

Micki M. Caskey, Ph.D., Editor
Portland State University
Portland, Oregon

2011 • Volume 34 • Number 7

ISSN 1940-4476

“It all depends...”: Middle School Teachers Evaluate Single-Sex Classes

Frances R. Spielhagen
Mount Saint Mary College
Newburgh, NY

Abstract

This mixed-methods study explored the effectiveness of single-sex classes according to key stakeholders in this educational reform—the teachers who choose or are hired to teach in single-sex classes and schools. Specifically, this study examined the on-the-ground experiences of middle school teachers as they attempted to implement a relatively new and somewhat controversial school reform in a large urban center in the southeastern United States. The teachers offered important insights into the ways they approached single-sex classes at the beginning of the school year, including the differences in the ways boys and girls learn. The teachers also reached conclusions as the school year was ending.

Are single-sex classes effective? According to the teachers in this study, it depends on a complex set of factors. In this study, adolescent developmental changes were brought into sharp focus in the single-sex classes. By the end of the school year, the initially optimistic attitudes of the teachers toward the

behavior of their students in the single-sex classes had diminished. Not surprisingly, administrative support and professional development also emerged as critically important. Finally, despite their negative assessment of some of the aspects of single-sex classes, these teachers maintained that the reform should remain an option for parents and students.

Introduction

Single-sex education has gained in prominence in middle schools over the last few years. The single-sex model seems to appeal to administrators and education policymakers for a variety of reasons, usually stated as a way of addressing lagging achievement in the middle school grades. Sometimes the implementation of single-sex classes derives from ideologically driven arguments about the inherent brain-based learning differences between the genders (Sax, 2005). The reasoning of such arguments is stated simply, but categorically. If boys and girls learn in different ways, then they should or must learn in

environments specifically targeted for their different learning styles. Other single-sex initiatives have evolved from concerns about equity in coeducational educational environments, especially among girls but more recently for boys (Kleinfeld, 1999; Lee & Bryk, 1986; Mulholland, Hanson, & Kaminski, 2004; Sadker & Sadker, 1994).

Proponents of this reform contend that students of both sexes are more equitably served in single-sex environments, because they will be treated more fairly and produce better test scores when freed of the distraction and competition that derives from being in class with students of the opposite sex. However valid these good intentions, they are often based on anecdotal reasoning and not on empirical evidence. Nevertheless, policymakers across the United States have implemented single-sex schools or classes in the middle grades with very little actual research to support the movement. Responding to policy decisions aimed at addressing achievement in middle schools by creating single-sex classes, middle school teachers have accepted the challenge of teaching these classes.

This study explored the effectiveness of single-sex arrangements according to these key stakeholders in this educational reform—the teachers who choose or are hired to teach in single-sex classes and schools. Their responses offer important insights into the ways in which these teachers approached these classes at the beginning of the school year, when they were embarking on the new arrangements. They shared their a priori perceptions of differences in the ways that boys and girls learn. The teachers also formed summative conclusions about single-sex classes as the school year was ending. Therefore, this study captured the on-the-ground experiences of middle school teachers as they attempted to implement a relatively new and somewhat controversial school reform, starting with their initial opinions and continuing through the first year of the reform.

Historical Perspectives

In the wake of Title IX legislation, the legality of single-sex schools and classes was largely disputed over the last decades of the 20th century (Salomone, 2003). Because Title IX specifically targeted equity in athletics, public school educational administrators were reluctant to implement single-sex arrangements in any form, lest they violate the spirit, if not the letter, of the law. In the 1990s, research focused on access of girls to educational opportunities

in mathematics and sciences classes (Sadker & Sadker, 1994). In some circles, this led to interest in single-sex classes to promote leadership and foster achievement among girls. In fact, the American Association of University Women (AAUW) (1998) had initially endorsed single-sex classes for those very reasons. However, AAUW ultimately reversed its official stance and stated that single-sex classes were potentially damaging to opportunities for girls, because separate arrangements for boys and girls could easily lead to separate and unequal curricula. In 2002, an amendment to *No Child Left Behind* legislation opened a window for schools to experiment with single-sex classes as a means of improving educational outcomes for all students. In 2003, the Office of Civil Rights immediately began reviewing arguments about the legality of single-sex classes. Then, in 2006, the United States Department of Education confirmed the legality of single-sex arrangements and opened the door to a proliferation of such classes.

Research into the effectiveness of single-sex classes has yielded mixed findings. Several studies derived from national datasets, specifically the *High School and Beyond* dataset and the *National Longitudinal Study of High School Class of 1972* (Lee & Bryk, 1986; Lee & Marks, 1990; LePore & Warren, 1997; Marsh, 1989, 1991; Riordan, 1985, 1990). The studies using these datasets suffer from admitted limitations of generalizability across populations. Moreover, these studies did not specifically address public middle schools nor did they focus on the teachers' dispositions toward single-sex education and their preparation to teach single-sex classes prior to their experiences in those classes. Little attention has been paid to the summative judgments of teachers after teaching single-sex classes.

Much of recent research has centered on implementation of single-gender classes in public middle schools, where declines in achievement demand the attention of school administrators. Herr and Arms (2004) conducted an ethnographic case study in a formerly coeducational public middle school, which was transformed into school-wide single-gender classes for more than 1,000 students. Focus on standardized test scores detracted attention from the reform itself to achievement concerns. The authors of this study suggested that their findings reinforced the need for ongoing professional development for teachers on matters of gender equity. The role of the teachers' preconceptions of student responses emerged in a recent case study in Australia

by Martino, Mills, and Lingard (2005), in which it was found that teachers in single-sex classes tended to modify both content and pedagogy according to their own, often stereotypical, constructs of the differences in the ways boys and girls learn.

Another recent study (Spielhagen, 2007) in a small public middle school, which offered single-gender classes as a choice for students in sixth, seventh, and eighth grade, suggested that single-sex classes worked for some students across all grades. Overall, the younger the students, the more likely they favored the arrangement. The quantitative portion of this same study examined the effects of single-sex classes on standardized test scores and yielded specific gains in test scores among both boys and girls. However, the teachers' responses to the single-sex arrangement were mixed. Those who supported single-sex classes did so enthusiastically, while some teachers vehemently opposed the reform. The teachers had no choice in whether they would teach in the single-sex arrangement nor did they receive any training for dealing with all-girl or all-boy classes.

Preparation of teachers is critical in the success of single-gender classes. Ferrara (2007) conducted a study of the issues surrounding the assignment of teachers to single-gender classes in a small public middle school in the northeast United States. Teacher awareness of the differences in learning preferences between boys and girls emerged as a critical in the successful implementation of these classes. Rogers (2007) conducted a comprehensive study of the effects of single-gender classes on middle school mathematics and science classes. She found substantial differences in students' attitudes about single-gender and mixed-gender classes. Moreover, in observing and interviewing the teachers, she found drastic variations in classroom climate, instructional presentation, and students' questioning and learning behaviors in relation to the teachers' dispositions.

In another study, Schwarz-McCotter (2007) examined the points of view of teachers and administrators who were part of an initiative to start single-sex classrooms in an urban middle school. Offered incentives by the district's administration to implement the classes on a trial basis, the urban middle school piloted a single-sex program in the hopes that low-achieving students would show academic growth in those classrooms. Schwarz-McCotter (2007) interviewed sixth, seventh, and eighth grade teachers and the middle school administrators to explore their perspectives about

the benefits and detriments of the initiative. The administrative decision to start the program proved to be without a vision or understanding but only to gain incentives. This lack of foresight hindered the teachers' abilities to make the most of the situation because they were not afforded the training and support that they needed. Effective leadership at the district level may have alleviated such problems.

To date, research into single-sex schools has sought to pinpoint the success or failure of these arrangements according to test scores and other educational outcomes. Very often, at the same time that single-sex classes are instituted, other changes are also made in the school environment or curriculum. The presence of these other variables makes it difficult to gauge the effect of the single-sex arrangement on outcomes. Moreover, little research has sought to capture the on-the-ground perceptions of the teachers who strive to address students' needs in the single-sex classes.

Context of This Study

In the face of the scarcity of such research related to teachers' perspectives, and building on the seminal work of Schwarz-McCotter (2007), this study explored the perspectives of middle school teachers who were hired to teach single-sex classes. The site of the study was a large urban center in the southeastern United States, where central office administrators dismantled and reorganized a middle school that had failed consistently to meet the requirements of *No Child Left Behind*. The original school was located in the area that had the lowest socioeconomic demographics in the city, with 100% of the students receiving free and reduced-price lunch. District administrators decided to close that school by phasing out the middle school classes and relocating the sixth grade students to two newly created single-sex academies in another part of the city. Students (and their parents) could opt-out of the single-sex school, and other students from other parts of the city could opt-in. District announcements to other schools in the city met with few responses, and, ultimately, the vast majority of the student population came from the original, failing school, now reorganized into these single-sex academies.

The principals of the two new schools were appointed after an exhaustive national search in the year prior to opening the new schools. These principals, in turn, hand-selected their assistant principals and teachers ($n = 25$ teachers per school; $n = 2$ transient teachers; $n = 52$ total teachers). The announcement

of teaching positions resulted in a large local pool and a substantial national pool of applicants. Within the district, teachers freely applied for the positions, which were considered plum assignments. Applications from outside the local area were also numerous, so the principals were confident that they were finding the best candidates for the job. However, no male teachers applied to work at the girls' academy, nor were any recruited to do so. Interviews with teachers later revealed that this reluctance stemmed from fears among male teachers about potential charges of sexual harassment and inappropriate behavior in an all-girl environment. Male teachers were not willing to place themselves in presumed professional jeopardy because of their assumptions about the risky nature of working in an all-girl school. Female teachers had no problem working in the all-boy school, and, as a result, the faculty at the all-boy school was diverse by gender. At the all-girls school, only one male teacher, the transient drama teacher, interacted with the students.

Selection of the Site and Participants

District administrators agreed to allow the study at this site in return for evaluation feedback on the professional development training that had been conducted with the teachers on gender differences in learning styles. Over the course of the first year of implementation of the single-sex schools in this district, data were collected from the teachers from two schools that participated voluntarily in the study. Two questions guided this research. First, how effective are single-sex classes according to the perceptions of teachers who implement them? Second, to what extent did teachers' original preconceptions and attitudes change over the course of their first year in single-sex classes?

Research Methods

This mixed-methods study involved both quantitative and qualitative data collected in three phases. Phase 1 consisted of focus group interviews with an initial group of teachers. Phase 2 entailed the collection of quantitative data in the form of an initial survey administered at the beginning of the school year. Phase 3 included a follow-up survey administered at the end of the school year and qualitative data extracted from teachers' written answers to open-ended questions.

Phase 1: Focus Group Interviews

The first phase involved qualitative focus group interviews conducted during the summer prior to

the opening of the new academies. This focus group consisted of teachers from both academies ($n = 12$), who were participating in off-site professional development training in gender differences in learning styles. Their perceptions were recorded before they began to work in their new school environments. Only a few of the teachers had worked in single-sex schools before, but many had experience working with single-sex groups within schools. Like most teachers, their personal experiences informed their perceptions of how boys and girls typically respond to the content instruction.

The focus group teachers represented a select group, both by their status as first hired and by the professional development training they received prior to the start of the school year. It was the intention of district leaders that these teachers would serve as in-house trainers in gender differences for colleagues who had not participated in the intense, weeklong training session. In fact, some colleagues had not yet been hired. For the sake of identification and by virtue of their experience, the teachers who participated in the focus group might be considered the "teacher leaders" at this school. All of these teachers enthusiastically agreed to participate in the initial focus groups.

The focus group transcripts were analyzed for themes that characterized the statements of the participants. Following standard qualitative protocols, key ideas were identified and tracked by teachers' responses to open-ended questions about their expectations about teaching in single-sex classes and about their experiences and interactions with students (Miles & Huberman, 1994). Because the focus groups took place before the actual start of the school year, the responses were anticipatory of the actual experience. The focus group questions became the basis for the survey that all teachers in both schools would take at the start of the school year and for the follow-up survey administered eight months later, at the end of the school year.

Phase 2: Initial Survey

The second phase of data collection involved an initial survey of all the teachers in the single-sex academies. The evaluator had created the survey in a prior study, using transcripts of interviews with teachers in another district that had implemented single-sex classes. Data from those interviews were used to create a new Likert-type instrument to measure the teachers' perceptions of single-sex classes. Results from the first study were analyzed for

construct validity and reliability. The instrument was used for two subsequent years with teachers in the first district. Cross-validation of the three years of the original survey data provided the basis for using this survey in the current study.

In this study, teachers ($n = 43$) in the single-sex academies responded to the initial survey that addressed three aspects of the experiences in single-sex schools: (a) their attitudes toward single-sex classes, (b) their perceptions of the differences in the ways boys and girls learn, and (c) the ways in which single-sex classes might address those differences. The dataset included teachers who had participated in the focus group and summer training as well as those who had been hired after that initial experience. However, all the teachers were “new” to the single-sex academies in which they were teaching. The sample represented 82% of the total teaching staff.

Phase 3: The Follow-up Survey and Open-ended Responses

The third data collection session took place eight months later, when the school year was winding down. The teachers responded to a follow-up survey that included the items from the initial survey and six open-ended questions regarding (a) the teachers’ experiences with the single-sex classes during the year, (b) the ways that they had addressed the specific needs of the students in those classes, and (c) the support they had perceived for their efforts. Fewer teachers ($n = 31$) responded to the follow-up survey than the initial survey. Survey data were analyzed using descriptive statistics and measures of significance, Levene’s Test for Equality of Variances. Teachers’ responses to survey items were analyzed according to their single-sex academies each time the survey was administered.

The original design of the study called for a follow-up focus group at the end of the school year. However, district level administrators forestalled the evaluator’s request to meet with the teachers again because of standardized test preparation and end of year instruction. The district, although initially very cooperative with the data collection, was reluctant to have teachers leave their classes at that time. Therefore, to obtain qualitative data that might potentially parallel or amplify the responses of the original focus group, six open-ended questions were added to the survey. All the teachers who took the follow-up survey responded to at least four of the six open-ended questions. The open-ended questions were then analyzed according to standard

qualitative protocols. Key words and phrases were tracked through teachers’ written responses, in the same way that the focus group transcripts had been analyzed. The key words and phrases were then used to determine any trends in the open-ended responses.

Findings

In general, teachers’ responses varied across all phases of data collection. Their responses also varied according to whether they were teaching in the boys’ school or the girls’ school. Moreover, the teachers’ responses changed significantly over the course of the year. The majority of teachers expressed less satisfaction with their involvement in single-sex classes in the spring follow-up survey than they had eight months earlier and prior to teaching in the single-sex classes. This decline in satisfaction could possibly be attributed to factors other than single-sex classes, because in addition to initiating the single-sex classes, these teachers were also engaged in starting new schools in new physical environments, with new faculty line-ups. This confluence of factors may have contributed to the decline in the initial optimism of the teachers. However, the data collection instrument did not include items addressing any variables related to organizational situation other than those pertaining to single-sex arrangements.

Focus Group Theme 1: Initial Optimism

In the initial summer focus group, the teacher leaders were hopeful about their capacity to handle single-sex classes and about the support they expected to receive from their administrators in their new positions. This group, by request or circumstance, had participated in intense training in gender differences in learning styles and brainstorming about working with single-sex classes. According to fieldwork notes from the training session, the teachers were relaxed and optimistic. Analysis of the transcripts revealed their generally optimistic dispositions toward the new arrangements. “I feel like our team will make this happen in the best way possible,” noted one female teacher who had taught in coeducational classes in the district for eight years and had asked to be a part of the single-sex school for girls. She added her own personal opinion that girls learn better in a “distraction-free” environment, presumably, with the distraction being boys. Other teachers voiced focused determination that the reform must work. One male teacher at the boys’ school who had worked in a single-sex school in another state expressed, “This will work because it can and it must. I’ve seen it . . . (um) I’ve lived it, and I know it works.”

Overall, throughout the focus group, there appeared to be solidarity of purpose and belief in their joint endeavor. Words and phrases such as “will work” and “it makes sense” permeated the transcripts, as the teachers seemed convinced that the single-sex model was one that they could embrace and make work. At the same time, the teachers assumed that they had and would continue to experience the support of their immediate supervisors, who were also involved in the summer training. The collegiality of that experience was also evidenced in the focus group transcripts in words and phrases such as “we,” “our,” and “our mission.”

Focus Group Theme 2: Need for Administrative Support

The second major theme identified from the focus group data was the need for administrative support for teachers’ efforts to succeed. Teachers assumed that they had and would continue to experience the support of their immediate supervisors, who were also involved in the summer training. However, the teachers also expressed some vague concerns regarding systemic support once they returned “home,” specifically from administrators in the district’s central office. This concern proved to be prophetic and was captured aptly by one veteran teacher who was transferring to the new all-boy school. She said it was “really important that central office was ‘on-board’ with all of this.” Background field notes for the focus group indicated that, although the local school-level administrators attended the summer professional development training, no one from the central administration attended the session and only walked through the follow-up training that took place during the school year.

Corroboration in the Initial Survey

One month into the school year, the teachers in both academies were invited to complete a voluntary survey about their attitudes and dispositions toward the single-sex classes they were teaching (See Table 1). Most of the teachers ($n = 43$) participated in the initial survey. This dataset includes two groups of teachers: those who had been in the summer training session and those who had been hired after that training session and had received one day of professional development on-site before the start of the school year. Therefore, their responses reflect the depth of their training in gender differences and a range of reactions across the demographics of the sample.

In the initial survey, the teachers expressed positive dispositions toward working in the single-sex

academies. At this early stage in the school year, 88% of the teachers responded that teachers needed training to work in single-sex classes. Although they had all had some training, the vast majority of teachers expressed the need for more professional development. In the first survey (See Table 1), the teachers also stated that they had observed some key benefits of being in single-sex classes among their students. From this early vantage point, for example, 95% of the teachers stated that they felt that their students were more focused in single-sex classes, and 98% stated that the single-sex classes allowed them to meet the specific needs of their students. The majority of teachers felt that single-sex classes made it easier for them to teach their classes and that they had fewer discipline problems in those classes.

Follow-up survey

In the spring, fewer teachers ($n = 31$) completed the follow-up survey (60% completion rate). Their responses revealed changes in their attitudes and dispositions toward the single-sex classes they were teaching (See Table 2). The majority of teachers who responded to the survey (87%) agreed that girls and boys process information differently and that single-gender classes allow the teachers to address the specific needs of each group. In addition, 61% of the teachers stated that both boys and girls seem comfortable with single-gender classes, while 68% of the teachers felt that there was greater participation by both girls and boys in single-sex classes. While representing a majority, these survey items, and several others, reflected a decline in positive responses by the teachers. This change warranted a more detailed descriptive analysis of the survey responses, both specific to each academy (See Table 3) and among all teachers from the initial and follow-up surveys (See Table 4).

Each new analysis offered further insights into the teachers’ perceptions of their experiences and of the reform, in general. The analysis of specific responses from the staff of each academy (See Table 3) revealed several key differences for teachers in the boys or girls’ academy. In both survey administrations, teachers in both academies concurred on the items regarding gender differences in processing information, the opportunity for addressing particular gender needs, and the need for training to teach in single-sex classes. However, responses to the spring survey yielded a significant and surprising difference among the teachers on two items pertaining to student focus and participation. More teachers (71%) at the boys’ academy stated that “the students are

Table 1
Fall Teacher Survey—Selected Statements

Statement	Agree	Neutral	Disagree
Girls respond more in single-sex classes.	64	33	2
Boys are more aggressive in single-sex classes.	28	29	40
Boys in single-sex classes act less maturely than they do in mixed classes.	14	21	60
Boys are better behaved in single-sex classes.	71	26	2
Students are more focused and on-task in single-sex classes.	95	5	0
Both genders seem comfortable with single-sex classes.	83	12	5
There is greater participation by both genders in single-sex classes.	93	7	0
Girls and boys process information differently.	95	5	0
Single-sex classes allow the teacher to address the specific needs of each gender.	98	2	0
Teachers need in-service training to teach single-sex classes.	88	10	2
Single-sex classes make it easier for me to teach my students.	71	21	8
There are fewer discipline problems in single-sex classes.	57	29	5
Single-sex classes should continue to be an option for students and parents.	52	24	24

Table 2
Spring Teacher Survey—Selected Statements

Statement	Agree	Neutral	Disagree
Girls respond more in single-sex classes.	52	39	9
Boys are more aggressive in single-sex classes.	58	32	10
Boys in single-sex classes act less maturely than they do in mixed classes.	61	26	13
Boys are better behaved in single-sex classes.	26	39	35
Students are more focused and on-task in single-sex classes.	64	26	10
Both genders seem comfortable with single-sex classes.	61	32	7
There is greater participation by both genders in single-sex classes.	68	29	3
Girls and boys process information differently.	87	13	0
Single-sex classes allow the teacher to address the specific needs of each gender.	87	13	0
Teachers need in-service training to teach single-sex classes.	71	19	10
Single-sex classes make it easier for me to teach my students.	48	39	13
There are fewer discipline problems in single-sex classes.	26	26	48
Single-sex classes should continue to be an option for students and parents.	94	7	0

Table 3
Descriptive Comparison of Follow-up Survey Responses by Academy

Spring Survey Statements Compared by School	Agree		Neutral		Disagree	
	<i>Boys' Academy</i>	<i>Girls' Academy</i>	<i>Boys' Academy</i>	<i>Girls' Academy</i>	<i>Boys' Academy</i>	<i>Girls' Academy</i>
Girls respond more in single-sex classes.	18	79	47	21	35	0
Boys are more aggressive in single-sex classes.	65	50	24	43	12	7
Boys in single-sex classes act less maturely than they do in mixed classes.	59	64	29	21	12	14
Boys are better behaved in single-sex classes.	35	14	35	43	29	42
Students are more focused and on-task in single-sex classes.	71	57	29	21	0	21
Both genders seem comfortable with single-sex classes.	65	57	35	29	0	14
There is greater participation by both genders in single-sex classes.	82	50	18	43	0	7
Girls and boys process information differently.	88	86	12	14	0	0
Single-sex classes allow the teacher to address the specific needs of each gender.	88	86	12	14	0	0
Teachers need in-service training to teach single-sex classes.	71	71	24	14	6	14
Single-sex classes make it easier for me to teach my students.	59	36	29	50	12	14
There are fewer discipline problems in single-sex classes.	35	14	35	14	29	71
Single-sex classes should continue to be an option for students and parents.	94	93	6	7	0	0

Table 4
Comparison of Teachers' Responses in Fall and Spring Survey Statements

Statement	Agree Fall	Agree Spring
Girls respond more in single-sex classes.	64	52
Boys are more aggressive in single-sex classes.	28	58
Boys in single-sex classes act less maturely than they do in mixed classes.	14	61
Boys are better behaved in single-sex classes.	71	26
Students are more focused and on-task in single-sex classes.	95	64
Both genders seem comfortable with single-sex classes.	83	61
There is greater participation by both genders in single-sex classes.	93	68
Girls and boys process information differently.	95	87
Single-sex classes allow the teacher to address the specific needs of each gender.	98	87
Teachers need in-service training to teach single-sex classes.	88	71
Single-sex classes make it easier for me to teach my students.	71	48
There are fewer discipline problems in single-sex classes.	57	26
Single-sex classes should continue to be an option for students and parents.	52	94

more focused and on-task in single-gender classes” than their counterparts in the girls’ academy (57%). Similarly, in the boys’ academy, 82% of the teachers stated, “There is greater participation in single-gender classes,” as compared to only 50% of teachers in the girls’ academy. Moreover, there was a significant increase in the response to whether single-gender classes should continue as an option, with 94% of the teachers in agreement in the spring as compared to 52% agreeing in the fall.

In the spring, the responses by both groups of teachers about student behavior seem to suggest that the overall optimism of the teachers about student behaviors had changed sharply over the course of the school year. Of course, students in the fall of sixth grade are developmentally far different from the same students in the following spring. The results of *t*-tests on key survey items reflected statistically significant changes in the teachers’ responses (See Table 5). Means and standard deviations on the Likert-scale responses are included in this table, with a score of 1 indicating “agree strongly” and a score of 5 indicating “disagree strongly.”

Regarding the girls’ behavior, teachers’ responses became more negative over time, indicating they agreed more with the statements that girls were noisier in single-sex classes ($t = 3.951, p = .001$) and that girls’ moodiness comes out more in single-sex

classes ($t = 2.767, p = .010$). As for the teachers in the boys’ school, their responses also became more negative as the year progressed. The teachers agreed that boys are more aggressive ($t = 2.813, p = .008$) and more immature in all-boy classes ($t = 4.837, p = .000$), and they were less convinced that boys are better behaved in single-sex classes ($t = -2.293, p = .028$). In regard to both boys’ and girls’ schools, teachers changed their overall impression that there were fewer behavior problems in single-sex classes ($t = -4.238, p = .000$). Despite these negative responses, at the end of the year, the teachers agreed that single-sex classes should be a choice for parents and students ($t = 3.279, p = .002$).

Follow-up Qualitative Data: Need for Support

Qualitative responses provide insight behind the straight numbers of the second survey. Therefore, six open-ended questions were included to provide additional qualitative, and, perhaps, more-detailed perspective on the teachers’ experiences. From these open-ended narrative responses, two key themes were identified: (a) the need for ongoing professional development and (b) the need for knowledgeable administrative support for varying teaching styles. These were critically important components of the teachers’ perceptions of whether the single-sex reform was successful. Analysis of the open-ended questions suggested that some teachers might not have received the administrative support they had anticipated and

Table 5
Significant Differences in Teachers’ Responses to Surveys

Question	Initial Survey			Follow-up Survey			<i>t</i> -Value	<i>p</i>
	Mean	<i>n</i>	SD	Mean	<i>n</i>	SD		
Girls are noisier	2.93	15	1.163	1.43	14	.852	3.951	.001
Girls are moody	2.53	15	1.246	1.43	14	.852	2.767	.010
Boys are aggressive	3.21	19	1.273	1.94	17	1.435	2.813	.008
Boys are immature	3.84	17	.688	2.06	17	1.435	4.837	.000
Boys are better behaved	3.84	19	.621	2.88	17	1.654	-2.293	.028
Works for girls, not boys	3.95	42	.882	3.32	31	1.558	2.191	.032
Fewer behavior problems	2.19	42	.804	3.45	31	1.690	-4.238	.000
Should be an option	1.60	42	.665	1.13	31	.499	3.279	.002

desired. “All my efforts were self-initiated and carried out by me,” noted one teacher at the girls’ academy, underscoring her perceived lack of administrative support. Another female teacher at the boys’ school emphasized her need for more consistent professional development to provide feedback and reinforce the training, concluding, “I would want ongoing training, or, you know, at least some idea that I’m on the right track.”

Key words such as “support” and “feedback” were tracked through the open-ended responses, as the teachers seemed to suggest that the novelty of their teaching situation warranted more hands-on support than they were given from their administrators or outside professional development trainers. “I wish I had a mentor with me every day,” declared one teacher in the girls’ school. On the other hand, the teachers spoke positively about the ways in which they were handling the students in their single-sex classes. For example, the teachers mentioned one key strategy repeatedly: incorporating movement in class activities. They noted that both boys and girls responded better when movement was incorporated into their class activities. The teachers in the boys’ school were more emphatic about boys’ need to move. In their open-ended responses, the teachers shared several strategies they were using to accommodate this need.

Discussion

This study sought to explore the effectiveness of single-sex classes according to the perceptions of teachers who were teaching in them. Both qualitative and quantitative data suggested that the teachers were initially positively disposed to the single-sex arrangements. In both the initial focus group and in the initial survey, the responses of the teachers reflected optimism that further seemed to characterize their perceptions of the behaviors of boys and girls in single-sex classes. They were similarly positive about the potential of the single-sex reform to meet the needs of their students. However, in the initial focus group, teachers’ vague concerns about administrative support proved to be prophetic in terms of their actual experiences as the school year progressed. Some of the teachers received unfavorable evaluations from central office administrators unfamiliar with the gender-friendly strategies the teachers had learned in their training session. The administrators sought and demanded uniform instruction at the single-sex academies as compared to other schools in the district.

At the end of the school year, the teachers’ responses were more negative than those given on the initial survey or during the focus group interviews. The teachers’ optimism and joint mission were not evidenced in the follow-up survey. Perhaps the change was a result of the developmental changes that young adolescents exhibit during the sixth grade. This normal developmental change may have taken its toll on the teachers, who, perhaps, felt or even hoped that single-sex classes would preclude or forestall the effects of these changes. The reality was that the sixth grade students they faced in September were almost seventh grade students in May, when the teachers were surveyed. Anyone who has taught in a middle school knows that these can be vastly different youngsters. Regardless of how familiar the teachers may have been with middle school youngsters, they may have regarded single-sex classes as a way of dealing with young adolescents’ behavior. Teachers’ survey responses indicated their belief that students would behave better when segregated by sex. However, the students’ negative behaviors did not improve but seemed to get worse from teachers’ perspectives.

From the beginning to the end of the school year, the teachers stressed the need for continuous professional development. Although teachers received training in gender-specific differences, both initially and in two additional sessions during the school year, the teachers wanted additional professional development. They also questioned the effectiveness of the strategies they were using with their single-sex classes, because they did not see immediate benefit in their students’ behavior or academic performance. Most of the teachers were accustomed to teaching in coeducational classes, the norm in public education. Therefore, the reported differences in the behaviors of boys and girls may have been accentuated without the buffering influence of students of the opposite sex. The teachers may have become discontent or uncomfortable when dealing with the daily interactions of youngsters in the gender-specific environment, and, by their own report, would have benefited from ongoing conversations and training about these interactions.

Collaborative planning time and specific reflection activities might well have helped the teachers grapple with the challenges they were facing. The teachers in this study underscored the need for professional development and feedback. However, they also were not afforded time for collaboration and reflection. They would have benefited from discussions about (a) how to use the new strategies, (b) what specific

strategies were most effective, and (c) how to incorporate gender-sensitive teaching in their daily lessons plans. As often happens with innovative school reforms, in these single-sex schools, the teachers had to rely on their own ingenuity and personal resources to succeed.

Limitations of This Study

This study has the potential to inform the educational community of the experiences of teachers involved in single-sex schools. Due diligence was pursued to ensure the accuracy and integrity of the data collection throughout this study. However, data were drawn from a single school district in one geographic location in a high-poverty area. No measures were used to attempt to assess the effect of the low-SES environment on teachers' responses. Additional follow-up studies could take the conversation to other single-sex arrangements and serve as an interface for these findings.

Conclusion

Research must inform practice, otherwise, why would one conduct research in middle schools? The intellectual and social lives of students are too important to be considered merely components of quasi-scientific experiments. This study provides valuable insights for teachers and administrators seeking to learn more about the effectiveness of single-sex classes in middle school—a reform that is increasing in middle schools across the nation.

Teachers are the frontline foot soldiers in any school reform. However, they are frequently “draftees” who have had no choice in their conscription into the latest effort to improve student achievement by reorganizing school arrangements. Just as often, teachers receive only the most basic training, if any training at all, when placed into new school arrangements. However, in this case, the teachers were volunteers who chose to apply to work in these new single-sex academies and accepted the offered positions. Their perceptions are particularly valuable, because they entered these classes under the most positive circumstances. They wanted to be there. Moreover, they were given some professional development to prepare them for the new experience.

As increasing numbers of teachers find themselves in single-sex classes, the findings from this study offer compelling insights into the potential benefits and pitfalls. Admittedly, this is a small study in a single school district. However, many such small

places exist across the nation, and many states are recommending or mandating single-sex classes in middle schools. In 2006, the U.S. Department of Education opened Pandora's box when such arrangements became legal. Despite the watchdog activities of such groups as the American Civil Liberties Union and the American Association of University Women, single-sex schools and classes continue to proliferate. The findings of this study suggest that the perceptions of the teachers in those classes warrant consideration.

Moreover, the teachers in this study can serve as a proxy for the experiences of teachers in other districts who are also teaching in single-sex classes and whose voices have not yet been heard. Further research could use the same survey instrument and questioning protocols with different populations. With the growing number of single-sex arrangements across the nation, a larger study may become feasible and advisable. The results of the current study provide initial understanding of the teachers' perceptions of this increasingly popular reform.

Are single-sex classes effective? According to the teachers in this study, it all depends on a complex set of factors. The normal cadence of the school year affects the attitudes and dispositions of the teachers in any school. Indeed, in this study, it seemed to have a negative effect on the initially optimistic attitudes of the teachers toward the behavior of their students in the single-sex classes. Similarly, the developmental changes in adolescents during a school year are well known to middle school teachers. These changes were brought into sharp focus in the single-sex classes in this study. These teachers affirmed that they could see the changes in their students, perhaps more acutely than they had in coeducational classes. However, they also affirmed that they were taking steps to address those changes. Not surprisingly, support and professional development are critically important to the success of school reforms. The teachers in this study confirmed that when asked to undertake a new school reform, they needed specific and ongoing support—in both the provision of information and in feedback that would allow them to create beneficial learning situations for their students. Finally, despite their negative assessment of some of the aspects of single-sex classes, these teachers maintained that the reform should remain an option for parents and students.

References

- Ferrara, M. (2007). Going the distance: Strategies for teacher preparation. In F. Spielhagen (Ed.), *Debating single sex education: Separate and equal?* (pp. 47–58). Lanham, MD: Rowman & Littlefield.
- Herr, K., & Arms, E. (2004). Accountability and single-sex schooling: A collision of reform agendas. *American Education Research Journal*, 41, 527–555.
- Kleinfeld, J. (1999). Student performance: Males versus females. *The Public Interest*, 134, 3–20.
- Lee, V. E., & Bryk, A. S. (1986). Effects of single-sex secondary schools on student achievement and attitudes. *Journal of Educational Psychology*, 78, 381–395.
- Lee, V. E., & Marks, H. M. (1990). Sustained effects of the single-sex secondary school experience on attitudes, behaviors, and values in college. *Journal of Educational Psychology*, 82, 578–592.
- LePore, P. C., & Warren, J. R. (1997). A comparison of single-sex and coeducational Catholic schooling: Evidence from the national educational study of 1988. *American Educational Research Journal*, 34, 485–511.
- Marsh, H. W. (1989). Effects of attending single-sex and coeducational high schools on achievement, attitudes, behaviors, and sex differences. *Journal of Educational Psychology*, 81, 70–85.
- Marsh, H. W. (1991). Public, Catholic single-sex and Catholic coeducational high schools: Their effects on achievement, affect and behavior. *American Journal of Education*, 99, 320–356.
- Martino, W., Mills, M., & Lingard, B. (2005). Interrogating single-sex classes as a strategy for addressing boys' educational and social needs. *Oxford Review of Education*, 31(2), 237–254.
- Miles, M., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook of new methods* (2nd ed.). Thousand Oaks, CA: Sage.
- Mulholland, J., Hanson, P., & Kaminski, E. (2004). Do single-sex classrooms in coeducational settings address boys' underachievement? An Australian study. *Educational Studies*, 30(1), 19–32.
- Riordan, C. (1985). Public and Catholic schooling: The effects of gender context policy. *American Journal of Education*, 93, 518–540.
- Riordan, C. (1990). *Boys and girls in school: Together or separate?* New York: Teachers College Press.
- Rogers, K. (2007). For better or worse: Classroom dynamics in single sex science classes. In F. Spielhagen (Ed.), *Debating single sex education: Separate and equal?* (pp. 83–115). Lanham, MD: Rowman & Littlefield.
- Sadker, M., & Sadker, D. (1994). *Failing at fairness: How our schools cheat girls*. New York: Touchstone.
- Salomone, R. (2003). *Same, different, equal: Rethinking single sex schooling*. New Haven, CT: Yale University Press.
- Sax, L. (2005). *Why gender matters: What parents and teachers need to know about the emerging science of sex differences*. New York: Doubleday.
- Schwarz-McCotter, S. (2007). Bumps along the way: Mistakes made and lessons learned. In F. Spielhagen (Ed.), *Debating single sex education: Separate and equal?* (pp. 17–31). Lanham, MD: Rowman & Littlefield.
- Spielhagen, F. (2007). Does it add up? Single-sex classes and student achievement. In F. Spielhagen (Ed.), *Debating single sex education: Separate and equal?* (pp. 59–69). Lanham, MD: Rowman & Littlefield.
- Steedman, J. (1985). Examination results in mixed and single-sex secondary schools. In D. Reynolds (Ed.), *Studying school effectiveness* (pp. 87–101). London: The Falmer Press.