Teachers' aptitude beliefs as a predictor of helplessness in low-achieving students: Commonalities and differences between academic domains

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\textbf{A R T I C L E   I N F O}

\textbf{Keywords:}
Helplessness
Teacher beliefs
Aptitude
Attribution theory
Domain differences

\textbf{A B S T R A C T}

Low-achieving students are at risk of experiencing a pattern of emotional, motivational, and cognitive deficits called school-related helplessness if they attribute their low achievement to low aptitude. Teachers’ beliefs about the causes of students’ low achievement are important sources of attributional information for students. In a sample of 2117 German ninth-graders attending the lowest track, 118 math and 129 German-language teachers, we tested whether teachers’ beliefs about the extent to which aptitude causes achievement moderated the achievement-helplessness relation in students and whether there were differences between math and German. Multilevel analyses revealed that low prior achievement predicted higher helplessness in both subjects but the effect was stronger in math than in German. Teachers’ beliefs amplified the achievement-helplessness relation in math but not in German. Results are discussed regarding domain-specific epistemological beliefs, and implications for research and practice are derived.

1. Introduction

Students differ in how they deal with academic success or failure. Their beliefs about the causes of their achievement shape their subsequent motivation, emotions, and learning behavior (e.g., Weiner, 2010). Whereas some students continue to work hard to achieve a desired outcome, others feel frustrated or demotivated when they earn a lower grade than they aimed for. Students who earn poor grades and feel as though they do not possess the means to do better are at risk of developing the state of motivational, emotional, and cognitive deficits called helplessness (e.g., Abramson, Seligman, & Teasdale, 1978). About 40 years of research has elaborated how continuously experiencing negative learning outcomes and internal, stable, and uncontrollable attributions can lead to school-related helplessness in Western cultures (e.g., Abramson et al., 1978; Weiner, 1985). However, research on how teachers’ beliefs affect student helplessness is relatively scarce. Guided by research on teachers as important sources of attributional information (e.g., Butler, 1994), this study aimed to illuminate the relations between students’ school-related helplessness, students’ prior achievement, and teachers’ general beliefs about the extent to which aptitude, i.e., a person’s cognitive potential, causes achievement, defined as aptitude beliefs here. Using a multilevel approach, we studied the predictive effect of teachers’ aptitude beliefs, students’ prior achievement, and their interaction on students’ helplessness in a German sample of lowest track students and their teachers. Moreover, we examined whether the relations are similar in math and in language.

1.1. School achievement and school-related helplessness

Helplessness can be conceptualized as a psychological state of resignation after experiencing negative, uncontrollable events (e.g., Abramson et al., 1978; Seligman, 2000). It is characterized by a loss of motivation, the belief that one has no means to produce the desired positive outcome in the future, and depressed affect (e.g., Abramson et al., 1978; Seligman, 2000). It has been linked to amotivation, defined by self-determination theorists as a state in which individuals cannot perceive a relation between their behavior and a subsequent outcome (Ryan & Deci, 2000, 2004). Much research has studied (learned) helplessness in the context of depression (e.g., Seligman, 2000). By contrast, educational research has examined the correlates and consequences of helplessness in school and university (e.g., Daniels et al., 2009; König, 2009). In these contexts, low achievement seems to play a major role, because prior research suggests a reciprocal relation between low school achievement and helplessness. First, low-achieving students experience higher levels of school-related helplessness than high-achieving students do as indicated by significant correlations or
relevance of different factors for academic success (e.g., de Castella, Byrne, and Covington, 2013; Daniels et al., 2009; Krejtz & Nezlek, 2016; Lintorf, Buch, Sparfeldt, & Rost, 2017; Valáš, 2001b). Second, school-related helplessness is also related to other maladaptive belief patterns and symptoms such as lower academic self-efficacy, an avoidance-based coping style, less optimism, and higher levels of stress and depressive symptoms (Schwarzer & Jerusalem, 1999). Longitudinally, helpless students’ depressive symptoms increased and their academic engagement decreased, and helpless male students additionally showed more norm-breaking behavior than male students who did not feel helpless (Määttä, Nurmi, & Stattin, 2007). In this vein, third, helpless students in Western cultures also earned lower grades, controlling for prior achievement (Fincham, Hokoda, & Sanders, 1989; Peixoto, Sanches, Mata, & Monteiro, 2017; for different findings in a sample of students from Hong Kong, see Au, Watkins, & Hattie, 2010). And poor academic performance, coupled with a feeling of helplessness or futility, is considered a substantial risk factor for school dropout (Sewell, Palmo, & Monteiro, 2017). Thus, low achieving students experience higher levels of school-related helplessness and experiencing school-related helplessness is unfavorable not only per se but also as an antecedent of poor educational trajectories.

1.2. The role of Students’ causal beliefs

Not all low-achieving students experience school-related helplessness, thus raising the question of what moderates the relation between low achievement and helplessness. Previous research has indicated that whether or not students feel helpless after academic failures depends on students’ beliefs about the causes of the failures (e.g., Abramson et al., 1978; Weiner, 1985). Such causal beliefs can be specific to a particular past event (i.e., attributions) or refer to subjective theories about the general importance of factors for causing classes of events such as academic success called causality beliefs (e.g., Buff, 2004; Hosenfeld, 2002). According to Weiner (e.g., 1985, 2010), attributions can be classified on the three dimensions locus (i.e., internal or external), controllability (i.e., controllable or uncontrollable), and stability (i.e., stable or unstable across time or situations). If academic failure is traced back to internal, uncontrollable, and stable factors (e.g., aptitude), students are likely to react with helplessness, a decrease in self-esteem, lower success expectancies, and less effort (e.g., Weiner, 2010). The more global the hypothesized causes are perceived to be, the broader students’ feelings of helplessness (Abramson et al., 1978). For attributions of failure to less stable or more controllable factors (e.g., lack of effort), more positive effects (e.g., protected self-esteem or no reduction in future effort) are expected. Many empirical studies have supported these theoretical mechanisms (e.g., Graham & Taylor, 2016; Weiner, 2010).

Causality beliefs can be understood as a more global set of causal beliefs than attributions and have been studied from different theoretical perspectives such as action control theory (e.g., Skinner, Chapman, & Baltes, 1988; Skinner, Wellborn, & Connell, 1990) or implicit theories of intelligences (for a summary, see Dweck, 2013). Empirically, strong beliefs in ability as the determinant of school achievement predicted lower levels of school engagement, especially when students considered their own ability to be low (Skinner et al., 1990). Further, students who believed intelligence was fixed (entity theory) weighed ability more heavily, i.e., held stronger aptitude beliefs, than students who believed intelligence was malleable (incremental theory; e.g., Dweck, 2013). Entity theorists in turn more often attributed academic failure to a lack of aptitude than incremental theorists did (e.g., Hong, Chiu, Dweck, Lin, & Wan, 1999; Rattan, Good, & Dweck, 2012) and reacted with helplessness instead of mastery-oriented response patterns (e.g., Blackwell, Trzesniewski, & Dweck, 2007; Hong et al., 1999). In sum, research suggests that students’ beliefs about the importance of different factors for academic success play a pivotal role in students’ motivation, emotion, and learning behavior. Precisely, believing that aptitude is crucial for school success is a risk factor for developing feelings of helplessness in the face of failure or enduring poor performance.

1.3. The role of Teachers’ causal beliefs

What shapes students’ beliefs about the importance of different factors for academic success? In the school context, teachers and their causal beliefs can be additional sources of achievement-related attributional information and, thus, can affect students’ causal beliefs which in turn increase or decrease students’ helplessness (e.g., Graham & Taylor, 2016). In general, teachers’ beliefs are considered to be closely linked to teachers’ professional identity and competencies (e.g., Korthagen, 2004) or even part of teachers’ professional competencies, which contributes to teachers’ professional success (e.g., Baumberg & Hunter, 2013; Blömeke, Buchholz, Suhl, & Kaiser, 2014; Pajares, 1992). It would be reasonable to assume that teachers’ causal beliefs are particularly influential for giving feedback to students or for tailoring teaching methods or learning content to individual students’ perceived needs. In this vein, instructors, i.e. university students taking over the teacher role in lab experiments, holding a fixed theory of aptitude more readily made lack of effort attributions, comforted their students, and selected less efficient teaching strategies, which in turn, lowered their students’ motivation and expectations for students’ own performance (Rattan et al., 2012). Moreover, also studies focusing on in-service teachers’ attributions have supported the role of teachers’ causal beliefs for teachers’ communication and behavior (e.g., Butler, 1994; Georgiou, Christou, Stavrinides, & Panaoura, 2002; Matteucci, 2007) and students’ motivational development (Upadyaya, Viljaranta, Lerkkanen, Poikkeus, & Nurmi, 2012). Teachers who attributed students’ failure to a lack of aptitude were likely to react with offers of help, compassion, less punishment, and less anger than those who attributed the failure to a lack of effort (e.g., Butler, 1994; Georgiou et al., 2002; Weiner, 1994). On the first view, help, compassion, and less punishment might be interpreted as appreciating and pedagogically valuable responses of teachers to student failure. Empirical research, however, suggests the opposite, because from sixth grade onwards, students were found to decipher teachers’ attributions from teachers’ behavior: If teachers react to student failure with compassion rather than punishment or anger, students correctly understand that the teacher believes low aptitude is the probable cause with detrimental effects on students’ future motivation and success expectations as predicted by attribution theory (Butler, 1994; Graham, 1984). The negative effects of such comfort strategies on students’ motivation and expectations have also been found in lab experiments (Rattan et al., 2012). Similarly, experiments on the “paradoxical” effects of praise and criticism have revealed that a failing student’s aptitude is perceived as higher if the teacher reprimands him or her than if the teacher’s reaction is neutral (e.g., Meyer, 1992). These findings show that teachers’ attributions influence their behavior and that students can decipher teachers’ attributions from teachers’ behavior. Of note, the effects of differential teacher expectations that are associated with teachers’ attributions of students’ cognitive abilities have also been studied within the framework of self-fulfilling prophecies (for a summary, see Guskin & Harber, 2005).

Moreover, research has found a considerably level of consistency in how teachers use aptitude attributions for their students’ low achievement. More specifically, when teachers reported how they attribute the low achievement of their students, nearly 30% of the variation in teachers’ aptitude attributions across students was shared within the teacher (Jager & Denessen, 2015; Upadyaya et al., 2012). This consistency points to the close relation between attributions and causality beliefs. However, not much research has focused directly on the latter. Patterson, Kravchenko, Chen-Bouck, and Kelley (2016) studied the relation between teachers’ causality beliefs (captured by the factors “student,” “teacher,” and “family”) and teachers’ implicit intelligence theories. Teachers who held a stronger entity view of students’
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