PEDAGOGY

Physical Education Teachers' and University Teacher Educators' Perceptions Regarding Coeducational vs. Single Gender Physical Education

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Abstract

Since Title IX was enacted in the United States in 1972, Physical Education (PE) classes have become coeducational. This may be because educational leaders interpret Title IX to require coeducational-only classes. Research, however, indicates that for some students, coeducation classes may not be the most appropriate learning environment. The opinions of both secondary PE (n = 265) and physical education teacher education (PETE) faculty (n = 152) were solicited in order to compare their perceptions regarding the potential benefits of both gender mixed and gender separate environments. In addition, both groups of respondents were asked to identify specific activities in which students should be separated by gender. Approximately two thirds of secondary school PE teachers indicated that all activities, with the exceptions of football and basketball, should be offered in a coeducational format. The percentages of PETE faculty recommending a single gender format were similar for most sports, except for football and basketball. A majority of both secondary school PE teachers and PETE faculty perceived that boys and girls would receive greater benefits in terms

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of skill development and social support in single gender PE classes. Chi-square analysis revealed greater support for coeducational PE among PETE faculty than among secondary PE teachers. The findings suggest that secondary schools should continue to assign students to coeducational PE classes in order to prevent discrimination, exclusion, and inequity based on sex. However, teachers should separate students into single gender groups for bodily contact activities such as football, basketball, and soccer, as allowed by Title IX, in order to provide a safer environment.

Since Title IX was enacted Physical Education classes have generally become coeducational in nature and have allowed boys and girls to participate in similar activities (Gabbei, 2004; Hill & Cleven 2005). This may be because many educational leaders interpret Title IX to require coeducational-only physical education classes (Fox, 1992, 1997). Lay (1990) wrote that teachers are aware that coeducational classes are one of the specific provisions mandated by Title IX and that teachers who ignore this are breaking the law. Lirgg (1993) also stated that Title IX prohibits the offering of single gender courses and programs, such as all-girl home economics, all-boy industrial arts, and separate girls' and boys' physical education. However, others have questioned whether Title IX legislation stipulates coeducation classes in all instances. Gabbei (2004) interpreted "no person shall be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program" (see Figure 1) as meaning students should receive the opportunities, but not necessarily in a coeducational atmosphere. Derry and Phillips (2004) have concluded that coeducation physical education classes were implemented in an attempt to uphold the new regulation and perhaps with minimal thinking or planning relative to the impact this decision might have on the lives of young, adolescent girls. Recently, the U.S. Department of Education (2006) has provided greater flexibility for schools to offer single gender classes; however, evaluations are required every 2 years to ensure equity of treatment and opportunity for boys and girls.

Research suggests that for some students, a coeducation class may not be the most appropriate environment for learning (Derry & Phillips, 2004; Hannon & Ratliffe, 2007). Existing evidence suggests that many female students have difficulty improving or achieving skill in coeducational classes, thus creating an unfair and adverse

(a). "A recipient shall not provide any course or otherwise carry out any of its education program or activity separately on the basis of sex, or require or refuse participation therein by any of its students on such basis, including health, physical education, industrial, business, vocational, technical, home economics, music, and education courses.
(1) This section does not prohibit grouping of students in physical education classes and activities by ability as assessed by objective standards of individual performance developed and applied without regard to sex.
(2) This section does not prohibit separation of students by sex within physical education classes or activities during participation in wrestling, boxing, rugby, ice hockey, football, basketball and other sports the purpose or major activity of which involves bodily contact." (Part 106.34)

Figure 1. TITLE 34 Education Subtitle B Regulations of the Offices of the Department of Education Chapter 1 Office for Civil Rights, Department of Education Nondiscrimination on the Basis of Sex in Education Programs or Activities Receiving Federal Financial Assistance

impact on female students (Gabbei, 2004). Davis (2004) states that if the first priority is for students to achieve the highest possible level of skill and fitness then it may be appropriate to organize physical education classes according to gender. According to Garcia (1994), girls more than boys may be at risk of being intimidated by aggressive boys and may be at more risk of stereotyping, sexism, harassment, and teacher bias. Humbert (1996) reported one of the major themes to emerge in the coeducational class was this environment is often full of male harassment, domination, and intimidation, with a resulting lack of female participation. Derry and Phillips (2004) suggest that while coeducational physical education classes offer both girls and boys the opportunity to develop high levels of competence and self-esteem through a variety of physical activities and sports, coeducation physical education classes may not be the most appropriate environment for skill development and cognitive learning. Derry and Phillips and Garcia also note that while most girls might prefer coeducational formats, most are actually more engaged in skill learning and receive more teacher feedback in gender separate classes.

Other findings indicate that boys receive some valuable benefits by participating in coeducational activities (i.e., increased confidence, group affiliation, and helping behaviors) (Hill & Cleven, 2005). Male students in gender mixed classes tend to get more total practice trials, more appropriate practice trials, and a higher ratio of appropriate to inappropriate practice trials than female students (Gabbei, 2004). During coeducation instructional units, male students reported feeling more confident (Lirgg, 1993), more skilled, and stronger than females (Treanor, Graber, Housner, & Wiegand, 1998). Males increased confidence in coeducation classes is likely due to more favorable social comparison of skill level when female students made up half of the class (Gabbei, 2004).

Sinclair (2000) reported that regardless of gender, perceived levels of skill, fitness, or effort students who indicated they liked physical education preferred single gender physical education. Among these students, males perceived that they performed skills and played team sports better, received more practice opportunities, competed harder, learned more, behaved better, and felt less fearful of injury in single gender physical education classes. Similarly, the females among these students perceived that they performed skills and played team sports better, received more practice opportunities, and felt less fearful of injury in single gender physical education classes. Olafson (2002) interviewed adolescent girls and found that many of them felt they were being closely scrutinized and ridiculed by the boys. In contrast, Lirgg (1993) studied a basketball unit of boys and girls in single gender classes and coeducational classes and reported that boys and girls who were in coeducational classes were more confident than boys and girls in single gender classes. Hill and Cleven (2005) and Hannon and Ratliffe (2007) have also reported strong male and female preference for mixed gender groupings in most physical education activities.

Several researchers have focused on physical activity levels in mixed versus single gender physical education classes. Schmitt (2001) found that sixth grade girls spent more time in their target heart rate zone in coeducation groupings than when they were separated by gender during an Ultimate Frisbee class. McKenzie, Prochaska, Sallis, and LaMaster (2004), using the System for Observing Fitness Instruction Time, found that boys were physically active for similar percentages of time in both single gender and coeducational groups while girls were more physically active in coeducational classes than

in girls-only classes. Hannon and Ratliffe (2005) reported that both males and females accumulated more pedometer steps per minute in coeducational settings than in single gender settings during flag football, soccer, and Ultimate Frisbee.

Teacher behavior may be important to determine the success of single gender or coeducation environments. Lirgg (1993) found in her study of coeducation and single gender classes that even though the same teachers taught both class types, class type could have been confounded by teacher behavior. Specifically, the behavior of the teacher may have varied depending on whether that teacher was teaching a coeducation or single gender class (Lirgg, 1993). Nilges (1998) surveyed physical education teachers and concluded that females are treated as second-class citizens by teachers in physical education classes. Therefore, the success of a student may be affected by how a specific teacher behaves and responds toward one gender and differently toward the other.

Because of the central role of physical education teachers to provide an environment that is conducive for learning for both male and female students, it appears important to assess their opinions of the potential benefits of both coeducational and single gender environments. This is important because an engaged, positive experience in physical education will likely result in a greater commitment to an active lifestyle after high school (Bailey, 2006). In addition, it appears important to determine if there are specific activities in which teachers believe students should be separated by gender. If most teachers recommend a gender separate grouping for some activities but not for others, it will suggest that each activity in a physical education curriculum should be evaluated in order to determine how to best group students. It also appears important to determine the perceptions of university physical education teacher education (PETE) supervisors regarding coeducational and single gender environments in physical education classes because they are primarily responsible for preparing those who enter the physical education teaching profession. By comparing the responses of the two groups, it should be possible to identify areas of incongruity. These differences in opinions could be potentially confusing to in-service and new teachers because of the disparity in the views of their university and secondary school supervisors.

Method

Participants and Settings

Secondary school physical educators were selected from three sources: (a) 154 physical education teachers in a southern California school district completed hard copies of the questionnaire in the presence of one of the researchers, (b) 65 secondary school physical education teachers in another southern California school district responded to an e-mail inquiry to over 200 teachers and completed the questionnaire electronically on Survey Monkey, and (c) a group of 46 secondary school physical education teachers at a physical education teacher professional development conference in Utah completed hard copies of the survey. A group of 157 PETE faculties who were recruited through a national e-mail list of approximately 400 possible respondents completed the questionnaire electronically on Survey Monkey.

Instrumentation

Two forms of a questionnaire were used. Physical education teachers were provided a questionnaire with four sections: (a) biographical information including gender, years of teaching experience, current teaching level, and school enrollment; (b) a list of 36 activities to which respondents indicated whether they currently recommend boys and girls should be separated; (c) a list of 12 arguments in favor of offering physical education in a coeducational format to which respondents were asked to agree or disagree with each item; (d) a list of 12 arguments in favor of offering physical education in a single gender format to which respondents were asked to agree or to disagree with each item. Respondents were also asked to provide comments at the end of the questionnaire. By providing space for teachers to provide a rationale for their responses, it was hoped that a greater understanding would be achieved. The questionnaire for the PETE supervisors was identical except in the biographical section; school enrollment was not solicited and respondents were asked to indicate whether they were a certified K–12 teacher. The items for the questionnaire were generated through an extensive literature review. The questionnaire was reviewed and edited for clarity and comprehensiveness by 30 secondary school physical education teachers. The questionnaire was also reviewed by a panel of four university professors whose

primary teaching and research area is K–12 physical education pedagogy.

Data Collection & Analysis Procedures

The directions for both the written and the online surveys explained that the survey was voluntary, that individual questions or sections could be skipped, and that the findings would not include an identification of any individuals or their schools. An e-mail cover letter was sent with a link to the questionnaire on Survey Monkey for those completing it online. A similar cover letter was used with the hard copy surveys. Responses were entered into an Excel spreadsheet and later transferred to SPSS 17.0 software (SPSS, Inc., Chicago, IL) for analysis. Chi-square analysis was conducted for the secondary school physical education teachers' responses using crosstabs for the following variables: gender, school size, school level (middle vs. high school), and teaching experience. In addition, question responses were compared between secondary physical education teachers and PETE supervisors using Chi-square analysis. A significant level of $p < .01$ was used for all statistical comparisons. Open-ended comments were analyzed using constant comparison qualitative techniques (LeCompte & Priessle, 1993). Two researchers with previous experience conducting qualitative research independently read and reread participants' responses and coded the frequency of common response types. The researchers discussed findings and identified and negotiated themes that best represented the data.

Results

Demographics

Secondary school physical education teachers. A total of 265 secondary school physical education teachers (39.5% females, n = 101; 60.5% males, n = 155) completed the survey. Nine respondents did not indicate their gender. The median years of certificated teaching experience was 10 years. Level of school was Elementary = 2.4% (n = 6), Middle = 45.6% (n = 115), and High School = 52.0% (n = 131). Five of the respondents indicated they teach at more than one level, and eight of the respondents did not indicate at which school level they teach. School enrollment ranged from 34 to 4,200 with a median of 1,350 students.

Physical education teacher education faculty. A total of 152 PETE faculty completed the online survey (50.0% females, $n = 75$; 50% males, $n = 75$). Two respondents did not indicate their gender. The mean years of University PETE experience was 16 years. Most respondents (89.4%) indicated they were certified to teach K–12.

Activity Formats

Secondary school physical education teachers. In Table 1, the percentages of secondary school physical education teachers indicating specific activities should be offered in single gender groupings ranging from 65.5% (highest) to 0.4% (lowest). Only football (65.5%) and basketball (50.2%) were selected by the majority of the respondents to be offered in a single gender format. Only five of the 36 activities listed had percentages exceeding 25%. Those five activities (football, basketball, soccer, volleyball, and softball/baseball) are all competitive team sports.

Physical education teacher education faculty. Less than a majority of the PETE supervisors indicated that any of the activities should be offered in a single gender grouping. For most of the team sports, the percentages were substantially lower for the PETE supervisors than for the secondary school physical education teachers: football (46.7%), basketball (31.9%), soccer (22.4%), softball/baseball (19.7%), and volleyball (11.2%). The rest of percentages for nonteam sports were very similar to those of the secondary school physical educators.

A secondary review of the completed surveys revealed that 91% of the secondary school physical education teachers and 63.6% of the PETE faculty indicated that at least one of the 36 listed activities should be offered in a single gender format.

Reasons Supporting Coeducation Physical Education

Percentages of secondary school physical education teachers and PETE supervisors who agreed with specific reasons why coeducational physical education is beneficial are displayed in Table 2. None of the 12 reasons were supported by a majority of either group of respondents. Of note were the low percentages of respondents who perceived there is male or female student support for coeducational physical education. Low percentages of respondents perceived males or females develop better skills and participate more fully in coeducation physical education classes than in single gender classes. However, whereas only 19.1%

Table 1

Comparison of Responses of Secondary School Physical Education Teachers and University PETE Faculty Who Currently Recommend Separating Boys and Girls for Specific Activities

	Secondary School Physical Education Teachers				University PETE Faculty			
	Yes		No		Yes		No	
Activities	**%**	**(n)**	**%**	**(n)**	**%**	**(n)**	**%**	**(n)**
football	67.5	(179)	33.5	(86)	46.7	(71)	53.3	(82)
basketball	50.9	(135)	49.1	(130)	31.6	(48)	68.4	(104)
soccer	30.6	(81)	69.4	(184)	22.4	(34)	77.6	(118)
softball/baseball	27.5	(73)	72.5	(192)	19.7	(30)	80.3	(122)
volleyball	26.4	(70)	73.6	(195)	11.2	(17)	88.8	(135)
self defense	19.6	(51)	80.4	(214)	19.1	(29)	80.9	(123)
floor/ street hockey	18.1	(48)	81.9	(217)	24.3	(37)	75.7	(115)
weight training	16.6	(44)	83.4	(221)	12.5	(19)	87.5	(133)
gymnastics	14.3	(38)	85.7	(227)	10.5	(16)	89.5	(136)
team handball	13.6	(36)	86.4	(229)	17.1	(26)	82.9	(126)

Table 1 (cont.)

	Secondary School Physical Education Teachers				University PETE Faculty			
	Yes		No		Yes		No	
Activities	**%**	**(n)**	**%**	**(n)**	**%**	**(n)**	**%**	**(n)**
fitness	12.8	(34)	87.2	(231)	6.6	(10)	93.4	(142)
aerobics	12.5	(33)	87.5	(232)	7.9	(12)	82.1	(140)
water polo	11.7	(31)	88.3	(234)	13.2	(20)	86.8	(132)
swimming	11.7	(31)	88.3	(234)	7.9	(12)	92.1	(140)
tennis	10.6	(28)	89.4	(237)	7.3	(11)	92.7	(141)
yoga	9.4	(25)	90.6	(240)	2.6	(4)	97.4	(148)
Frisbee	8.6	(23)	91.4	(242)	2.0	(3)	98.0	(149)
racquetball	8.6	(23)	91.4	(242)	10.5	(16)	89.5	(136
contemporary dance	7.2	(19)	92.8	(246)	4.6	(7)	95.4	(145)
fencing	7.2	(19)	92.8	(246)	10.5	(16)	89.5	(136)
water aerobics	6.8	(18)	93.2	(247)	7.9	(12)	92.1	(140)
team building/ trust activities	6.4	(17)	93.6	(248)	1.3	(2)	98.7	(150)
badminton	5.7	(15)	94.3	(250)	3.9	(6)	96.1	(146)
rope jump	4.9	(13)	95.1	(252)	0.0	(0)	100.0	(152)

Table 1 (cont.)

	Secondary School Physical Education Teachers				University PETE Faculty			
	Yes		No		Yes		No	
Activities	**%**	**(n)**	**%**	**(n)**	**%**	**(n)**	**%**	**(n)**
Other	4.2	(11)	95.8	(254)	16.4	(25)	83.6	(127)
distance run	3.0	(8)	97.0	(257)	2.0	(3)	98.0	(149)
social dance	3.0	(8)	97.0	(257)	0.0	(0)	100.0	(152)
bowling	2.6	(7)	97.4	(258)	1.3	(2)	98.7	(150)
inline skating	2.3	(6)	97.7	(259)	0.7	(1)	99.3	(151)
table tennis	2.3	(6)	97.7	(259)	1.3	(2)	98.7	(150)
archery	2.3	(6)	97.7	(259)	1.3	(2)	98.7	(150)
canoe/kayak	2.3	(6)	97.7	(259)	1.3	(2)	98.7	(150)
golf	2.3	(6)	97.7	(259)	2.6	(4)	97.4	(148)
juggling	1.9	(5)	98.1	(260)	0.0	(0)	100.0	(152)
line dance	1.5	(4)	98.5	(261)	0.7	(1)	93.3	(151)
orienteering	1.5	(4)	98.5	(261)	0.0	(0)	100.0	(152)
parachute	0.4	(1)	99.6	(264)	0.0	(0)	100.0	(152)

Table 2

Comparison of Responses of Secondary School Physical Education Teachers and University PETE Faculty Regarding Arguments That Have Been Made in Support of Coeducational Grouping of Students in Physical Education Activities

	Secondary School Physical Education Teachers				University PETE Faculty			
Arguments for Coeducational Groupings	**Agree**		**Disagree**		**Agree**		**Disagree**	
	%	**n**	**%**	**n**	**%**	**n**	**%**	**n**
Expected by school administrators	45.6	(113)	54.4	(135)	43.3	(65)	56.7	(85)
Mandated for all activities	38.0	(97)	62.0	(158)	47.7	(72)	52.3	(79)
Easier to plan lessons	28.5	(74)	71.5	(186)	22.8	(34)	77.2	(115)
Expected by most parents	27.6	(67)	72.4	(176)	32.2	(48)	67.8	(101)
Most girls want co-educational groupings	27.5	(69)	72.5	(182)	17.4	(26)	82.6	(118)
Most boys want co-educational groupings	26.1	(66)	73.9	(187)	17.7	(26)	82.3	(121)

Table 2 (cont.)

Arguments for Coeducational Groupings	Secondary School Physical Education Teachers				University PETE Faculty			
	Agree		Disagree		Agree		Disagree	
	%	n	%	n	%	n	%	n
Helps girls develop better sport skills	22.7	(58)	77.3	(198)	26.8	(40)	73.2	(109)
Results in more positive behavior/social dynamics for boys & girls	19.1	(49)	80.9	(208)	43.3	(65)	56.7	(85)*
Easier to supervise students	16.7	(43)	83.3	(214)	18.8	(28)	81.2	(121)
Girls participate more fully in coed grouping	14.8	(38)	85.2	(219)	10.7	(16)	89.3	(133)
Boys participate more fully In coed grouping	15.4	(39)	84.6	(215)	15.0	(22)	85.0	(125)
Helps boys develop better sport skills	12.2	(31)	87.8	(224)	15.5	(23)	84.5	(125)

Note. Significant difference between groups: $p < .01$

of the secondary school physical education teachers perceived coeducational physical education results in more positive social dynamics between males and females than in single gender classes, a significantly larger percentage (43.3%) of the PETE supervisors perceived coeducational physical education results in more positive social dynamic between males and females.

Reasons Supporting Gender Separate Physical Education

Percentages of secondary school physical education teachers who agree with specific reasons why single gender physical education is beneficial are displayed in Table 3. All but one of the reasons listed (i.e., makes it easier to plan lessons, 46.6%) was supported by a majority of the respondents. The five most frequently cited reasons were as follows: Most boys want gender separation for activities (88.3%); Title IX allows separation for body contact activities (80.5%); girls participate more fully (78.3%); most girls want gender separation for activities (78.2%); and boys develop better skills (78.0%).

Chi-square analysis was conducted for the secondary school physical education teachers responses using crosstabs for the following variables: gender, school size, school level (middle vs. high school), and teaching experience. Significant differences ($p < .01$) were found for the following items in which there was also disagreement by gender: 51.0% of the female respondents believed that Title IX mandates that all activities should be offered on a coeducational basis, whereas just 29.7% of the male respondents had a similar perception. Whereas 57.8% of the female respondents perceived their school administrators expect coeducational groupings in all physical education activities, just 38.8% of the male respondents had a similar perception. A significant difference ($p < .01$) was found for one item for the variable of school enrollment. Specifically, just 29.0% of the teachers at schools with less than 1,000 students perceived their school administrators expected them to use mixed gender groups for all physical education activities, whereas 62.1% (school enrollment of 1,000–2,100) and 85.7% (school enrollment greater than 2,100) had a similar perception. There were no significant differences found for any of the items in which there was also disagreement for the variables of teaching experience and school type (middle vs. high school).

When the responses of the secondary school physical education teachers were compared with University PETE faculty, significant

Table 3

Physical Education Teachers' Perceptions of Arguments That Have Been Made in Support of Gender Separate Grouping of Students in Physical Education Activities

Arguments for Gender Separate Groupings	Secondary School Physical Education Teachers				University PETE Faculty			
	Agree		Disagree		Agree		Disagree	
	%	n	%	n	%	n	%	n
Most boys want gender separation for some activities	88.3	(226)	11.7	(30)	82.1	(124)	17.9	(27)
Title IX allows separation for body contact activities	80.5	(202)	19.5	(49)	72.7	(109)	27.3	(41)
Girls participate more fully when separated	78.3	(198)	21.7	(55)	69.6	(103)	30.4	(45)
Most girls want gender separation for some activities	78.2	(201)	21.8	(56)	82.9	(126)	17.1	(26)
Helps boys develop better sport skills	78.0	(198)	22.0	(56)	54.1	(80)	45.9	(68)*

Table 3 (cont.)

Arguments for Gender Separate Groupings	Secondary School Physical Education Teachers				University PETE Faculty			
	Agree		Disagree		Agree		Disagree	
	%	n	%	n	%	n	%	n
Most parents support gender separate groupings	75.8	(179)	24.2	(57)	46.4	(70)	53.6	(81)*
Safety concerns	75.3	(195)	24.7	(64)	67.8	101)	32.2	(48)
More positive behavior/ social dynamics when genders are separated	75.1	(190)	24.9	(63)	52.1	(76)	47.9	(70)*
Helps girls develop better sport skills	72.7	(186)	27.3	(70)	58.1	(86)	41.9	(62)*
Boys participate more fully when separated	71.1	(182)	28.9	(74)	55.1	(81)	44.9	(66)*
Most school administrators support gender separate groupings	53.1	(127)	46.9	(112)	33.8	(50)	66.2	(98)*
Makes it easier to plan	46.6	(122)	53.4	(140)	38.5	(57)	61.5	(91)

* *Note.* Significant difference between groups: $p < .01$

differences were found for six of the items. In each case, lower percentages of PETE faculty agreed with arguments for gender separate groupings. For two items ([a] parents support gender separate groupings and [b] most administrators support gender separate groupings), a majority of the secondary school physical education teachers were in agreement while less than a majority of the PETE faculty were in agreement.

Space was provided on the survey for comments to be written. Several common themes emerged from the data. For the University PETE faculty, the three major themes were as follows:

(a) Secondary school students should have the opportunity to select either coeducational or single gender classes. One respondent wrote,"Options should be made available for students to elect coed or be separated in classes where more than one physical education teacher is available."

(b) While coeducational classes are preferable, teachers should be allowed to separate boys and girls for some activities. One respondent wrote, "Most activities can be taught in a coeducational setting. When it comes to competition, then it may sometimes be more important to separate by gender."

(c) Instructional and contextual variables are more important than gender in determining when to separate students for activities (e.g., skill level). One respondent wrote,"I do not see the issue of separating males and females as a one size fits all issue. I believe that a quality teacher who knows their students is in the best position to make the call. In some situations, separation may be best; in others coeducation is best."

For the secondary school Physical Education teachers, the three major themes were as follows:

(a) Separate PE is generally better for both boys and girls. One respondent wrote, "Separation of genders is long overdue. Many students are being deprived of the full physical education experience because of Title IX interpretation. Having taught gender separated classes at the middle school level for over 15 years, there is no comparison to what once was accomplished to now. The last 11 years have been more challenging and less productive in all areas."

(b) Boys and girls should be separated for physical contact units. One respondent wrote, "I don't feel they should be separated in everything but there are some activities where physical contact is my concern."

(c) There are more important factors and considerations other than gender to consider when determining how to group students. One respondent wrote, "Separation should be based on ability, not sex."

Discussion

This research was deemed important because secondary school physical education teachers create the environment in which secondary school students learn, and they spend the most time with students in that setting. Consequently, they should be considered experts regarding the most effective way to group students in physical education classes. In addition, physical educators should be able to accurately assess the effectiveness of single gender and coeducational physical education and to identify specific units in which students should be separated by gender. It was also important to solicit the responses of PETE professors because they are primarily responsible for educating prospective physical educators. By comparing the responses, it was possible to determine whether there is congruency in regards to the information teacher education candidates are receiving in their education courses and the information they receive from secondary school physical education teachers in their preservice and early teaching experiences.

Over two thirds of secondary school physical education teachers indicated all activities, with the exceptions of football and basketball, should be offered in a coeducational format. The percentages for the PETE faculty were similar for nonteam sports but less for team sports. The support for coeducational groupings in physical education classes for activities of a single or dual sport nature appears to be logical because they traditionally have an element of coeducational participation in society (e.g., golf, racquet activities, dance, bowling, and distance running) (Hill & Cleven, 2005). Specifically, activities of this nature do not require direct physical contact to compete against one another as compared to contact sports such as basketball or football. Hence, the possibility that noncontact activities could be gender mixed throughout a lifetime makes teaching them in a coeducational setting a more obvious choice. In addition, participants of other social building activities (parachute, team building, rope jump, and dance) generally perform well whether single gendered or coeducational. Finally, activities popularly categorized as coeducational (juggling, archery,

dance, orienteering, and rope jump) are normally taught with a skill-building rather than a competitive emphasis.

Generally both secondary school physical education teachers and PETE faculty indicated boys and girls would receive greater benefits in terms of skill development and social support if they were taught in single gender physical education classes. These findings support the findings of Derry and Phillips (2004) and Garcia (1994) who argued that despite the fact girls might prefer coeducational physical education, they will be able to develop higher levels of competence and self-esteem as well as better skills and cognitive learning in single gender environments. Respondents in this study, however, did not distinguish between boys and girls in regards to physical skill and social development—they perceived advantages for both genders in single gender classes. The results are also congruent with Sinclair (2000) who found that both males and females would be more engaged, learn more, and feel safer in single gender physical education classes. These findings may also suggest physical education teachers may be grouping males and females together for most activities, not because they believe it is best for students, but because it is mandated by Title IX and reinforced by schools who assign teachers both male and female students in their classes (Lay, 1990).

A high percentage of respondents of secondary school physical education teachers and PETE faculty indicated a concern for safety in coeducational physical education classes. This may have occurred because most secondary school physical education curriculums include some physical contact activities (Hill & Cleven, 2005). Consequently, it is not surprising the two activities that had the highest percentages of respondents recommending gender separate grouping were the two most contact-oriented and most potentially dangerous activities (football and basketball). Football is particularly challenging as a mixed gender class because of height, weight, and upper body differences between most males and females. In addition, football has the potential for inappropriate touching inherent in blocking and flag pulling, which may lead to students being knocked down or hit with an inadvertent elbow. In basketball, rough or inappropriate contact may occur when students block out for a rebound, set a screen, or defend against a shot. The concern for rough play in mixed gender classes appears to be consistent with Sinclair (2000) who reported girls believe they perform better

and feel less fearful of injury in single gender physical education classes. In addition, respondents' support of single gender physical education may be interpreted as a way to increase participation by girls by removing an overly competitive environment that is present in team sports when boys are participating in the same classes as girls.

It is interesting that a majority of female secondary school physical education teachers perceived they were required both by Title IX and by their school administrators to group boys and girls together for all activities, whereas most male physical education teachers did not share similar perceptions. These findings are puzzling and may reveal gender differences among teachers regarding level of support and/or compliance and interpretation of Title IX.

In comparing the responses of secondary school physical education teacher and PETE faculty, there were two items in which there was significant disagreement. Specifically a majority of PETE faculty perceived that both parents and school administrators support coeducational groupings while a majority of the secondary school physical education teachers perceived that both parents and school administrators support single gender groupings. These findings suggest that PETE faculty perceive greater support for coeducational physical education within secondary school communities than there may actually be. In addition, there may be some confusion regarding the wisdom of coeducational groupings in physical education because boys and girls are segregated by gender in interscholastic sports programs and because some of those same sporting activities are also offered as units in physical education classes.

Study Strengths and Limitations

There were several major strengths associated with this study. Most important, this is first-reported research that has compared the opinions of secondary school physical education teachers and PETE supervisors regarding how students should be grouped for physical education classes. The three sections of the survey addressed three important questions regarding gender grouping in physical education: (a) which activities should be offered in a single gender format, (b) arguments for coeducational groupings in physical education, and (c) arguments for single gender groupings in physical education.

Because the response groups were selected on a voluntary basis rather than through random sampling, the results may not be generalizable to all secondary school physical education teachers

and PETE faculty. It is possible that some of the PETE supervisors were far enough removed from secondary school physical education programs that they felt uncertain in their responses to some of the items. Finally, the use of two lists of arguments, one in support of gender mixed groupings and one in support of mixed groupings, required a fixed response to specific items. While space was provided for comments, the limited response format of the survey provided less choice than a qualitative approach with open-ended questions.

Recommendations and Conclusions

Based on the insights gained from this study, we make the following recommendations and conclusions. Schools should continue to assign students to coeducational physical education classes in order to prevent discrimination, exclusion, and inequity based on sex. However, teachers should separate students into single gender groups for bodily contact activities such as football, basketball, and soccer, as allowed by Title IX, in order to provide a safer environment. The comments by many of the respondents suggest that skill level should also be considered when grouping students and that when students are separated in noncontact activities, it should be according to skill level, not by gender. Several respondents also suggested that teachers consider the age of students when grouping students because high school boys and girls may socialize better in physical education classes than middle school students. In order to provide students environments that are conducive for learning, physical education programs should consider offering concurrent physical education elective activities that might be preferred by one gender. For example, offering students choices between football and aerobic dance as an elective unit may attract more of one gender than the opposite gender, allowing natural groupings of like-interest students (Carroll & Loumidis, 2001; Williams, Bedward, & Woodhouse, 2000). However, this format will require teachers to share students for some units. Physical educators should survey students to determine their interest in specific physical education activities. The use of the surveys helps physical education teachers avoid offering a gender-biased curriculum and allows students to engage in activities in which they are more likely to participate in later life (Hill & Cleven, 2005).

Further inquiry would be helpful to better determine teachers' perceptions of reasons why specific activities should be offered in a single gender or coeducational format. The survey tool used for this

study utilized a simple yes/no check-off format. Many respondents may not have taken the time to read each statement completely or may not have believed there was a clear yes/no answer to each question. Utilizing more open-ended questions or interviews might result in more in-depth and insightful information.

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