagement at school has been recently examined (Juvonen & Wentzel, 1996; Ladd, Herald-Brown, & Kochel, 2009; Wentzel, 2005, 2009a, 2009b; Wentzel, Battle, Russell, & Looney, 2010). A student's feelings toward and attitudes regarding the academia can be strongly influenced by and vary with the changing attitudes of the peer group (Ryan, 2001). Additionally, students demonstrate more academic motivation when they are accepted by their peers or enjoy mutual friendships (e.g., Wentzel & Asher, 1995; Wentzel, Barry, & Caldwell, 2004). Students without friends reported lower grade point averages (GPAs) than those with reciprocated friendships (Wentzel, 1993).

On the other hand, a positive character of the relationships that the student maintains with his or her teachers is associated with higher levels of overall classroom motivation (Wentzel & Caldwell, 1997), academic engagement (e.g., Buhs & Ladd, 2001), academic self-efficacy (e.g., Hughes & Chen, 2011), academic skills (e.g., Baker, 2006), and school adjustment (e.g., Wang, 2009). For example, academic engagement is stronger in students when they are well-liked by their teachers (Wentzel & Asher, 1995) or when they perceive that their teachers care about them (Roeser, Midgley, & Urdan, 1996). In addition, students receive better grades when they have positive views of teachers (Crosnoe, Johnson, & Elder, 2004). Overall, student interest in the academia has been associated with stronger social and emotional support from teachers and peers (Wentzel et al., 2010).

1.5. Preliminary studies

Four types of socio-motivational dependencies have been proposed in the literature (Raufelder, 2007) based upon the differential perception of social relationships and their impact on academic motivation for students. Socio-motivational dependency exists when one's personal motivation is affected by the motivation of others, their learning behavior, or the perceived support. Specifically, within the school context, a student's motivation can be predominantly affected by motivation, learning behavior, or social support from peers and/or through teachers' motivation and perceived support (Raufelder, Drury, Jagenow, Hoferichter, & Bukowski, 2013; Wentzel, 2009a, 2009b). In contrast, socio-motivational independence exists when one's personal motivation is unaffected by other's motivation, learning behavior, or perceived support. Accordingly, a preliminary study using latent class (LC) analyses provided support for a typology that differentiated between four classes of socio-motivational dependency (Raufelder, Jagenow, Drury, & Hoferichter, 2013): (1) teacher-dependent motivation type (MT), (2) peer-dependent MT, (3) teacher-and-peer-dependent MT, and (4) teacher-and-peer-independent MT. The teacher-dependent MT is mainly affected by teachers' own motivation for their subject as well as their support, including the awareness of students' abilities or success with the learning material. In contrast, the peer-dependent MT is mainly affected by classmates' motivation or learning behavior. The teacher-and-peer-dependent MT is affected by both teachers and peers. Finally, the teacher-and-peer-independent MT is unaffected by teachers' and peers' motivation, learning behavior, and support. The typology indicates that there are inter-individual differences in students' socio-motivational patterns, which should be carefully considered to foster each student individually. Thus, to support the learning process of each student in the classroom by accommodating their motivational preferences, it is important to empirically