DOCUMENT RESUME

ED 380 372 SO 024 654

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TITLE Influences of Gender and Academic Achievement on Learning Preferences of Middle Grade Students.
PUB DATE Nov 93
NOTE 28p.; Paper presented at the Annual Meeting of the Mid South Educational Research Association (November 10-12, 1993).
PUB TYPE Reports - Descriptive (141) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Academic Achievement; Academic Aptitude; Classroom Research; *Classroom Techniques; Intermediate Grades; Junior High Schools; *Learning Motivation; *Learning Processes; Middle Schools; *Sex Differences; Student Characteristics; Student Motivation
IDENTIFIERS *Middle School Students

ABSTRACT

This research summary focuses on learning preferences of early adolescents and their relationships with academic achievement and gender. The classroom structures under study were cooperative (working with peers in accomplishing academic material), competitive (competing with peers in academic endeavors), and individualistic (having no involvement with peers in pursuing academic goals or objectives) learning situations. The sample consisted of 715 African American students from six schools within one metropolitan county in the southeastern United States. The students were surveyed with the Learning Preference Scale--Students (LPSS), Form C, with the results analyzed for reliability. Gender and grade point average, the independent variables, showed a significant correlation, yet gender was not correlated significantly with any of the three dependent variables, cooperative, competitive, and individualistic learning preferences. Limitations of the study are discussed and a call for further research on this topic is made. (EH)

INFLUENCES OF GENDER AND ACADEMIC ACHIEVEMENT ON LEARNING PREFERENCES OF MIDDLE GRADE STUDENTS

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Running head: Learning preferences

Abstract

The purpose of this study was to investigate the relationships among gender, academic achievement, and student preferences for cooperative, competitive, and individualistic learning. The sample consisted of 715 sixth- and seventh-grade students from six schools within a metropolitan county located in the southeastern United States. The Learning Preference Scale for Students (Barnes, Owens, & Straton 1978) was used to measure student preferences. Three two-way ANOVAs (gender x academic achievement) were conducted with the three learning preferences used as the dependent variables. Significant gender effects were found for competitive preferences ($p<.01$), but not for cooperative or individualistic preferences. Academic achievement was a significant predictor of both competitive and individualistic preferences ($p<.001$), but not for cooperative preferences. There were no significant interaction effects for any of the three preferences.

As with previous studies in this area, these findings indicated that gender and academic achievement were variables that warranted further study for their influence on student preferences for working within the three classroom structures. Of particular note are the implications for effective classroom practices that meet the varying needs of an increasingly diverse population of students.

INFLUENCES OF GENDER AND ACADEMIC ACHIEVEMENT ON LEARNING PREFERENCES OF MIDDLE GRADE STUDENTS

Student differences such as culture, cognition, physical development, socioeconomic status, and gender have been recognized as influential in determining student success in the classroom (Hare, 1987; Irvine, 1990; Maccoby, 1988; Minuchin & Shapiro, 1981; Rist, 1970; Wiles & Bondi, 1992). Recently, student learning preferences have received attention as an area to be considered in designing effective instructional practices for a wide variety of students (Okebukola, 1986; Owens & Barnes, 1982). Studies in this area have not indicated any consistent findings on the various factors investigated for their influence on student preferences for the three classroom structures. For purposes of this study, the focus is on the learning preferences of early adolescents and their relationships with academic achievement and gender.

Student learning preferences refer to student choices regarding the type of classroom structure within which they prefer to work. These choices center around whether students prefer to work with their peers in accomplishing academic material (cooperative preference), to compete with their peers in academic endeavors (competitive preference), or to be exclusive, having no involvement with their peers as they pursue their academic goals or objectives (individualistic preference). It is

now understood that these preferences are not mutually exclusive and students can have preferences for one or all three (Owens, Nolan, & McKinnon, 1992). Additionally, there are indications that student preferences have several influences, although studies have not reported consistent findings concerning these influences. Lastly, it has been suggested that being aware of student preferences when designing classroom practices has implications for student achievement (Okebukola, 1986).

It has been suggested that classroom structure is related to student progress with some students responding better to one type of organizational structure than another (Kagan, 1989; Shade & Edwards, 1987; Vasquez, 1988). Student characteristics may also influence student reactions to various classroom structures. Ethnicity, gender, and academic achievement are among the student characteristics that may mediate the relationship between classroom structure and student outcomes. These student characteristics and their relationship to the learning preferences have been a major emphasis in this area of research.

Within the area of student learning preferences or student attitudes towards the three different goal structures, research has generally focused on: (1) how different student characteristics, such as gender and age are related to student preferences for the different goal structures (Ahlgren & Johnson, 1979; Engelhard & Monsaas, 1989; Owens et al., 1992; Owens & Straton, 1980); (2) the impact situational variables have on the

student choices for different goal structures (Schwalb & Schwalb, 1985); and (3) the influences on achievement levels when students are instructed in their preferred classroom goal structures (Okebukola, 1986). Empirical findings have not been conclusive, although several trends indicate that relationships may exist among certain student characteristics and preferences for the different goal structures.

Developmental and gender differences have been a major area of interest as they relate to learning preferences. Findings on cooperativeness and gender for adolescents have been mixed. It has been suggested that girls are more cooperative and boys more competitive, but research does not unequivocally support this contention. In one study (Ahlgren & Johnson, 1979), findings indicated that although there were differences for higher grades (9-12) with boys showing more positive attitudes towards competitiveness and girls more positive attitudes towards cooperativeness, for the middle grades these differences were not found. In another study (Engelhard & Monsaas, 1989), there seemed to be gender differences in attitudes of students toward cooperation in the third grade, but no significant differences were indicated for the fifth and seventh grades. Schwalb and Schwalb (1985) found that both genders had more positive attitudes towards the cooperative than the competitive items, but females reported significantly higher cooperative preferences than males did across grade levels. Findings from this study

with Japanese students, lend support to the contention that there are cultural and situational factors that may impact on the cooperative and competitive attitudes of males and females (Strube, 1981). Another study compared the differences in learning preferences for males and females in four countries (Owens et al., 1992). Females reported higher preferences for cooperation than males in three of the four countries; however, males reported higher preferences for competition in all four countries.

When gender is studied in conjunction with other factors, such as within different subject areas (Owens & Barnes, 1982), or with academic achievement (Engelhard & Monsaas, 1989; Johnson & Engelhard, 1992), other trends are noted. Owens and Barnes (1982) investigated how the genders differed in their learning preferences in the subjects of English and mathematics. Results indicated that males have higher preferences for competition in mathematics, however, females have higher preferences for competition in English. A group of middle grade, African-American students were studied for gender and achievement differences and the interaction of the two; it was found that as females increase in achievement so do their preferences for competition, however, for males the opposite relationship was seen with preferences for competition decreasing as achievement increases (Johnson & Engelhard, 1992). From these studies it seems that the study of gender differences warrants a broader,

more differentiated approach where a number of variables are considered for their relationship to gender.

Academic achievement has been found to be related to learning preferences with more successful students reporting higher preferences for competition, and less successful students reporting higher preferences for cooperation (Engelhard & Monsaas, 1989). In a study of ninth grade Nigerian students, achievement in science was found to increase in either a cooperative or competitive structure if that was the students preferred style of learning (Okebukola, 1986). It was only when the preferred learning mode and instruction differed, that achievement did not improve. These findings suggest that recognition of how students prefer to learn and subsequently designing classroom practices to complement that preference may enhance student achievement.

Regarding African-American students, there is a lack of research concerning learning preferences and the factors that may influence the students' choices of classroom structure. Minorities, including African-Americans (Richmond & Weiner, 1973), Mexicans/Mexican-Americans (Blaney, Stephan, Rosenfield, Aronson, & Sikes, 1977; Lucker, Rosenfield, Sikes, & Aronson, 1976); and western (vs. eastern) Israeli students (Sharan, Kussell, Lazarowitz, Bejarno, Raviv, & Sharan, 1985) appear to benefit cognitively, as well as affectively, when cooperative learning methods are utilized. Research concerning minority

student preferences may shed some light on why minority students appear to do better within cooperative learning environments.

As it relates to middle grade students, the findings on student preferences are the least consistent as indicated in the studies mentioned above. Additionally, within the area of cooperative learning, early adolescence has received minimal attention (Davis, 1987). Considering the importance of the peer group and the social nature of the classroom for this age group (Davis), a better understanding of goal structures preferred among this group may aid educators in designing relevant instructional practices that engage more students in the educational process.

This study differs from previous research in several ways. First, the sample is African-American, middle grade students from the southeast United States. The populations of interest for research in this area have been diverse (African, Anglo-American, Japanese and Australian), with little exploration of how preferences differ for this particular group of students (Johnson & Engelhard, 1992). Additionally, although the middle grades have been investigated within other studies looking at age or grade differences, there has not been a concentration on this particular age group. Secondly, whereas there has been considerable exploration of gender differences, there have been few studies that investigated interactions among academic achievement, gender, and learning preferences.

Purpose

The purpose of this study is to investigate the relationships among gender, academic achievement, and student preferences for cooperative, competitive, and individualistic learning. The following specific research questions were addressed:

1. Is gender related to preferences for cooperative, competitive, and individualistic goal structures within classrooms?
2. Is academic achievement related to preferences for competitive, cooperative, and individualistic goal structures within classrooms?

Method

Subjects

Sixth and seventh grade African-American students from six elementary schools within one county in the southeastern USA were surveyed with the Learning Preference Scale - Students (LPSS), Form C. Grades within all schools ranged from kindergarten to sixth or seventh grades. There were a total of 715 African-American students including 349 males and 366 females, with 438 sixth graders and 277 seventh graders.

Instrument

Form C of the Learning Preference Scale for Students (LPSS; Barnes & Owens, 1991) was administered to all of the sixth and

seventh grade students. There are a total of 36 statements in the LPSS with 12 for each of the three learning preferences (cooperative, competitive, and individualistic). Students responded on a four-point scale ('completely false', 'sort of false', 'sort of true', and 'completely true') based on how much they agreed with each of the statements. Responses were coded on a scale of one to four, with one indicating the least agreement, and four indicating the most agreement with the preference reflected within the question. The maximum score possible on each of the three learning preference scales is 48, and the minimum score possible is 12.

The original form (Form A) of the LPSS was pilot tested in Sydney, Australia on primary and secondary school students. Since that time, the original form has been modified to the form utilized in this study (Form C). Form C has been used in Australia as well as Minnesota (Barnes & Owens, 1991).

Owens and Straton (1980) in reporting on the reliability of the three scales, found a substantial degree of homogeneity for each of the scales. For this sample, reliability was determined by Cronbach alpha coefficients, and those received were similar to those obtained by Owens and Straton which ranged from 0.81 for the cooperative scale to 0.64 for the competitive scale. In this study, the scale for measuring cooperative learning preferences had the highest alpha coefficient of 0.68. For the competitive learning preference scale, the alpha coefficient was

0.66, and for the individualistic learning preference scale it was 0.65.

Procedures

At each school, the surveys were administered to the sixth and seventh graders by the researcher. The purpose of the study was explained to the students using a script and each question was read individually by the researcher as students responded to each item. It was explained via the script that participation was voluntary and any student who preferred to not participate could be excused. Three students from the six schools took advantage of this option and did not complete the survey. There were four students who were excused because their parents when apprised of the intention to survey the students, decided they would prefer to not have their children participate. Arrangements were made to accommodate these students during the administration of the surveys.

In order to examine the relationships among the variables, Pearson correlations were calculated. The influences of gender and academic achievement on the learning preferences were examined with three two-way ANOVAs. The three learning preferences were used as the dependent variables, while gender and academic achievement were defined as the independent variables for each ANOVA. In addition, the interaction effects of gender and academic achievement were examined for each of the three learning preferences.

Results

The correlations among the variables are presented in Table 1. Between the two independent variables, gender and grade

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Insert Table 1 about here

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point average, there was a significant correlation, $r(713) = .24$, $p<.01$; females had higher grade point averages ($M=3.27$, $SD=.68$) than males ($M=2.91$, $SD=0.74$). Among the three dependent variables, cooperative, competitive, and individualistic learning preferences, gender was not significantly correlated with any of the three. Academic achievement was significantly correlated with both competitive, $r(713) = .17$, $p<.01$, and individualistic, $r(713) = .14$, $p<.01$, learning preferences, but not with cooperative learning preferences.

Among the three dependent variables, cooperative, competitive, and individualistic learning preferences, there were three statistically significant correlations. Cooperative learning preferences were negatively correlated with competitive, $r(712) = -.11$, $p<.01$, and individualistic learning preferences, $r(712) = -.43$, $p<.01$. A significant, positive correlation between the individualistic and competitive learning preferences, $r(712) = .20$, $p<.01.$, was also found.

The ANOVA summary table for cooperative learning preferences is presented in Table 2. Neither academic achievement nor gender

Insert Table 2 about here

had a significant effect on cooperative learning preferences. The interaction effect of academic achievement and gender on cooperative learning preferences was not significant. The overall model accounted for less than one percent of the variance in cooperative learning preferences.

For competitive learning preferences, the ANOVA summary table is presented in Table 3. Academic achievement, had a

Insert Table 3 about here

significant effect on the competitive learning preferences, F (1,713) = 21.08, $p<.01$. Gender, after controlling for academic achievement, F (1, 712) = 6.31, $p<.01$, was found to significantly affect competitive learning preferences. Males reported higher preferences for competition than females and predominated in the lower reported grade point averages which served as an indicator of academic achievement. All who reported grade point averages of D (5) or F (2) were male. Of the 134 who reported a grade point average of C, 63% (85) were male. For the higher grade point averages of B, males were 52% (187 of 357) of this group, but only 32% (70 of 217) for those who reported grades of A. Additionally, as grade point average decreased, lower means were reported for competition. It seems that males tend to report lower grade point averages than females and lower preferences for

competition. The overall model accounted for four percent of the variance in competitive learning preferences.

The ANOVA summary table for individualistic learning preferences is presented in Table 4. Individual learning

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Insert Table 4 about here

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preferences were significantly affected by academic achievement, F (1, 713) = 13.48, $p<.01$. Similar to the pattern evidenced with competitive preferences, as grade point average increases so does the preference for individualistic learning. Neither gender, after controlling for academic achievement, or the interaction effect were significant. This model accounted for two percent of the variance in individual learning preferences.

Discussion

The results of this study were consistent with others conducted in this area relating to gender and academic achievement. Females reported higher preferences for cooperation than males, and conversely, males reported higher preferences for competition yet these differences were not found to be statistically significant. As it relates to academic achievement, students with higher achievement reported higher preferences for competition and individualistic learning than students with lower academic achievement. These findings on academic achievement and gender should be interpreted with consideration of how the males within this sample were unevenly

distributed at the lower achievement levels.

In light of previous research in this area, this study differs in that it investigated how learning preferences are related to academic achievement and gender among African-American students. When compared to a similar study with another African-American sample (Johnson & Engelhard, 1992), these findings for gender and academic achievement on the competitive and individualistic learning preferences for the students differ in relation to competition, gender and academic achievement. Johnson & Engelhard (1992) found that males and females were responding differently to competition as a function of grade point average; females increased in their preference for competition as grade point increased and males did just the opposite - reported lower preferences for competition as grade point average increased. The data from these two studies suggest that for this age group, gender and academic achievement are not consistent as it relates to student choices for working within the classroom.

Academic achievement has been suggested as influencing student attitudes towards the various learning preferences. Students surveyed had primarily experienced classrooms that were competitive or individualistic for seven to eight years. To presume that more successful students would be more competitive or express higher preferences for competition seems reasonable given these experiences. In other studies of developmental differences in student learning preferences, it has been indicated that the higher the grade level, the higher the

preference for competition and decreasing preferences for cooperation. Yet, for middle grades no clear pattern or trend has been suggested from past studies. For this sample of African-American middle grade students, there were differences in how the students preferred the different classroom goal structures based on grade point average. These differences were more pronounced for the two more recognized and used classroom structures, competitive and individualistic. With no schoolwide cooperative learning approach being implemented within the schools for this study, it may be that students were responding to the goal structures they were most familiar and successful. However, for those students who have not been successful with these classroom structures, the response is not as favorable. Considering the findings on increased achievement when instructed within a classroom structure that complements the student preference, for students who are less successful within the existing, more traditional classroom structures alternatives such as cooperative learning may warrant additional attention.

Another point of note is the differences in how males and females are represented in the higher and lower grade point averages. Grade point average as reported by the students indicated that females were more prone to report higher grade point averages than males. When teachers were asked to indicate grade point averages for the students, the same trend or pattern was evidenced with males overly represented in the lower grade ranges of D and F, and females disproportionately represented in the higher grade range of A and B (Johnson & Engelhard, 1992).

These findings reflect those of other studies which investigated the perceptions and expectations of African-American students according to gender (Hirsch & Rapkin, 1987; Irvine, 1990). Concurrently, there is the suggestion that African-American males are influenced by peers who according to some researchers do not view achievement as a positive norm to be advanced (Fordham & Ogbu, 1986; Hare, 1987; Irvine, 1990). Due to the pivotal nature of this period of life for future achievements and remaining in school (Carnegie Council on Adolescent Development, 1989; Wiles & Bondi, 1993), altering these perceptions for the student seem crucial. Further investigation of these findings are warranted for their implications for effective group processes and the design of effective instructional strategies to meet the needs of these students.

For African-American students, it has been suggested that cultural factors indicate cooperation as the students' preferred method of working in classrooms without reference to various student characteristics. Although the overall findings within this study of a higher preference for cooperation rather than competition regardless of gender or academic achievement would seem to corroborate this inference, the findings on gender and competition suggest that other factors are of import when employing different strategies in the classroom with African-American students.

To better understand these differences, additional research directed to deciphering the situational factors associated with these various concepts (cooperation, competition, and

individualization) as suggested by Schwalb and Schwalb would seem warranted. For African-American students it underscores the need that the group be viewed more broadly and not studied as a single entity without any distinguishing characteristics within the group (McKenry, Everett, Ramseur & Carter, 1989). Better understanding of what are the cultural imperatives of gender perceptions within this group and how they differ based on other factors such as socioeconomic status, region, and academic achievement bear some attention. Further investigation in this area as it relates to African-American students is warranted to discern how group behavior and competitiveness is perceived by students.

Another area receiving limited attention is individual preferences. Findings for this sample replicate the findings of Owens and Straton (1980) in its original development of the LPSS, in that the individual preference was found to be negatively correlated with cooperation and positively correlated with competitive preference. Additional research examining how the individual learning preference is related to cooperative and competitive learning preferences, and what situational variables relate to students preferring to work alone may help educators better understand how to effectively use individual work with students.

In interpreting these findings consideration should be given to the fact that this sample of middle-grade students are in an elementary school setting. Due to the differences in school settings for these grades (Wiles & Bondi, 1992), different

results may be obtained when similar studies are conducted in specialized middle schools. Finally, the findings cannot be generalized beyond this sample. Further replications are needed in other communities to determine whether gender and academic achievement are similarly related to learning preferences as indicated in this sample of African-American middle grade students and to ascertain if these results reflect students' preferences, or their understanding and perceptions of the questions.

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Table 1

Correlations Among Gender, Academic Achievement, and Learning Preferences

	1	2	3	4	5
Independent Variables					
1. Gender	-				
2. Academic Achievement	.24**	-			
Dependent Variables					
3. Cooperative	.00	-.04	-		
4. Competitive	-.05	.17**	- .11**	-	
5. Individualistic	.05	.14**	- .43**	.20**	-
M		3.09	38.66	34.70	35.03
SD		.73	5.40	5.51	5.89

*p<.05 **p<.01

Table 2

Analysis of Variance for Cooperative Learning Preferences

Source	Sum of Squares	DF	Mean Square	F-Ratio
Academic Achievement (A)	25.31	1	25.31	0.87
Gender (B)	0.46	1	0.46	0.02
A X B	1.30	1	1.30	0.05
Error	20745.71	711	29.19	

Note. The Squared Multiple R was .00.

* $p<.05$ ** $p<.01$

Table 3

Analysis of Variance for Competitive Learning Preferences

Source	Sum of Squares	DF	Mean Square	F-Ratio
Academic				
Achievement (A)	622.14	1	622.14	21.08**
Gender (B)	184.73	1	184.73	6.31**
A X B	29.50	1	29.50	1.01
Error	20831.19	711	29.30	

Note. The Squared Multiple R was .04

* $p<.05$ **$p<.01$

Table 4

Analysis of Variance for Individualistic Learning Preferences

Source	Sum of Squares	DF	Mean Square	F-Ratio
Academic				
Achievement (A)	459.40	1	459.40	13.48**
Gender (B)	3.72	1	3.72	0.11
A X B	9.61	1	9.61	0.28
Error	24294.81	711	34.17	

Note. The Squared Multiple R was .02.

* p<.05 ** p<.01