



General and domain-specific beliefs about intelligence, ability, and effort among preservice and practicing teachers



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HIGHLIGHTS

- Views of intelligence predicted views of responsibility for student performance.
- Teachers held the most ability-based views of performance in the arts.
- Teachers held the most effort-based views of performance in the humanities.
- Teacher behaviors were seen as most important determinant of academic performance.

ARTICLE INFO

Article history:

Received 10 July 2015

Received in revised form

6 June 2016

Accepted 8 June 2016

Keywords:

Implicit theories of intelligence

Teacher beliefs

Academic domains

Preservice teachers

Practicing teachers

ABSTRACT

This study examined preservice and practicing teachers' beliefs about factors influencing student academic performance. Participants viewed teacher factors as a more important determinant of academic performance than student or family factors. However, teachers who held a stronger entity view of students' intelligence viewed teachers as less responsible for students' academic performance. Teachers held the most ability-based views of performance in the arts and the most effort-based views of performance in the humanities. General beliefs about intelligence were related to domain-specific beliefs in the areas of basic skills, humanities, and math and science, but not in the arts or physical domains.

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1. Introduction

The impact of teachers' beliefs about student ability and performance has been a topic of interest to researchers for decades, going back at least to the work of Rosenthal and Jacobson (1968). In their seminal study on the "Pygmalion effect", Rosenthal and Jacobson randomly selected students and informed teachers that these students were expected to experience substantial cognitive growth over the course of the school year; their data indicated that these targeted students did indeed experience greater gains in academic performance than other students. Although later studies have suggested that the impact of teacher expectations is generally less dramatic than that observed by Rosenthal and Jacobson (see Jussim & Harber, 2005; for review), many subsequent studies have

examined teachers' beliefs about intelligence, ability, and other factors contributing to academic achievement, as well as ways in which such beliefs may impact teachers' treatment of students and students' academic outcomes (e.g., Georgiou, 2008; Jones, Bryant, Snyder, & Malone, 2012; Jonsson, Beach, Korp, & Erlandson, 2012; Jussim, Robustelli, & Cain, 2009; Love & Kruger, 2005; Pajares, 1992; Stipek, Givvin, Salmon, & MacGyvers, 2001).

Researchers have also examined the ways in which teachers' beliefs may vary based on amount of teaching experience, although findings from such studies indicate conflicting results (Georgiou, 2008; Jones et al., 2012). In addition, few studies have examined the extent to which teacher beliefs may vary across different academic domains (e.g., mathematics versus language arts) or the strength of relations between general and domain-specific beliefs about intelligence, ability, and effort. Domain-specific differences in belief about the influence of intelligence, ability, and effort on performance may underlie differences in teaching practices across domains, both within and across teachers. The primary purpose of

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the current study was to examine teachers' beliefs regarding factors that impact students' academic performance and whether these beliefs varied across academic domains. A secondary purpose was to examine whether beliefs differed between preservice and practicing teachers.

1.1. Teacher beliefs about causes of student academic performance

Many factors influence students' academic performance, including school factors (e.g., quality of instruction, school culture), family factors (e.g., family income, parental education), and student factors (e.g., intelligence, motivation). Although teachers undoubtedly recognize that all of these factors have an impact on students' academic performance, teachers may vary in the relative weight they place on the different factors.

Beliefs about the causes of student performance may influence teachers' instructional approaches (Brophy & Good, 1974; Rattan, Good, & Dweck, 2012; Rogers, 2009; Stipek et al., 2001). For example, a recent study of college-level instructors (Wieman & Welsh, 2015) found that instructors who attributed student failure to factors internal to the student (e.g., low ability, insufficient effort, lack of interest in the subject) used less effective teaching practices than teachers who attributed failure to factors external to the student (e.g., class size, quality of instruction). Beliefs about the causes of student performance may also influence the emotional tone of teacher-student interactions. For example, Georgiou, Christou, Stavrinides, and Panaoura (2002) found that teachers who attributed a student's poor performance to a lack of ability were more likely to respond with pity, whereas teachers who attributed poor performance to a lack of effort were more likely to respond with anger. Given these observed effects on instructional practices and teacher-student relationships, it is important to better understand teachers' beliefs about the factors that contribute to student performance. The current study seeks to explore teachers' perceptions of the role of school, family, and student factors in promoting students' academic achievement.

1.2. School factors

School factors, including school culture, access to educational resources (such as books and computers), and quality of instruction, undoubtedly influence student learning and performance. For example, students with more experienced teachers tend to perform better than students with less experienced teachers (Greenwald, Hedges, & Laine, 1996; Rivkin, Hanushek, & Kain, 2005).

One of the most widely studied aspects of teacher beliefs regarding school influences on student performance is teacher efficacy. Studies of teacher efficacy may assess personal efficacy (i.e., a teacher's belief in his or her personal capacity to influence student learning), collective efficacy (i.e., beliefs regarding the capacity of teachers in general to influence student learning), or both (Gibson & Dembo, 1984; Tschannen-Moran, Hoy, & Hoy, 1998). Teachers' efficacy beliefs have been linked to student engagement and achievement in a number of studies, although the effects are often small (Goddard, Hoy, & Hoy, 2000; Klassen & Tze, 2014; Klassen, Tze, Betts, & Gordon, 2011; Shahid & Thompson, 2001). However, few studies have examined teachers' beliefs about the role of teacher or school factors influencing learning alongside other potentially important factors (e.g., one teacher may feel confident about her ability to influence student learning while still recognizing that factors such as poverty or family conflict can have substantial impacts on student performance, whereas another teacher may have similarly high efficacy and feel that instructional quality is the only factor impacting student achievement).

1.3. Family factors

Family factors (such as parental involvement and family socioeconomic status) are major predictors of students' academic performance (Hoover-Dempsey et al., 2001; Jeynes, 2005; McLoyd, 1998; Sirin, 2005). Research indicates that teachers generally recognize the importance of family influences for children's school engagement and academic achievement (Bleicher, 2011; Foote et al., 2013; Georgiou et al., 2002; Graue & Brown, 2003). For example, teachers may hold negative beliefs about students from low-income families (e.g., that these students' families do not value education highly) and such beliefs may impact their expectations for or treatment of these students (Baum & McMurray-Schwarz, 2004; Hauser-Cram, Sirin, & Stipek, 2003; Lott, 2001). Teacher-perceived family influences may include both basic obligations (e.g., providing a stable and loving home environment) and involvement with learning activities at home (e.g., helping with homework; Epstein, 1992; Hoover-Dempsey et al., 2001).

Beliefs about the importance of family influences may impact teachers' instructional practices. For example, a teacher's views about the importance or likelihood of parental involvement may influence the type of homework the teacher assigns (Hoover-Dempsey et al., 2001). Negative stereotypes regarding students from low-income families may lead teachers to use less effective teaching practices with students from such families (McLoyd, 1998).

The perceived importance of family factors may vary substantially across cultural context. For example, Chinese and Japanese teachers tend to encourage parental involvement with children's homework to a greater extent than do teachers in the United States (Chen & Stevenson, 1989). Similarly, Asian and Asian American parents tend to view parental involvement as playing a greater role in children's academic performance than do native-born U.S. parents (Chao, 1996; Pomerantz, Ng, Cheung, & Qu, 2014).

1.4. Student factors

The final area that teachers may consider when thinking about predictors of student performance are characteristics of the individual student. Student factors might include a range of characteristics, including intelligence, personality, and level of motivation. One major element of beliefs about student factors related to performance is implicit theories of intelligence.

1.4.1. Implicit theories of intelligence

According to Dweck and colleagues (e.g., Blackwell, Trzesniewski, & Dweck, 2007; Dweck & Leggett, 1988; Dweck, 2000), individuals tend to think about intelligence in one of two ways, referred to as implicit theories of intelligence (TOI). The first approach is referred to as a fixed or entity theory of intelligence. Individuals with an entity theory view intelligence as a fixed trait; they believe that each person has a certain amount of intelligence and that this amount cannot be changed. In contrast, other individuals hold what is referred to as a growth or incremental theory of intelligence. Such individuals believe that intelligence is malleable, and that learning and engagement with cognitive challenges can make one more intelligent. Thus, entity theorists tend to view academic performance as primarily determined by innate ability, whereas incremental theorists tend to view academic performance as driven primarily by effort (Dweck & Leggett, 1988; Dweck, 2000; Harackiewicz & Elliot, 1995). Although TOI beliefs appear to be relatively stable over time for adults (Robins & Pals, 2002), they can be taught or primed; numerous studies have implemented interventions using articles or lectures that describe intelligence either as an inborn quality or as something that can be

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