The Student and the Teacher – Making a Match in a Single-Gender Classroom

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In 2002, only eleven public schools offered single-gender classrooms. At the end of the 2008-2009 school year, 542 public schools offered single-gender classrooms (NASSPE, 2009). As interest in single gender classrooms grows so does concern about who should be teaching in these classrooms. Will a male teacher be a better fit for an all boys' classroom? Or, should the teacher be female? Likewise, is there a gender variable in a teacher placement in an all girls' classroom? Or is this particular teacher a good fit in a mixed classroom – one that includes both boys and girls? This study probes these questions and explores how a teaching style questionnaire may help teachers and their administrators in the selection of teaching assignments based on a teaching composite that aligns with students in a single-gender or a mixed-gender classroom.

Building on the Research

Students have unique learning styles; teachers have unique teaching styles. Teaching styles are categorized by teaching preferences, typically identified by how the teacher delivers instruction, provides assessment, selects content, and supports the individual needs of the learner (Hunt, 1971; Grasha, 1996). Students will acquire more knowledge, remember more content, and learn skills more effectively when a teacher's teaching style matches students' learning style (Hunt, 1972; Lage, Platt, & Treglia, 2000). This approach – defining the match in terms of congruence - has led to a body of research called "goodness of fit." When there is a mismatch in that fit, there tends to be a decrease in students' performance, an increase in their dissatisfaction, and learner stress (Pervin, 1980, p.56). Sometimes, students are "out of sync" with the teacher's way of delivering instruction; it is difficult for students to attempt to resolve any inconsistencies in their learning environment by trying to learn with strategies that do not necessarily match their learning style (Joyce, 1984, p.33; Kagan & Moss, 1963, p. 202). These early researchers conclude that if the goal is immediate changes, then the fit needs to be more closely matched. With a good fit, students are able to learn within a comfortable environment that facilitates a meaningful learning structure (Joyce, 1984, p. 34).

Another realistic hurdle is to match students' learning styles with a teaching style. Often, a teacher is uncertain of his or her teaching style. Even if a teacher answers a teaching style inventory (e.g., Grasha-Reichmann's Teaching Style Survey, 1996), the results fall in the framework of how well a teacher's style aligns with teaching a specific course. Matching teaching styles to students' learning styles may be further complicated if the teacher's gender is taken into account. A teacher may teach 9th grade Social Studies differently from the way another teacher teaches the same course. Does that teaching style carry over to a better understanding of how to teach a male student differently from a female student? Are there specific strategies which might help teachers select a teaching style that supports distinctive learning abilities of boys and girls?

Some researchers believe that a teacher's gender influences how that teacher interacts and communicates with his or her students (Constantinou, 2008). Researchers such as Constantinou continue to find that most teachers react differently to boys or girls. A point to be made in gender research is that not all boys and girls in classrooms are "masculine" and "feminine," respectively. This was brought out in the research of Severiens and Ten Dam (1997) in their study of adult learners. They found that students in a single-gender environment mimic the "gender stuff" of the teacher. Students are more engaged, behave more appropriately, and interact at higher levels when they are taught by a teacher of the same gender. Their findings should be interpreted with caution because effect size was low and the study cited above was with only adult learners.

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These authors also stress that gender identity (masculine/feminine) is more relevant than biological gender (male/female). In another study, Carrington, Tymms, and Merrell (2008) found that the interaction of the gender of the teacher and the gender of the student was not significant, especially in the area of role model imitation. On the other hand, Harris and Barnes (2009) found that four-year-old boys preferred males to form a relationship and saw the male teacher as the person to be involved in sports and physical games. The researchers concluded that this preference might be based more on stereotyping than on actual gender matching. A final point to make is that race tends to make a difference in how students respond to their teacher's gender. In a study in a low-income, African-American school, women teachers were more effective in all-boys' classroom than were male teachers (B. Wright, personal communication, July 12, 2009).

If there is a need to have a gender match between the teacher and the students, and duly noting that this has not been clearly supported through research, it will not be an easy feat. A gender match of teachers and students appears to be more difficult in elementary and middle schools because of the dearth of male teachers. There are also fewer male teachers of English and fewer female teachers in mathematics and science at the high school level (Dee, 2006). In April 2004, the Census Bureau released statistics about the teaching force in the United States. According to the Census Bureau, the number of all teachers in the United States was 6.2 million; of this number, 71% were women (U.S. Census Bureau, 2004).

Ultimately, the questions that drive this study explore ways to assist in teacher preference and teacher selection. How do teachers identify themselves in terms of teaching style and gender preference? How should teachers be chosen to teach in single-gender classes? Is this a good match or a mismatch? What are the good, better, and best fits?

Methods

Survey Instrument

The author of this paper designed a survey instrument that may provide clues to determine a teacher "good fit" for a single-gender classroom assignment (See Attachment A). Characteristics outlined in several studies on learning styles of boys and girls that included the variables of environment, assessment, and instructional strategies and based on the work of writers in this field (e.g., James, 2007; Sax, 2007) were used.

The survey is composed of 25 questions about teacher preferences in the classroom related to learning environment, social support, and teaching strategies. Learning environment questions involve settings that support the teaching and learning process like engagement, noise level, energy level, activity level, and movement. Social support questions query the use of positive teacher comments and personal questions, the use of intrinsic and extrinsic rewards, and humor. Teaching strategies involve student directed learning versus teacher directed learning, cooperative and competitive learning, timed learning, and group work. Of the 13 "boy" and "girl" questions, four deal with learning environment, three with social support, and six with teaching strategies. There is an equal distribution of questions; one question is counted twice, categorized as descriptive for girls and boys.

The survey uses a Likert style with a range of 1-6 points; one for least likely and six for most likely to be used by the teacher. The questions deal with teachers' teaching beliefs about boys (13) and girls (13). The questions are written in random order and without regard to gender identification to minimize gender bias in the teachers' responses. The *Likert Scale* is used with a six-point spread because typically teachers tend to select values of three or four when asked to complete a survey. A wider response set facilitates teachers to use a critical process in their selection for each response.

Subjects

Elementary teachers (28 - 3 males and 25 females) in a Title I elementary school with single-gender classes in kindergarten, fifth, and sixth grades were the first teachers to answer the survey. Their teaching experiences ranged from 6-19 years with a mean score of 11.7 years with an SD of 11.7 years. At the beginning of the fall semester, all teachers in this school participated in two professional development days reviewing how boys and girls learn. During the school year, teachers in the single-gender classrooms, using the school website, shared some of their students' writings about their classroom experiences. The survey on teaching preference was given to teachers in the second semester.

       The second administration of the survey was completed by 25 secondary teachers who were students in a curriculum course taught by the researcher (4 males; 21 females). Ninety-eight percent of these students are actively employed teachers. The four male teachers (one math teacher, three social studies teachers) indicated a preference to teach a mixed class of boys and girls. Two female teachers (math/science) indicated a preference for girls; two female teachers (social studies/science) preferred all boys. The remaining teachers specified a preference for a mixed class of boys and girls.

Statistical Measures

       Interrater reliability. Interrater reliability was established by secondary teachers in a graduate level curriculum course. Prior to the student teachers answering the survey, the course instructor (researcher) lead a discussion on the meaning of each variable: learning environment (LE), social support (SS), and teaching strategies (TS). Teachers suggested different types of indicators for each variable and the course instructor continued the discussion until teachers reported they had a clear understanding of the meaning of each variable. The teachers enrolled in the curriculum course were then asked to categorize each item by one of the three criteria – LE, SS, or TS. Overall, the student teachers provided an Inter-rater reliability of 21 of the 25 items with an agreement rating of 90% or higher. The four items that had a mixed rating were rewritten and reconfirmed (see expert validity) to establish a higher internal reliability.

       Internal reliability. The statistic of a Cronbach r was also administered on the items based on the responses of the 53 teachers. The Cronbach r showed a low (<.3) for each item in the survey. This indicates that each item was distinctly different from any other item in the survey.

       Expert validity. Expert validity was provided by a review of three experts who have written on the subject of single-gender education. They were asked to determine if the gender specification and the variable assigned to the item matched their coding. The panel also reviewed the items for clarity of wording and instruction. Based on a review of three experts, four items were reclassified after these questions were rewritten. The four items were checked for internal reliability by an additional administration to 10 teachers randomly selected and the agreement rate of the four items was 90%.

Survey Administration and Scoring

       Administration. The survey was distributed to teachers in a large group setting: the school cafeteria and the college classroom. Before the teachers took the survey, they were given an overview of the intent of the survey: to have them identify their teaching style preference. They were also asked to predict the answer to the question, "If you were asked what classroom in which you would prefer to teach – an all-boys' classroom, an all-girls classroom, or a mixed classroom of boys and girls – which one do you think you would be a better fit?

       Scoring. To determine a single-gender preference of the teachers, the researchers used the scale as seen in Table: for questions dealing with girls, a teacher's total score was less than 27 (<27) indicated a preference to teach boys; if it was more than 27 and less than 53 (<53), that indicated a leaning toward teaching either boys or girls. If a teacher's choices indicated a score of more than 53 (>53), this indicated a preference to teach girls. To ensure that scores would be inclusive, a point was added to the highest numbers. See Table 1.

Table 1
Scoring of Responses

B&G Questions	Girl Questions	Preference	Boy Questions	Preference
	<27	Boys	<27	Girls
	>27 and <53	Boys & Girls	>27 and <53	Boys & Girls
	>53	Girls	>53	Boys
>53		Boys & Girls		

Attachment B provides an answer key for the survey. The key helps the teacher and/or administrator look at the outcome of the survey and discuss how a teacher's score reflects the goodness of fit in teaching in a single -gender or mixed-gender classroom.

Results

Fifty-three surveys were completed by teachers from a local elementary school involved directly or indirectly in single-gender education and by secondary teachers in a university graduate curriculum course. Seven males and 47 females completed the survey. The teachers were not aware of the categories (i.e., LE, TS, or SS) nor did they know which survey questions referred to a boy or girl. The teachers were asked prior to the survey completion to predict the outcome of the survey, that is, to predict whether their teaching style would be more fitting in a boys' classroom, a girls' classroom, or a mixed classroom.

Table 2
Relation between the Gender of the Teacher and Teacher Scores - Secondary

Teacher	n	Mean Score Girls	Std. Deviation	Mean Score Boys	Std. Deviation
Male	4	54.75	4.11	53.25	3.77
Female	21	54.14	5.64	52.95	6.11

Table 3
Relation between the Gender of the Teacher and Teacher Scores - Elementary

Teacher	n	Mean Score Girls	Std. Deviation	Mean Score Boys	Std. Deviation
Male	3	52.67	6.65	55.33	5.68
Female	25	54.56	4.41	52.92	7.18

The results in Tables 2 and 3 show that there is little difference between elementary and secondary teachers in their boy and girl cumulative survey scores. There was no significant difference between the averages for male teachers compared with female teachers, although the small number of male teachers severely constrains the statistical power of the comparison.

Table 4
Elementary and Secondary Teacher Survey Preferences

Elementary Teachers	n Male	n Female	Mixed	Girls	Boys	No preference
	3	25	17	4	4	3
			61%	14%	14%	11%

Secondary Teachers	n Male	n Female	Mixed	Girls	Boys	
	4	21	20	2	3	
			80%	8%	12%	

Most of the teachers, elementary and secondary, indicated that their intuitive preference was to be in a mixed classroom. Among elementary school teachers who indicated a teaching preference, 3 teachers preferred teaching girls, 4 preferred teaching boys, 2 mixed class, and 19 indicated no preference. Six of those nine teachers who indicated preferences had preferences that coincided with the preferences predicted by the expert rating scale (just one more than would be predicted by chance).

Each teacher received an outcome analysis of the survey (see Attachment C). Discussions took place in small group settings in the elementary school and in a large group setting in the university classroom. The discussions centered on reviewing each item and how each one was related to a specific single-gender student learning preference. Teachers in each setting were surprised that boys and girls actually expressed unique preferences for their learning environment, teaching strategies, and social supports that foster learning.

Discussion

Most teachers in the survey indicated that their intuitive preference was to be in a mixed classroom of boys and girls. It is possible that teachers believe that teaching in a mixed classroom of boys and girls is the "right answer." In our schools of education, students are taught that good teaching accommodates the needs of individual students. A teacher wrote on her survey, "We do not need classrooms just for boys or just for girls, or just for kinesthetic learners. We need to find ways to differentiate instruction for the multiple learners with multiple learning preferences in our classroom."

Even though elementary and secondary teachers do not necessarily agree on teaching strategies or content delivery, in this study, they tended to agree that their "goodness of fit" was in a mixed classroom. When they were asked to select the type of classroom in which they would feel the most comfortable, sixty-one percent of elementary teachers and eighty percent of secondary teachers selected a mixed classroom option. Moreover, several teachers expressed a concern that a teacher would even consider a single-gender classroom. One teacher wrote, "I fundamentally disagree with segregation." Another one added, "A mixed classroom is a classroom community." Others reported that they would prefer a mixed classroom because "it is more balanced and includes both gender perspectives." One of the two teachers who selected the choice of being placed in an all boys' classroom provided the rationale of "I would choose boys because there is no drama." And, perhaps most telling, one of the two first-year teachers provided a contrasting view – "I don't know; I never thought about it."

The science of determining teachers' "right fit" for a single-gender classroom is in its infancy. It seems that a forced-choice paradigm in the next administration of the survey should allow for teachers to indicate an "either/or" choice. "If you had to choose either a boys' classroom or a girls' classroom, which would you choose?

It was equally apparent that teachers were largely unaware of teaching styles that were more supportive of boys' learning styles or girls' learning styles. Regardless of teaching choices, it is important to remember that when planning and developing instructional materials, teachers need to strive for a balance of teaching styles to match the various learning styles of the students in their classrooms (Felder & Soloman, 1992). Administrators who are considering the single-gender option might do well to train their teachers in what constitutes a boy-friendly teaching style and a girl-friendly teaching style.

The results of this study provide a glimpse of what these teachers believe is their actual teaching preference in a single-gender classroom. One way for principals and teachers to begin this discussion might be with the question, "Would you prefer to teach in an all boys' classroom, in an all girls' classroom, or in a mixed classroom?" The survey presented in this paper may serve as useful instrument for teachers to explore the answer to this question. The next step is to ask the student, "How do you prefer to learn?" In this age of matchmaking, it is not that far-fetched to imagine that finding a good fit between students and teachers in our schools will become a reality.

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Attachment A
Teaching Styles Survey

In each statement, **circle** the number that reflects your classroom practice. Please answer thoughtfully.
In the continuum 1-6, one (1) <u>least likely</u> reflects your preference and six (6) <u>most likely</u> reflects what you prefer and do in your classroom.
Name: _____   Your Gender: Male   Female
Your Classroom Grade: _____   Subject Area: _____
Given the three choices below, in which classroom would you most prefer to teach?
_____ an all boys' classroom   _____ an all girls' classroom   _____ a mixed classroom

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1. I encourage quiet student conversation.
   Circle One: 1   2   3   4   5   6
2. I don't mind some student noise distractions.
   Circle One: 1   2   3   4   5   6
3. I encourage students to use their own initiatives in completing assignments.
   Circle One: 1   2   3   4   5   6
4. I promote and enjoy high levels of team competition.
   Circle One: 1   2   3   4   5   6
5. I am careful about asking a student what is going on in his/her life.
   Circle One: 1   2   3   4   5   6
6. I prefer classroom assignments that involve creative projects.
   Circle One: 1   2   3   4   5   6
7. When I teach, I tend to talk a lot.
   Circle One: 1   2   3   4   5   6

8. I prefer that my students stay in one place instead of moving around in the classroom.
   Circle One: 1   2   3   4   5   6
9. I allow my students to gather in informal learning structures in my classroom.
   Circle One: 1   2   3   4   5   6
10. I give my students rewards (e.g., extra points, goodies) to motivate them to learn more.
    Circle One: 1   2   3   4   5   6
11. I can characterize my classrooms as social groups.
    Circle One: 1   2   3   4   5   6
12. I support my students but refrain from asking them personal questions.
    Circle One: 1   2   3   4   5   6
13. I talk less than my students do in my classes.
    Circle One: 1   2   3   4   5   6
14. I use a lot of quick question and answer responses during my classes.
    Circle One: 1   2   3   4   5   6
15. I am very calm and patient with my students.
    Circle One: 1   2   3   4   5   6
16. I often give my students more time to complete assignments and homework.
    Circle One: 1   2   3   4   5   6
17. I keep my students on task to make sure they finish their work within the allotted time.
    Circle One: 1   2   3   4   5   6
18. My classroom activities are timed but I often give students more time if they need it.
    Circle One: 1   2   3   4   5   6
19. I encourage my shy students to express themselves when I call on them.
    Circle One: 1   2   3   4   5   6
20. I prefer my students to be highly energetic while learning in my classroom.
    Circle One: 1   2   3   4   5   6
21. I don't mind if my students complete their learning tasks while they are active.
    Circle One: 1   2   3   4   5   6
22. I provide my students with direct feedback and corrections.
    Circle One: 1   2   3   4   5   6
23. I use humor in a teasing way to help my students deal with learning challenges and personal conflicts.
    Circle One: 1   2   3   4   5   6
24. I don't mind a high student "noise" level in my classroom.
    Circle One: 1   2   3   4   5   6
25. I make certain that my students are given complete instructions and answer any questions they may have before classroom activities begin.
    Circle One: 1   2   3   4   5   6

Attachment B
Survey Analysis Key

	Girls	**Boys**	**LE** Learning Environment	**TS** Teaching Strategies	**SS** Social Support
Total Number	13	13	11	8	7
Boys			5	4	4
Girls			5	4	4
Item Number	**LE**	**TS**	**SS**		
Boys	3,6,20,21,24	7,14,17,22	4,10,12,23		
Girls	2,8,9,11,21	13,16,18,19	1,5,15,25		
N.B.	#21=B & G				

Attachment C

Set One Instructional Strategies Conducive for Boys
1. I encourage students to use their own initiatives in completing assignments. (5)
2. I promote and enjoy high levels of student competition. (5)
3. I have a very structured classroom. (5)
4. I tend to be very verbal in my teaching. (3)
5. I give my students rewards (e.g., extra points, goodies) to motivate them to learn more. (5)
6. I support my students but refrain from asking them personal questions. (2)
7. I use a lot of quick question and answer during my classes. (4)
8. I keep my students on task to make sure they finish their work quickly. (5)
9. I prefer my students to be highly energetic while learning in my classroom. (6)
10. I prefer students get into action and complete their learning tasks. (6)
11. I provide my students with direct feedback and corrections. (6)
12. I use humor to help my students deal with learning challenges and personal conflicts. (6)
13. I don't mind a high student "noise" level in my classroom. (5)

Set Two Instructional Strategies Conducive for Girls
1. I prefer and actually encourage quiet student conversation. (3)
2. I don't mind some student noise distractions. (4)
3. I have no qualms about asking a student what is going on in his/her life. (5)
4. I prefer that my students stay in one place instead of moving around in the classroom. (4)
5. My students sit in circles during my classes. (6)
6. I can characterize my classrooms as having a lot of group work. (6)
7. I talk less than my students do in my classes. (4)
8. I would say that I am very calm and patient with my students. (6)
9. I often give my students more time to complete classroom assignments and homework. (4)
10. I give timed classroom activities but often give students more time if they need it.(6)
11. I make certain that my students are given complete instructions and answer
    any questions they may have before classroom activities begin.(6)
12. I encourage my shy students to express themselves when I call on them. (6)

The first set of statements (1-13) reflects teaching practices that are more conducive for teaching boys. The second set (1-13) reflects teachers' gender preferences for girls in their classrooms. The number in parenthesis indicates the value you assigned to this strategy: "1" as least likely and "6" as most likely. Your profile indicates that you obtained a composite score of 63 for boys and 60 for girls.