Factors That Influence In-Service and Preservice Teachers' Nominations of Students for Gifted and Talented Programs

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A classroom teacher's unique perspective is valuable when considering students for gifted and talented programs. We developed a series of 11 student profiles to measure 290 preservice and 95 in-service teachers' attitudes and asked them to indicate how strongly they believed the students in the profiles should or should not be recommended for their district's gifted program. We found students' interests, SES, and areas of academic strength influenced teachers' perceptions of students as gifted. In-service teachers were more likely than preservice teachers to view the students in the profiles as gifted. In-service teachers also were influenced by whether previous children in the family had been identified as gifted and talented.

Classroom teachers are often called upon to nominate students for gifted and talented programs. Their unique perspective is valuable

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when considering students for special services, and many school districts include teachers' ratings of students as part of their selection criteria. These ratings may be used to form a pool of students to be tested for a gifted program. Additionally, they may be part of a total identification system that often includes standardized achievement tests or intelligence tests. Pierce et al. (2007) noted that teacher recommendations "provide a window into the classroom performance of the child which a test does not illustrate" (p. 117). However, before teachers can successfully refer students for identification procedures, they need a firm understanding of the characteristics gifted students exhibit (Speirs Neumeister, Adams, Pierce, Cassady, & Dixon, 2007). Therefore, it is important to investigate teachers' beliefs, stereotypes, biases, and expectations that influence their selection of students for gifted and talented programs. Previous research has shown that teachers often develop their own conceptions of giftedness and identify students who fit them (Campbell & Verna, 1998; Cashion & Sullenger, 1996; Hunsaker, 1994; Speirs Neumeister et al., 2007). The purposes of this study were to identify student characteristics that might influence teachers' perceptions of giftedness when referring students for gifted and talented programs and to explore whether preservice and in-service teachers viewed these characteristics differently.

Background of the Study

Controversy has reigned over the effectiveness of teachers in the nomination procedure for gifted students (Gagné, 1994; Hoge & Cudmore, 1986; McBee, 2006; Pegnato & Birch, 1959; Pierce et al, 2007; Renzulli & Delcourt, 1986; Rohrer, 1995; Siegle & Powell, 2004; Speirs Neumeister et al., 2007). During the middle of the last century, Pegnato and Birch (1959) challenged the idea that teachers could reliably identify gifted students. They reported that teachers were ineffective in identifying students with IQ scores above 130. This research, often cited as evidence to support the idea that teacher nominations are not a reliable source of information on gifted students, led to the general opinion that teachers are not qualified to identify gifted students in their classroom.

In 1994, Gagné challenged Pegnato and Birch's (1959) finding after he reanalyzed their data. Gagné found that teachers were as effective as other methods of identification for gifted students. Although other researchers (Hodge & Kemp, 2006; Hoge & Cudmore, 1986; Rohrer, 1995) have also found that teachers were able to identify gifted and talented students, some research (Speirs Neumeister et al., 2007) has shown that even experienced teachers often hold a "narrow conception of giftedness" and are not aware "how culture and environmental factors may influence the expression of giftedness in minority and economically disadvantaged students" (p. 479). In this study, we examine how students' gender, age, interests, academic areas of excellence, socioeconomic status, personality traits, and other characteristics might influence teachers identifying them as gifted and talented.

Gender

Teachers interact with male and female students differently within the classroom. They tend to spend more time verbally and nonverbally interacting with male students (Mann, 1994; Olivares & Rosenthal, 1992; Sadker & Sadker, 1993). This may be because boys are more likely to gain teachers' attention by supplying answers without being called upon by a teacher (Watson, 2000). When talking to students, teachers tend to give more detailed information to (Olivares & Rosenthal, 1992) and face male students more often (Sadker & Sadker, 1995) than female students. Additionally, due to the general tendency for boys and girls to exhibit different talents and interests (Benbow, 1988), teachers may develop differing expectations for each group. Gagné (1993) theorized that these differences in talents are due to actual differences between the genders, rather than teacher stereotypes.

Teacher stereotypes based on gender affect their views of students. Gagné (1993) found that teachers consider females to be more able in socioaffective and artistic areas, while they view males as more talented in physical and technical tasks. Bernard (1979) reported that teachers viewed masculine traits more highly, regardless of student gender. Dusek and Joseph (1983) similarly found that "teachers were more likely to expect high achieving students, regardless of gender, to be masculine or androgynous, and low achieving students, regardless of gender, to be feminine or undifferentiated" (p. 338). In a 1987

study using Tannenbaum's attitude questionnaire, Cramond and Martin (1987) showed that athletic ability, a traditionally masculine trait, was a determining factor in teachers' perceptions of student's ability. Athletic individuals were viewed more favorably. Finally, Siegle and Powell (2004) reported that teachers identified students for gifted programming who did not fit gender stereotypes more often than students who followed traditional gender roles.

Age

Data from previous investigations of the characteristics of early childhood giftedness include curiosity, intrinsic motivation, creativity, and independent investigation, as well as advanced cognitive abilities such as memory and numeration skills (Harrison, 2004). Other researchers (e.g., Rotigel, 2003) have also highlighted the concerns of asynchronous development among young gifted students, indicating an uneven development between physical, intellectual, and emotional dimensions. In contrast, commonly used identification and nomination procedures for school-aged gifted students include greater reliance on standardized assessments (McBee, 2006). In addition, teachers tend to make judgments about a student's ability in relation to his age or relative precocity (Persson, 1998); thus, the characteristics that might identify a child as gifted at a younger age may become less important to teachers in older grade levels. In Copenhaver and McIntyre's (1992) study comparing secondary and elementary school teachers' responses to characteristics of gifted students, elementary teachers were more likely to select negative characteristics, such as boredom, inattentiveness, and laziness, as well as independent characteristics and the presence of an extensive vocabulary. Secondary teachers chose characteristics such as inquisitiveness more often.

Student Interest

Student interest is another factor that teachers may use in considering students to be nominated for gifted programming. Although not directly linked to student interest, the subject area of the teacher might influence his or her nomination of students for gifted and talented programs. A study found that foreign language teachers in West

Germany were more likely to perceive a student as highly gifted than either math/physics teachers and music/art teachers (Busse, Dahme, Wangner, & Wieczerkowski, 1986). Thus, the subject area specialization of the teachers may affect their ratings of student ability. On the other hand, Olivares (2001) found that undergraduate students' self-report of interest in a subject area had no correlation with the professor's rating of their ability in that subject area.

Interests outside of the school curriculum may also influence teachers' recommendations for gifted programming. Teachers from Germany, responding to open-ended questions, cited interest in extracurricular activities as a characteristic of high-ability students (Endepohls-Ulpe & Ruf, 2005). The cultivation of student interests has long been a central component of many gifted programming models. The Schoolwide Enrichment Model encourages schools to provide programming opportunities meant to spark students' interests in a variety of areas with the intention of further developing the talents of students who are thus motivated (Renzulli & Reis, 1997). In addition, much of the work in the development of differentiated curricula has emphasized the importance of student interest (Tomlinson, 2004).

Student Ability

In addition to student interest, the subject area in which the student has demonstrated ability may influence teacher nominations. In open-ended questioning of teachers as to the characteristics of high-ability learners, cognitive traits were the most commonly named (Alviderez & Weinstein, 1999; Busse et al., 1986; Endepohls-Ulpe & Ruf, 2005; Hunsaker, 1994). In fact, some research indicates that there may be an interaction between gender and school subject ability in teacher nominations for gifted programs. For example, teachers in both the United States and West Germany rated ability in mathematics as the most important feature for boys and language ability as most important for girls (Busse et al., 1986).

Personality Traits

Various research studies have documented the effect of a student's personality traits in teachers' nomination for gifted programming. In

a content analysis of German teachers' responses to open-ended questions concerning the characteristics of gifted students, social behavior and personality traits were mentioned, but teachers mentioned them less often than cognitive traits (Endepohls-Ulpe & Ruf, 2005). In a Q-sort task, teachers identified assertiveness and independence as positively correlated with perceived higher IQ scores (Alviderez & Weinstein, 1999). Leadership ability, at least in the sense of acting as a positive role model to other students, has been identified by teachers as a characteristic of gifted students (Hunsaker, 1994; Persson, 1998). There is evidence from teacher self-reports that teachers perceive highly able students as more emotionally mature than their average-ability classmates (Persson, 1998). Teachers have also reported a willingness to help other students as a characteristic of their most highly able students (Persson, 1998).

Family Background Characteristics

The background characteristics of a student's family may influence a teacher's selection of students for recommendation for gifted programming. Alviderez and Weinstein (1999) found that teachers overestimated students' IQ scores from higher SES backgrounds, and underestimated students' scores from lower SES backgrounds. Additionally, in an empirical analysis of teacher nominations for gifted programs in Georgia, McBee (2006) found that teachers were significantly less likely to nominate students from lower SES backgrounds.

Specificity of Selection Criteria

When not given specific selection criteria, teachers focus on academic achievement, rather than creativity, leadership, or motor skills, when identifying students for gifted programming (Guskin, Peng, & Simon, 1992; Hunsaker, Finley, & Frank, 1997). Siegle and Powell (2004) found that teachers tend to nominate students with obscure, rather than common interests. Borland (1978) reported increased accuracy of nominations when teachers were given one criteria based on gifted programming, rather than more general terms. Similarly, Kolo (1999) found that teacher effectiveness in nominations increased when the instrument "explicitly and very clearly spell[ed] out the traits

or characteristics to be used by the nominators" rather than "ones in which the traits to be rated or checked [were] not so obvious" (p. 181). Speirs Neumeister et al. (2007) also noted that "in order to successfully refer students to undergo the identification procedure for participation in gifted programs, teachers need a solid understanding of characteristics found in gifted children" (p. 492). Without specific criteria, teachers develop their own conceptions of gifted and identify students who fit these conceptions (Pierce et al., 2007). Teacher rating scales have been shown to be effective tools in the identification process (Hunsaker et al., 1997; Renzulli, Smith, White, Callahan & Hartman, 1976; Renzulli et al., 1997; Ryser & McConnell, 2004). This is probably because they provide specific characteristics related to gifted behavior that teachers can easily identify.

Teacher Self-Efficacy

Teachers' own sense of adequacy about the process of identification may also play a role in nomination. Weber (1999) found that misidentification concerned teachers; specifically, they were more concerned with overidentifying rather than underidentifying. Weber recommended that teachers should be instructed that sending a student to gifted programming is not an indicator of shortcomings on the part of the teacher. Speirs Neumeister et al. (2007) noted that teachers who were unsure of whether students were gifted were also less likely to recognize students' strengths.

Methodology

We developed a series of 11 student profiles to measure 290 preservice and 95 in-service teachers' attitudes. We asked them to indicate how strongly they believed the students in the profiles should or should not be recommended for their districts' gifted program. The preservice teachers were undergraduate junior, senior, and fifth-year education majors attending a public university in New England. Although they had not completed any courses in gifted and talented education, they had been exposed to the topic of gifted education in their educational psychology course, which was taught by a nationally recognized expert

in the field of gifted education. The in-service teachers were attending a summer training institute on gifted and talented education at the same university. They completed the profiles during the third day of their institute. Therefore, both groups had received some exposure to the field of gifted education, although the in-service teachers had received more training in gifted education.

The majority of the participants were female. Within the preservice group, 79% were female. The majority of the preservice teachers anticipated having elementary certification (50%), followed by secondary certification (37%) and specialist certification (13%). The average age of the preservice teachers was 21. In-service teachers were primarily female (88%). They were also dominated by elementary teachers (52%), followed by secondary teachers (29%) and specialists (19%). Their average age was 41.

Each participant completed one set of 11 profiles. We created eight sets of each of the 11 profiles. We varied levels of the characteristics within each set and varied the characteristics from profile to profile. We selected characteristics based on our own experiences working in gifted and talented programs or on characteristics that the research literature indicated might influence students' selection for gifted and talented programs. All of the profiles are presented in the Appendix. The characteristic variations are indicated in parentheses in the appendix. The first profile (Kathy/Karl) varied gender and school subject interest (spelling, history, math, or science). The second profile (Beth/Bobby) varied gender and grade level. The third profile (Mary/Michael) varied gender, the presence of reading ability, and the presence of math ability. The fourth profile (Diane/Dave) varied gender, outside area of passion (lemurs or dogs), and length of interest in the area of passion. The fifth profile (Sam/Sally) varied gender, organizational ability, and extroversion. The sixth profile (Nate/Nancy) varied gender, ability area (math or reading), and assertiveness. The seventh profile (Gwen/Gary) varied gender, grade level, and attention level. The eighth profile (Linda/Larry) varied gender, grade level, and leadership ability. The ninth profile (Ethan/Ellen) varied gender, grade level, and emotional maturity. The tenth profile (Joe/Jenny) varied gender, grade level, and willingness to help classmates. Finally, the eleventh profile (Amy) varied family status, economic status, and family history in the gifted program. We presented the profiles to a

panel of five content-area experts in gifted education who correctly identified the characteristics we had embedded in the profiles.

The participants were randomly assigned one of eight sets of 11 profiles. For example, within one set we varied gender (some had a boy named Karl while others described a girl named Karen) and school subject at which the student excelled (spelling, history, math, or science). The participants were asked to list how likely they would be to recommend the student in each of their 11 profiles for a gifted and talented program. They used a 4-point Likert scale with 1 = *Definitely NOT include*, 2 = *NOT include with reservations*, 3 = *Include with reservations*, and 4 = *Definitely include* to rate each student profile.

We purposefully did not provide selection criteria. We believe this forced the educators to base their selections on personal experience and the beliefs they held about gifted students. We used Anglo names for all of the students because we were not measuring the influence of culture and ethnicity in this study.

Results

We analyzed the data for each profile with either a three- (2 x 2 x 4) or four- (2 x 2 x 2 x 2) way ANOVA. Teaching status (preservice or in-service) was a factor common to all the analyses. The characteristic variations were the other factors that consisted of eight different combinations for each of the 11 profiles. In this section we describe the significant main and interaction effects. Overall, in-service teachers tended to rate students higher than preservice teachers.

The academic subjects that interested students who were described as disengaged influenced teachers' perceptions of them as gifted, $F(3, 367) = 2.83$, $p = .038$, partial eta squared = .023. Students who were interested in mathematics ($M = 2.95$) and science ($M = 2.99$) were rated higher ($d = .37$) than students who were interested in history ($M = 2.60$) and spelling ($M = 2.67$). Students' interests outside school also influenced their ratings, $F(1, 368) = 6.30$, $p = .013$, partial eta squared = .017. Students who were solely interested in the unusual topic of lemurs ($M = 2.89$) received higher ratings ($d = .30$) than students who were solely interested in the common topic of dogs ($M = 2.59$).

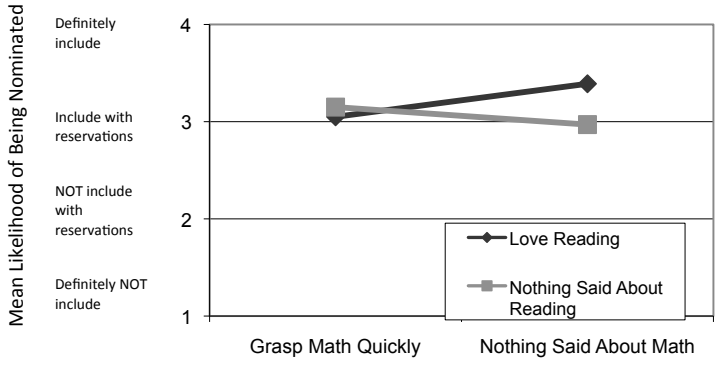

Figure 1. Interaction of preservice and in-service teachers' ratings of profiles of children describing different levels of reading and mathematics skills.

There were also differences based on the subjects in which students excel, $F(1, 367) = 5.92$, $p = .015$, partial eta squared = .016. Students who were voracious readers ($M = 3.31$) were more highly rated ($d = .29$) than students who did well in mathematics ($M = 3.04$). Interestingly, students who were described with a single outstanding strength in either mathematics or reading (without mention of the other) were rated higher than students with strengths in both, $F(1, 367) = 7.38$, $p = .007$, partial eta squared = .02, $d = .54$. For example, students who loved reading ($M = 3.39$) were rated highest, followed by students who grasp math concepts quickly ($M = 3.15$). They were followed by students who grasp math concepts quickly and loved reading ($M = 3.05$). The lowest rated students demonstrated neither trait ($M = 2.97$). Figure 1 illustrates this interaction effect.

Educators expected more from older students and thus rated older students with characteristics similar to younger students more modestly, $F(1, 369) = 5.56$, $p = .019$, partial eta squared = .015, $d = .60$. Overall, fourth graders ($M = 3.28$) who were pursuing a passionate interest received higher ratings ($d = .27$) than similar eighth graders ($M = 3.04$); however, preservice and in-service teachers viewed them differently, $F(1, 369) = 4.36$, $p = .037$, partial eta squared = .012. Although preservice teachers rated them similarly (fourth $M = 2.95$; eighth $M = 2.92$), in-service teachers appeared to expect more ($d = .81$) from eighth graders ($M = 3.15$) than fourth graders ($M =$

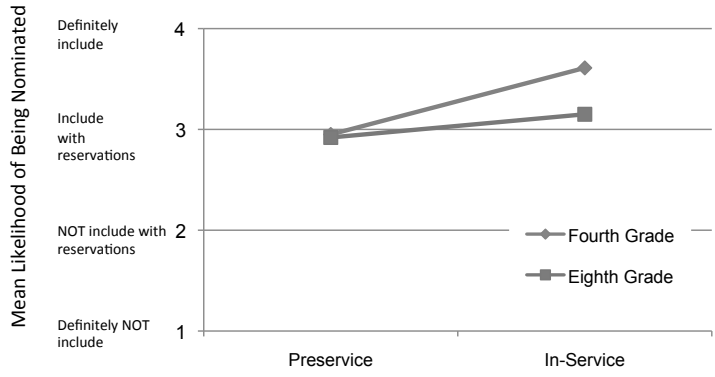

Figure 2. Interaction of preservice and in-service teachers' ratings of profiles of children from different grade levels.

3.61). Figure 2 illustrates this interaction. Student engagement had an impact, $F(1, 369) = 6.08$, $p = .014$, partial eta squared = .016. Students who were described as preoccupied ($M = 3.29$) were rated higher ($d = .30$) than students whose interests shifted ($M = 3.03$).

How teachers viewed students who often interrupted the class to share what they knew varied according to students' ages and willingness to help other students who did not understand material, $F(1, 368) = 4.33$, $p = .038$, partial eta squared = .012. Sixth graders who resented helping other students who were having trouble understanding school material ($M = 2.93$) received lower ratings ($d = .39$) than sixth graders who were willing to help others with their assignments ($M = 3.22$). This was not true for first graders, since those who were willing to help others ($M = 3.14$) received similar ratings as those who resented helping other students ($M = 3.27$) as can be seen in the interaction effect shown in Figure 3.

Curious and empathetic students with demonstrated talents from low-SES homes ($M = 3.44$) received higher ratings ($d = .36$) than similar students from high-SES homes ($M = 3.14$), $F(1, 368) = 9.04$, $p = .003$, partial eta squared = .024. Whether those students had a sibling already identified as gifted also made a difference. In-service teachers were more likely to be influenced by having siblings identified as gifted and talented, $F(1, 368) = 5.39$, $p = .021$, partial eta squared = .014 than preservice teachers. Preservice teachers rated a student with

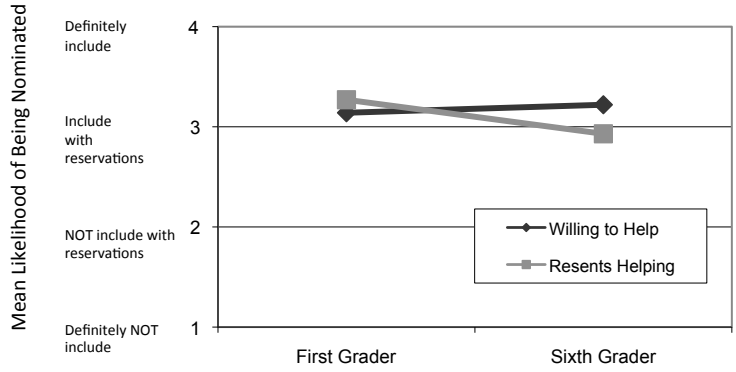

Figure 3. Interaction of preservice and in-service teachers' ratings of profiles of children from different grade levels and with different levels of willingness to help others.

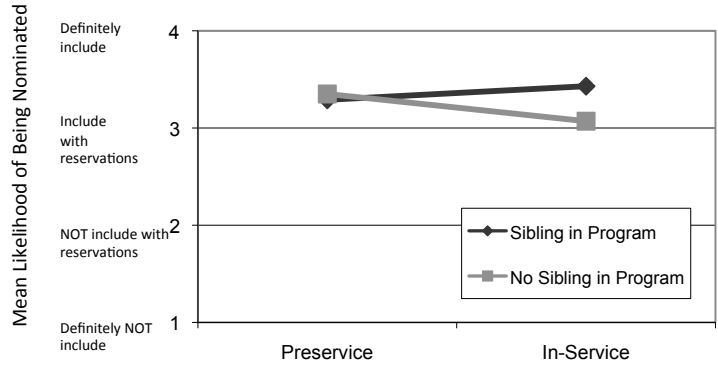

Figure 4. Interaction of preservice and in-service teachers' ratings of profiles of children with and without an identified gifted sibling.

a brother in the program (M = 3.29) similarly to a student who did not have anyone from his or her family identified as gifted (M = 3.35). In-service teachers rated the student with a brother in the program (M = 3.43) much more positively (d = .47) than the student without someone in the family identified as gifted (M = 3.07). Figure 4 shows this interaction.

Words really do matter, in that how a given student characteristic was described did influence the rating the student received, F(1,

368) = 14.49, $p < .001$, partial eta squared = .038. Students who were described as bossy ($M = 2.77$) received lower ratings ($d = .46$) than students who were described as natural leaders ($M = 3.19$). Students who were described as immature for their age and crying easily ($M = 2.48$) were rated lower ($d = .69$) than those who were described as highly sensitive and reacting with strong emotions ($M = 3.11$), $F(1, 368) = 31.71$, $p < .05$, partial eta squared = .079.

Discussion

The methodology of using analog techniques to evaluate preservice and in-service teachers' bias toward terms used to identify gifted children is unique. This technique allowed us to reveal some salient differences in some attitudes between teacher trainees and practicing teachers.

Generally, the mean scores were high for the students featured in our profiles. This finding indicates that the educators recognized the characteristics of giftedness we embedded in the profiles, and in-service teachers were more likely to recognize them than preservice teachers. Because the in-service teachers were attending a gifted conference, they probably had more training and interest in gifted education. Teachers with more training are more likely to recognize and appreciate different ways students exhibit their giftedness.

The federal government's emphasis on the importance of students being able to read well and excel at mathematics and science (No Child Left Behind Act, 2001) is reflected in our findings. Our participants were more impressed with students when they excelled or were interested in these subjects. An Australian study (Hodge & Kemp, 2006) also found that teachers more readily recognized reading strengths. In our work, voracious readers receive the highest ratings. This may be problematic for twice-exceptional students who have difficulty with reading. More work is needed in recognizing gifted students with a reading disability or simply a gifted student who is not interested in reading. While reading is a powerful tool for students to advance their knowledge, the increased availability and popularity of multimedia material can advance the knowledge base of students who are less interested in reading or who have difficulty reading. This is not to say

that reading is not important, but we believe that being a voracious reader should not be an overriding factor in selecting students for gifted programs.

Siegle and Powell's (2004) previously reported finding that teachers tend to equate giftedness with nonstereotypical (unexpected) behaviors was affirmed in this study as well. Students from lower SES backgrounds who exhibited similar characteristics to students from higher SES backgrounds also received higher ratings. The participants were more impressed with high achievement from low-SES students than from high-SES students. This is in contrast to the empirical evidence that fewer students from low-SES backgrounds are nominated for gifted programming (McBee, 2006). This difference in findings may be due to the difference between explicitly thinking about SES as a factor in a student's profile, as in the study presented in this paper, and underlying prejudices about a student's SES that might not be explicitly stated in an actual student's profile. Identifying and serving lower income gifted students continues to be a problem that needs to be addressed (Wyner, Bridgeland, & Diiulio, 2007); however, our findings represent a positive move in that changing attitudes is the first step in changing behaviors.

In-service teachers were also more influenced than preservice teachers by students having an older sibling already in a gifted program. In-service teachers rated students with an older sibling in a gifted program higher than students without an older sibling in a gifted program. Preservice teachers rated them similarly. Apparently in-service teachers expect students from the same family to perform similarly, while preservice teachers do not. This may be due to previous experiences that classroom teachers have had working with siblings. Silverman (2007) reported that brothers and sisters are usually within 5 or 10 points in measured ability, so one might expect a younger sibling to be identified as gifted if an older sibling had been in a gifted program.

The participants rated older students who were willing to help less academically proficient peers higher than older students who resented helping their less academically proficient peers. This finding may be problematic, because being willing to tutor others should not be related to whether one is nominated for a gifted program. This expectation did not carry over to younger students. Bain, Bliss, Choate,

and Brown (2007) noted that a majority of preservice teachers believe placing gifted students in regular classrooms and having them tutor other students provides better learning for the less talented students. This is problematic for gifted students for two reasons. First, not all gifted students enjoy tutoring other students. Second, the time gifted students spend tutoring less advanced students could better be used to help them further develop their own abilities. Teacher educators should caution future teachers to use this practice sparingly.

Finally, how a given characteristic is presented mattered. Being described as a "leader" is better than being described as "bossy." Being described as "sensitive" is better than being described as "emotional." Concomitant terms are not rated similarly. This finding has implications for creators and users of student behavior checklists. For example, a checklist that includes the term "strongly independent" might include "stubborn" in parentheses next to it. Future research projects might evaluate the validity of checklists that do and do not have concomitant terms. Teachers should be trained in using checklists, and part of that training should include a discussion of how gifted characteristics can manifest themselves in ways that can be perceived as positive, as well as ways that can be perceived as negative. Additionally, teachers should be warned that gifted children will not demonstrate all of the characteristics on published checklists. Speirs Neumeister et al. (2007) noted that teachers may "rely exclusively on characteristics of gifted students that appear on published checklists without realizing that all gifted kids do not demonstrate all of the characteristics" (p. 480).

Limitations

Because we used a convenience sample to collect our data, these results cannot be generalized beyond the sample from which we collected data. The in-service teachers were attending a conference on gifted and talented education. First, we can assume that they had some interest in the field of gifted and talented education by their attendance at the conference. This study should be replicated with other populations. In-service educators who have not received training will probably rate students differently than our sample rated them. Although our

preservice teachers received some exposure to the field of gifted and talented education, this exposure was limited. Future researchers may wish to explore the attitudes of preservice teachers who have had more exposure to the field with those who have not. Future researchers may also wish to measure how much training is necessary for teachers to effectively identify gifted and talented students.

The profiles used for this study are also a limitation. Although we believe that the profiles represented the characteristics we indicated and a panel of content-area experts concurred, we did not specifically ask the raters what about each profile troubled or pleased them. Future researchers who use this process may wish to collect qualitative data from the respondents regarding the reasons for the ratings. The process of creating interesting profiles while restricting the characteristics of the profile's subject was difficult. For this reason, we incorporated multiple characteristics in each profile (see Appendix). The differences we found might not exist if the characteristics were embedded in a slightly different profile. Future researchers may wish to explore the interactions of various characteristic combinations as well as the characteristics in isolation.

We did not randomly assign the order in which our teachers read the profiles. Although our participants randomly received a set of profiles, the sequencing of the profiles within that set remained constant. Certain profiles may seem more or less positive depending upon the previous profile. Future researchers may wish to randomize the order in which they present the profiles. Finally, we caution the reader that while the results we report are statistically significant, some of the effect sizes are small.

Conclusions

The first step in identification should be to clearly define what is meant by gifted. In our study we left the definition to the rater's discretion. Borland (1978) noted over a quarter century ago that student identification improves when teachers are provided with specific selection criteria. Without a clear definition, those who are asked to nominate students must rely on previous training and/or stereotypes they have developed. The latter could result in inherent biases. In his National

Association for Gifted Children Presidential Address, Siegle (2008) called for efforts to more clearly define the terminology of the field of gifted education.

Clearly defined terminology most likely improves identification, and internal program consistency mandates the alignment of identification criteria and program services. Gifts and talents manifest themselves in various ways. Educators should be trained to recognize specific criteria that match the area of talent that a program is designed to service. These criteria should be specific and include concomitant characteristics. Such training will go a long way toward improving referrals for gifted and talented programs.

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Authors' Note

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Appendix
Student Profiles

2 x 4 (Gender x Subject)

Kathy (**Karl**) is a quiet, introspective student. S/he is often lost in thought and frequently has no idea what was just said although s/he does generally know the topic under discussion. When s/he does make comments, they seem to be unrelated to the topic. S/he likes to read all sorts of books. S/he is especially interested in (**spelling, history, math, or science**). S/he is not well organized and seldom hands in homework but does well on tests. Kathy (**Karl**) is uncomfortable around her/his peers and prefers to walk around and talk with teachers at recess time or spend time alone.

2 x 4 (Gender x Grade)

Beth (**Bobby**) is a (**kindergartener, second-grade student, fourth-grade student, eighth-grade student**) and an active class participant. S/he asks thoughtful questions on most topics of discussion. S/he maintains interest in the topic long after her/his classmates have gone on to something else. This is frequently frustrating for her/him because s/he feels s/he isn't given enough time to find out what s/he needs to know. Beth (**Bobby**) sees relationships between various ideas and events. S/he has a dry, quick sense of humor that is not always understood or appreciated by those around her/him.

2 x 2 x 2 (Gender x Reading x Math)

Mary (**Michael**) is a very verbal student. S/he has a large vocabulary and enjoys playing with words. Her/his attempts at humor are often

not appreciated by those around her/him. S/he has a tendency to dominate class discussions and lose other students. S/he is an avid reader (**no mention of avid reading**) but the books s/he reads don't always seem appropriate for her/his age. S/he understands math concepts quickly but does not do well on timed math fact pages (**no mention of math**). Assignments are handed in on time and are of varying quality.

2 x 2 x 2 (Gender x Passion Area x Length of Passion)

Diane (**Dave**) is a fifth grader who has been passionate about lemurs (**dogs**) since s/he was in kindergarten (**fourth grad**e). Her/his room is covered with posters on lemurs (**dogs**). S/he has read all of the books s/he can find on lemurs (**dogs**) in her school and public libraries and has started getting books from other libraries. S/he has a tendency to bring lemurs (**dogs**) into any conversation or assignment in which s/he participates. Spelling sentences are about lemurs (**dogs**) and book reports are about lemurs (**dogs**). Diane (**Dave**) manages to bring lemurs (**dogs**) into math and especially science. Classmates are tired of the lemur (**dog**) discussions and encourage her/him to go on to something new, but Diane (**Dave**) is as enthusiastic as ever.

2 x 2 x 2 (Gender x Organization x Personality)

Sam (**Sally**) is a bright fifth grader who loves to learn and has many friends. S/he is organized (**S/he has difficulty keeping her desk organized and often misplaces assignments. His/her papers are not very neat**). S/he is a quiet introspective (**S/he is outgoing and gregarious**). S/he excels at problem solving and reads voraciously. Sam (**Sally**) is passionate about lighthouses. S/he knows the locations and construction dates of all the lighthouses along the Atlantic Coast, but s/he has trouble remembering dates and places for his/her history class.

2 x 2 x 2 (Gender x Subject x Assertiveness)

Nate (**Nancy**) has excellent skills in mathematics (**is a voracious reader**) in the fifth grade. S/he does well on his/her schoolwork and

turns his/her assignments in regularly. S/he is afraid to express his/her opinions and is easily dominated by his/her peers (**S/he is not afraid to express his/her opinion and occasionally his/her assertiveness creates a tension between him/her and his/her peers**). S/he loves reptiles and spends every spare minute reading about them. S/he convinced his/her parents to build a frog pond in their backyard.

2 x 2 x 2 (Gender x Grade x Attention)

Gwen (**Gary**) is a lively fourth- (**eighth-**) grade student with many interests. Her/his most recent passion is whales and dolphins. Daily s/he searches the newspaper for any reports of whales beaching themselves. At lunch, Gwen (**Gary**) is working to interest other fourth (**eighth**) graders in a "Save the Whales" campaign. In the classroom, Gwen's (**Gary's**) broad range of interests frequently causes her/him to move on to a new topic or activity prior to completing the previous assignment. S/he is often preoccupied (**In the classroom, Gwen/Gary fails to finish tasks; s/he frequently shifts activities without apparent awareness that s/he has not completed the previous assignment. S/he is often unfocused**). The work that Gwen (**Gary**) does shows that s/he is a capable mathematical problem solver. Her/his ideas for creative story writing are elaborate but s/he seldom gets the words on paper.

2 x 2 x 2 (Gender x Grade x Control Over Students)

Linda (**Larry**) is an eighth- (**fifth-**) grade student with a strong interest in history. S/he has memorized the names of every U.S. president along with the dates they served in office. Linda (**Larry**) is very bossy (**is a natural born leader**) and is able to convince his/her classmates to follow in her/his steps. Linda (**Larry**) excels in writing and recall of factual information.

2 x 2 x 2 (Gender x Grade x Emotion)

Ethan (**Ellen**) is an eighth- (**fifth-**) grade student who is an excellent reader. He/she devours all genres and particularly enjoys historical fiction. Ethan (**Ellen**) is a highly sensitive young man/woman who

reacts with strong emotions to adverse situations (**Ethan/Ellen is immature for his/her age and cries easily when s/he doesn't get his/her own way**). Ethan's (**Ellen's**) schoolwork is neat and turned in on time.

2 x 2 x 2 (Gender x Grade x Relationship With Classmates)

Joe (**Jenny**) is a happy and bright sixth- (**first-**) grade student. S/he does not get along well with other classmates and often resents being asked to help students who are having trouble understanding their assignments (**S/he gets along well with his/her classmates and is always willing to help students who are having trouble understanding their assignments**). Joe (**Jenny**) enjoys reading nonfiction science books and wants to share his/her knowledge with the class. At many times throughout the day, Joe (**Jenny**) interrupts the teacher during a lesson to tell her and the class what s/he has learned through his/her reading. Although the teacher appreciates Joe's (**Jenny's**) enthusiasm for learning, she feels his/her disruptiveness is a problem for the other students in the classroom.

2 x 2 x 2 (Family Status x Economic Status x Family History in Gifted Programs)

Amy is a neat and bright fifth-grade student who lives with her mother (**both parents**) and tenth-grade brother. The family has a high (**low**) economic status. Amy is sensitive and empathetic and she is well accepted by her peers. She is curious and demonstrates high performance in schoolwork. She has a tremendous interest in turtles and she spends a lot of time watching the science channel. She gets along very well with her brother, who was placed in a program for mathematically gifted students (**If she is placed, she will be the first member of her family to be in a program for gifted students**).