Gifted Children

Volume 3 | Issue 2

Implicit Beliefs of Future Teachers about General Ability

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Researchers are beginning to show increased interest in taking a more developmental view of giftedness (e.g., Horowitz, Subotnik, & Matthews, 2009; Papierno, Ceci, Makel, & Williams, 2005; Sternberg, 2001). However, it is not just the conceptualization of researchers that matters; implicit beliefs matter as well (e.g., Sternberg, 1985). In fact, the research conducted by Carol Dweck and her colleagues over the past 30 years on implicit beliefs may be an untapped resource for better understanding how students perceive giftedness and how implicit beliefs of parents, teachers, and policymakers may influence their actions concerning gifted children.

In her research (e.g., Dweck, 2006), Dweck groups people as having either fixed or malleable beliefs. A person who believes that ability is fixed thinks that ability does not (and cannot) change. On the other hand, someone who believes ability is malleable believes a person's ability can change depending on situational factors such as the environment and motivation. Further, Dweck has found that a person's beliefs about the nature of ability influences the types of goals they set for themselves (e.g., Dweck, 1986). People who believe ability is fixed typically set performance goals that emphasize attaining positive judgments or avoiding negative judgments (e.g., validating that I am gifted). People who believe ability is malleable set learning goals that emphasize increased competence (e.g., seeking to increase comprehension and understanding of poetry). Much of the field of attribution literature has investigated whether having certain goal orientations leads to different patterns of behavior.

One relevant example of such research investigated whether being praised for intelligence (performance goal reinforcement) or being praised for effort (learning goal reinforcement) led to differing performance. Mueller and Dweck (1998) found that praise for intelligence negatively influenced students' subsequent achievement. Additionally, students who were praised for their intelligence later reported that they cared more about performance goals, whereas students who had been praised for their effort cared more about learning goals. Moreover, students who had been praised for intelligence were more likely to consider intelligence a fixed trait than children who had been praised for effort. These results suggest that one's environment can play a large role in how ability and performance are conceptualized. Moreover, in interviews, Dweck has stated that she believes the term giftedness automatically implies a fixed view (Hopkins, 2000; Plucker, 2007).

With these results in mind, fostering an environment that supports malleable views of ability may seem obvious because they are implicitly tied to learning goals and persistence despite challenge. Nevertheless, Mueller and Dweck (1996, as cited in Mueller & Dweck, 1998) found that 85% of parents polled said that they believed that praising a child's ability was necessary for making the child feel smart. This suggests that parents are likely to praise results and not necessarily effort.

With environmental factors playing such a large role in shaping how children view the nature of ability, knowing the beliefs of teachers is important. The current study compared the implicit beliefs of college undergraduates in training to become teachers with college undergraduates who were not training to become teachers, to assess whether schools of education were effectively assimilating the work on implicit beliefs into their curricula. If curricula were effective in encouraging malleable implicit beliefs of future teachers, one would expect that future teachers would be more likely to believe that ability is malleable than their undergraduate peers not studying to become teachers.

Method

Participants

As part of a larger study on implicit beliefs, 238 undergraduates from a large public university in the Midwest participated in this study. Nine classes were visited; seven in a school of education (EDUC; n =92) and two in a different college on the same campus (OTHR; n =146). Participants reported their major to ensure that education students taking an elective were not part of the comparison group. Students were told that if they chose to participate, their name would be entered in a raffle with a 1 in 50 chance at winning $50 cash.

Materials

Baseline measures of implicit beliefs of ability (fixed vs. malleable) were gathered via the same 3-item series of questions used by Dweck and her colleagues. These items were:

1. You have a certain amount of general ability and you really can't do much to change it.
2. Your general ability is something about you that you can't change very much.
3. You can learn new things, but you can't really change your basic general ability.

These items were used because previous research has shown that they have high internal reliability (alphas ranging from .94 to .98) as well as high test-retest reliability (r = .8) over a two week period (for a detailed discussion of the psychometrics of these measures, see Hong, Chiu, Dweck, Lin, & Wan, 1999). Participants with a mean response of 3.0 or lower are identified as having fixed beliefs, whereas those with a mean response greater than 4.0 are labeled as having malleable beliefs of general ability. Participants with a mean response between 3.0 and 4.0 are typically eliminated from analysis because they do not have a clear baseline implicit theory of belief (Chiu et al., 1997).

Results

A chi-square analysis did not show a significant difference, $\chi^2(2) = 2.987$, $p = .225$, between the implicit beliefs of education and non-education students (see Table 1).

Table 1
Group means.

	Total	OTHR	ED
Fixed	64 (.27)	40 (.27)	24 (.26)
Malleable	134 (.56)	77 (.53)	57 (.62)
Middle	40 (.17)	29 (.20)	11 (.12)
Total	238	146	92

Note. The number represents the actual number of people that met that criterion. In the parentheses is the proportion of the sample that met that criterion.

Discussion

Previous research has shown that both implicit beliefs and environmental factors play a role in shaping student development. The current study compared the implicit beliefs of college undergraduates planning to be teachers with those who did not plan to become teachers. Results suggest that future teachers are not more likely to believe that general ability is malleable than other college undergraduates.

foster the belief that ability is malleable and that students can improve through hard work, then learning environments need to be shaped appropriately. One factor of the learning environment we have greater control over is teacher behavior. Previous research has shown that teacher behaviors can influence student beliefs and behaviors. However, the current research shows that the future teachers in this sample are no more likely to believe that ability is malleable than other college undergraduates. This suggests that the college curriculum is either not emphasizing (enough) the importance of implicit beliefs, or perhaps that there may be a critical period during which implicit beliefs can change (i.e., college undergraduates already may be set in their ways).

Previous researchers have found variation in implicit beliefs across constructs and age-groups. As shown in Table 2, the proportion of students with fixed beliefs varies both across constructs as well as within a particular construct across different ages. Because of this variation, to better understand the relationship between implicit beliefs about giftedness and performance in gifted programs, future research should investigate implicit beliefs about other constructs (e.g., giftedness, talent, creativity) of both teachers and students across several age-groups.

The findings and perspectives addressed in this paper present several potential avenues of interest for the gifted field. For example, knowing students' implicit beliefs about ability may help explain (or predict) how students respond to being put into a gifted program. Students who struggle in gifted programs may do so because of their beliefs and the goals they set. Similarly, as shown by Mueller and Dweck (1998),

Table 2
Beliefs across Constructs.

Construct Sample	Source	Percent Fixed	Percent Incremental	Percent Middle
General Ability	current study			
Total		27%	56%	17%
OTHR		27%	53%	20%
EDUC		26%	62%	12%
General Ability	Chiu et al. (1997)			
Undergrads	Study 1	37.5%	37.5%	25%
	Study 2	42%	22%	36%
Intelligence	Mangels et al. (2006)	37%	50%	13%
Academic	[a] Benenson &			
K	Dweck (1986)	≈10%		
1st		≈20%		
2nd		≈10%		
4th		≈25%		
Intelligence	[a] Bempechat &			
K	London(1991)	66%		
1st		64%		
2nd		36%		
3rd		44%		
4th		37%		
5th		52%		

Note. Some exact rates were not reported and were estimated from Tables.
[a] Data were collected via interview and were coded dichotomously with no "middle" category.

If we wish to

praising effort instead of success may help assuage some of these difficulties. With 38% of education students reporting that ability may not be malleable, the current study suggests that teacher training programs have substantial room to improve the effectiveness with which they communicate classroom applications of research findings. With ability being such a prominent component of gifted identification and programming, greater understanding of teacher and student implicit beliefs about the nature of ability can help reveal improved classroom practices.

Limitations

Because data were not collected prior to the participants beginning college, it is unknown whether education students started college believing that ability is a fixed trait, or whether the college curricula has actually swayed their beliefs. This scenario is possible, but seems unlikely. If anything, one would assume that people who believe ability is fixed would be less likely to go into education, not more likely.

Summary

The current study measured the implicit beliefs of college undergraduates about general ability (is it fixed or malleable). Results indicated that future teachers were not more likely to believe that ability is malleable than undergraduates not planning on becoming teachers. This suggests that schools of education may want to explore alternative ways of approaching this topic in their curricula. Although the data do not specifically address giftedness, they do address issues that are becoming increasingly prominent in this field.❖

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