DOCUMENT RESUME

ED 351 339 TM 018 828

AUTHOR Owens, Lee
TITLE The Learning Mode Preferences of Secondary Students: A Three-Country Comparison--Australia, England, USA.
PUB DATE Apr 92
NOTE 19p.; Paper presented at the Annual Meeting of the American Educational Research Association (San Francisco, CA, April 20-24, 1992). Charts contain small, light print.
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Analysis of Variance; *Cognitive Style; Comparative Testing; *Competition; *Cooperative Learning; *Cross Cultural Studies; Foreign Countries; Individual Instruction; International Studies; Rating Scales; Secondary Education; *Secondary School Students; Sex Differences
IDENTIFIERS Australia; England; *Learning Mode; Learning Preference Scale for Students; Preference Patterns; United States

ABSTRACT

Learning mode preferences of secondary school students were compared for 1,259 students from Sydney (Australia), 837 students from Perth (Australia), 2,125 students from England, and 570 students from Minneapolis (Minnesota). Students were in grades 7 through 12. Preferences for cooperative, competitive, and individualized learning modes were obtained using the 36-item Learning Preference Scale--Students (LPSS). A two-way analysis of variance was carried out for each of the four groups of data. Sex differences in preference for cooperative learning were consistent for all samples except for the Minneapolis sample, with females expressing a significantly greater preference for cooperation than males. Males expressed a greater preference for individualization than did females, although the differences were not significant in the Sydney sample. Preference for cooperation declined with advancing years in the English sample, but increased in the Perth sample. No location differences were detected in preferences for cooperative learning, but for competitive learning, students in the English and American samples had lower scores than did those in Perth, whose scores were lower than those from Sydney. English and American students had lower scores than did both Australian samples for individualized learning. Implications for teaching are discussed. Three tables and 12 graphs present study data. (SLD)

THE LEARNING MODE PREFERENCES OF SECONDARY STUDENTS: A THREE-COUNTRY COMPARISON -- AUSTRALIA, ENGLAND, USA

Lee Owens
School of Teaching and Curriculum Studies
University of Sydney

Paper presented at the Annual Conference of the American Educational Research Association, San Francisco, April 1992.

The Learning Mode Preferences of Secondary Students: A Three-Country Comparison - Australia, England, USA

Lee Owens
School of Teaching and Curriculum Studies
University of Sydney

Until recent years, cooperativeness as a human characteristic has been seen as the relative absence of competitiveness. In other words, competitiveness, in the sense of striving for superiority, has been seen historically as the fundamental force in the way human beings behave toward each other. Parallels have been drawn with animal behaviour, particularly since the end of the last century. Other kinds of social behaviour, e.g., altruism and individualism, have then been conceptualised and described by the way in which they fit with the assumption that humans are basically competitive animals. Even more important, any inclination to cooperate helpfully with others has been defined as a lack, even a weakness, in the "natural" dominance of competitiveness. In other words, the more cooperative, the less competitive. This is now known colloquially as "old theory", indicating that it is dated, rather old-fashioned, and contradicted by recent evidence. As "old theory" would have it, a student in a classroom could be disposed to cooperation or to competition in learning, but not to both.

It was an anthropologist, Margaret Mead, who popularised notable resistance to "old theory", the idea that cooperation and competition are mutually exclusive. In her analysis of cultures, particularly in Papua New Guinea and the Pacific, she was able to identify ways in which people blended cooperation and competition together as a cohesive force in assisting their culture to endure and develop. Recent explanations of the ways in which humans behave toward each other, noting that a person's attitudes and inclinations to compete and cooperate need not be in mutual disagreement, form "new theory". Cooperativeness is independent of competitiveness rather than being its relative absence. A student, therefore, can favour cooperation and competition in classroom learning, or one of them, or neither.

The independence of cooperative and competitive attitudes was suggested initially in a major study by Johnson and Ahlgren (1976). A later study included consideration of individualistic attitudes as well, i.e., a preference to work without reference to the work of others or even without much interaction with others (Johnson, Johnson, and Anderson, 1978). The Social Interdependence Scales (Johnson and Norem-Hebeisen, 1979) enabled the further collection of evidence about the independence of these attitudes, though these scales were rudimentary. The Learning Preference Scale -Students (LPSS) was developed for particular application to classroom learning over a range of primary and secondary school years (Owens and Straton, 1980). Research conducted over a number of years with large samples of Australian schoolchildren has been able to demonstrate conclusively that preferences for cooperative and competitive learning are basically uncorrelated, i.e., the attitudes seem independent of each other. In addition, the research has shown that preferences for cooperative and individualised learning are negatively correlated at a low level, i.e., as might be expected, a desire to work with others is unlikely to be associated with a desire to work alone. Finally, it has been shown that preferences for competitive and individualised learning are positively correlated at a low level, probably a reflection of pervasive classroom experience in which individualistic effort is frequently assessed in comparison with others (Owens and Barnes, in press). In general, this evidence is strong support for "new theory", that desire to cooperate is not a weak alternative to the urge to compete, and that a learner can be disposed to do both.

A BRIEF SUMMARY OF RESEARCH USING THE LPSS

Since its first use in 1978, the LPSS has been utilised in a series of studies in Australian schools. The major findings from these studies are listed briefly below:

1. In upper primary school and secondary school, girls generally express greater preference for cooperative learning than boys, and boys favour competitive and individualised learning more than girls (Dutton, 1987; Owens, 1984; Owens, 1985a; Owens and Straton, 1980).

2. In general, preferences for competitive learning increase markedly with increasing year level, preferences for individualised learning decrease markedly, and preferences for cooperative learning increase, though sometimes not significantly (Dutton, 1987; Owens, 1984; Owens, 1985a; Owens and Straton, 1980).

3. Preliminary information suggests that students in single-sex secondary schools may be more strongly oriented to competitive and individualised learning than students in coeducational secondary schools (Dutton, 1987).

4. In secondary schools, students generally express stronger preferences for cooperative learning in English than in Mathematics, though boys prefer more competitive contact in learning Mathematics and girls prefer more competitive contact in learning English (Owens and Barnes, 1982).

5. In active physical education lessons, boys express preferences for competitive and individualised activities and girls express a preference for cooperative activities (Dutton, 1987; Owens and Dutton, 1987).

6. When students with high cooperative learning preferences are compared with students with low cooperative learning preferences, their perceptions of classroom atmosphere contrast markedly in primary classes and in secondary English classes, though not in secondary Mathematics classes (Owens, 1983b; Owens and Barnes, 1982).

7. In a longitudinal study, both boys and girls state a stronger preference for cooperative learning in the early years of secondary school (Years 7 and 8) than they had done two years earlier in primary school; in contrast, however, in Years 9 and 10, boys state a considerably stronger preference for competitive learning than they had done in Years 7 and 8, while girls express a lesser preference for competitive learning than they had done earlier (Owens, 1984).

8. As assessed by repeated testing during a school year, preference for cooperative learning remains stable, preference for competitive learning declines somewhat, and preference for individualised learning declines steadily (Owens, 1985b).

9. In inter-cultural investigations, Aboriginal schoolchildren express a very strong preference for cooperative learning in primary school which seems to be maintained through the secondary school years while preferences for competitive and individualised learning decline markedly (Newbery, 1979; Wegener, 1986).

Of particular interest for this paper is the cross-cultural study in which a number of comparisons are made between students in Sydney schools and students in Minneapolis (USA) schools (Owens, 1985a). Sex differences in both samples are the same, with girls favouring

cooperative learning and boys favouring competitive and individualised learning (see 1 above). Year trends, too, are the same in both samples, with preferences for cooperation and competition increasing over the span of secondary school years, and preference for individualisation decreasing (see 2 above). With regard to country, however, significant differences emerge between Sydney and Minneapolis students. Overall, the Sydney students are significantly less cooperatively inclined, and more competitively and individualistically inclined than their American counterparts. As well, the sex difference in cooperative learning preference is much more pronounced in Sydney, where scores are far higher for girls than for boys when compared with Minneapolis. It should be noted that these data are obtained from combined primary and secondary school samples of students. The data presented in the present paper, however, are for secondary students only. The intention is to broaden the range of cross-cultural comparisons by analysing responses from a large sample of students from secondary schools in the Midlands counties in England and making comparisons not only with the Sydney and Minneapolis findings but with findings from a sample of Perth (Western Australia) secondary school students as well.

SAMPLE

The Australian (Sydney) sample of students (N=1259) for this study was drawn from one state high school in each of four separate suburbs in the western metropolitan area of Sydney. All schools were coeducational and comprehensive, and the students were drawn from areas of a broadly representative socioeconomic range with a relatively low non-English-speaking migrant population. Classes were selected from Years 7,9,10,11,and 12, and low-ability remedial classes were excluded from the sample.

The Australian (Perth) sample of students (N=837) was drawn from one state high school in each of three separate suburbs. As with the Sydney sample, schools were coeducational, comprehensive, and represented a broad range of socioeconomic backgrounds. Classes were selected from all secondary levels, Year 8 through Year 12.

The English (Midlands) sample of students (N=2125) was drawn from six medium to large coeducational, comprehensive government high schools, and from Year 12 in one senior (sixth form) college. The schools, with students of predominantly middle socioeconomic status, were located in three Midlands counties. In two of the schools the number of Asian/Afro-Caribbean students reached 10%.

The American (Minneapolis) sample of students (N = 570) was drawn from a junior high school (Years 7-9) and a senior high school (Years 10-12) in each of two suburban school districts. Classes were selected to give a representative, though not random, sample, and remedial classes were excluded. Children from recognised minority groups did not form a large proportion of the school enrolments. Socioeconomic conditions in the feeder neighbourhoods varied considerably as judged by the school by school figures for students' entitlement to the free school lunch program.

INSTRUMENT

Preferences for cooperative, competitive, and individualised learning modes were obtained by means of the Learning Preference Scale -Students (Barnes, Owens, and Straton, 1978; Owens and Straton, 1980). There are 36 items, brief statements about a feature of learning by cooperating with others, by competing with others, or by working alone. Items referring to each of these learning modes are content-matched in 11 groups, and one additional group contains unmatched items. Each content group, therefore, contains three matched cooperative, competitive, and individualised items, and each preference subscale in the LPSS, therefore, is composed of 12 items. Students respond to each item by indicating how "true" or how "false" the statement is for them,

A four-point answer scale is used, and numerical values are assigned to the answers on a 4-3-2-1 basis, with 4 representing the strongest preference. Three of the 12 items in each subscale are expressed in negative phrasing, and the scoring is reversed for these items. Three main subscale scores (minimum 12, maximum 48) are calculated for each student, indicating strength of preference for Cooperative, Competitive, and Individualised learning situations. In addition, two involvement indices are calculated. Combined Involvement is obtained by adding the Cooperative and Competitive subscale scores; this score indicates desire for contact with others during the learning processes. Cooperative Involvement is obtained by subtracting the Competitive subscale score from the Cooperative score; this score indicates the relative strength of the cooperative preference within the general desire for contact with others in learning.

The version of the LPSS used in England was identical to the Australian edition. The version used in Minneapolis was an "American Revision" in which six one-word alterations were made (e.g., "grades" substituted for "marks" in reference to assessment). These changes were minor matters of idiom rather than major ones of substance. A complete handbook including the LPSS and its two companion scales for teachers and parents will soon be available (Owens and Barnes, in press). Data from both England and the United States are included.

PROCEDURE

The student data were gathered in Sydney and in Perth personally by the author and his associates in the research team. This testing was carried out in Term 1 of the school year as part of a much larger research program that required repeated visits to the schools during the year. In England, the testing was done both by the researcher and by cooperating school staff who had been briefed on the procedure. This testing occurred late in the school year with no further visits projected. In Minneapolis the data were gathered directly by the researcher visiting schools in the middle of the school year. Similar instructions were given in each testing location. The Australian data were gathered ten years ago and the English data in 1991.

RESULTS

A two-way analysis of variance was carried out for each of the five LPSS scores with the four batches of data. The independent variables were Sex (2) and Year in School (6 - England, Sydney, Minneapolis; 5 - Perth). The breakdown of mean scores and standard deviations is presented in Table 1. The main and interaction effects from the analyses of variance in the four separate locations are presented in Table 2.

Table 1	Table 2

Sex differences in preference for cooperative learning were consistent in three of the four locations. Girls expressed a significantly greater preference for cooperation than boys except in the Minneapolis sample, where there was no difference. Sex differences in preference for competitive learning were consistent and highly significant in all four locations. Boys expressed a much greater preference for competition than girls. Similar sex differences in preference for individualised learning were found in three locations as well. Boys generally expressed a greater preference for individualisation than girls, though in Sydney schools this did not reach statistical significance.

Year differences were most marked in the English Midlands sample. Preference for cooperation declined overall with advancing years in Midlands secondary schools, and preferences for competition and individualisation both increased overall with advancing years. In contrast to the English Midlands, preference for cooperation increased in Perth, and weakly in Minneapolis. Preference for individualisation declined in both Perth and (significantly, though weakly) in Sydney. Preference for competition increased weakly in Sydney. Year differences were noticeably absent from the Minneapolis findings, with only preference for cooperation registering a weak increase with advancing school years.

Display of the learning preference scores in Figures 1, 2, and 3 shows the year and sex trends clearly and enables some analysis of Year x Sex differences. The consistency in preference by girls for cooperative learning, and by boys for competitive and individualised learning is unmistakable in all four samples.

Sex differences in preference for cooperation in Perth schools are greatest in the early years and narrow steadily with increasing age. The opposite seems true in English Midlands schools, with the greatest sex differences in the senior years. In Sydney, the large sex differences in Years 9, 10, and 12 result in a statistically significant interaction. Girls in Sydney and English Midlands show an apparently similar decline in preference for cooperation from Year 9 to Year 11, parallelled by the boys in England as well. In contrast, both boys and girls in the Minneapolis sample show a steady increase in cooperative preference between Year 8 and Year 11.

Of all groups, girls in Sydney seemingly report a markedly increased preference for competition between Years 9 and 11, though this is contradicted by a longitudinal study (Owens, 1984) and may be a result of cross-sectional sampling. In Perth, the sex difference in competitive preference is greatest in Year 11 and least in the first and last years of secondary school, which appears as a statistically significant interaction. The sex difference in the Minneapolis sample appears greater in the senior high schools (especially Years 10 and 11) than in the junior high schools (especially Years 8 and 9). Girls in English Midlands schools display a very low preference for competitive learning, and boys in Sydney schools display a very high preference.

Preferences for individualisation show a marked drop from Year 11 to Year 12 in both English Midlands and Perth. In Minneapolis, however, there is a marked increase in the final year of schooling, paralleled, though not so strongly, in Sydney.

One-way analyses of variance were carried out on the three main LPSS subscale scores with the Australian, English, and American data combined. The independent variable was Location of Testing (4), and the results are presented in Table 3.

Table 3

No Location differences are detectable in preference for cooperative learning among the samples of students from Sydney, Perth, Minneapolis, and the English Midlands. With competitive learning preference, however, students in the English Midlands and Minneapolis have significantly lower scores than students in Perth, who in turn have significantly lower scores than students in Sydney. With individualised learning preference, students in the English Midlands and Minneapolis have significantly lower scores than students in Perth and Sydney, who also do not differ from each other (Table 4).

Table 4. Comparisons of the Learning Mode Preferences of Secondary Students in Sydney, Perth, English Midlands and Minneapolis Using a Oneway ANOVA with the Scheffe Procedure (alpha=.05).

LPSS Subscale Score	Higher Mean	Differs significantly from	Lower Mean
Cooperative Learning Preference	No significant Differences		
Competitive Learning Preference	Sydney	<---------->	Perth
	Perth	<---------->	English Midlands Minneapolis
Individualised Learning Preference	Perth Sydney	<---------->	English Midlands Minneapolis

Overall, then, Australian schoolchildren, as represented by samples drawn from secondary schools in Sydney and Perth, seem more consistently competitively and individualistically inclined in their preferences for learning mode than English schoolchildren drawn from secondary schools in Midlands counties and American schoolchildren drawn from secondary schools in Minneapolis.

DISCUSSION

There is some public debate occurring both in Australia and England about the appropriateness of cooperation, competition, and individualism in education in two general areas. The first domain of concern is the ideological one with issues about gender, social class, and priority of goals. For example, the criticism is increasingly being voiced that schooling, especially secondary schooling, seems peculiarly suited to males with its traditional emphasis on individualistic effort and competitive assessment. The "competitive-individualistic ethos" of traditional schooling in Australia resists the introduction of cooperation, either as a process or as a goal, and girls may be particularly disadvantaged as a result (Owens, 1985a; Owens, 1983a; Pratt, 1987). As well, children from a working class background, in which it has been noted that cooperativeness is a core value (Connell, Ashenden, Kessler, and Dowsett, 1982), may be unsuited to procedures of schooling that rely heavily on competition. A recent group of American visitors to England linked the prevalence of class consciousness with an over-reliance on "child-centred individualism" and an absence of competitiveness in the urban schools which they toured (TES, 10/5/91 and 17/5/91). By inference, it was being said that children must be taught to strive to do well and to accept comparisons between their schoolwork and that of others. This raises the matter of goals for schooling (who decides, for example, that children must be taught to strive and accept comparisons; what is the justification for calling this part of "healthy growing"; what options for classroom practices and procedures might thereby be neglected?). Subgroups with special interests in society contest with each other for influence in the process of forming a consensus about priorities for schooling. Political impact is calculated. Teachers, parents, students, academics, employers, professional associations, industry lobby groups, and social-political "think tanks" all play a part. A number of Australian surveys of goals and priorities in the area of cooperation, competition, and individualisation have been

analysed by Owens (1985a), with the conclusion that the resolution to the disagreement is not concerned with the exclusiveness of one of these but with their combination and balance in the curriculum. Meanwhile the debate in Australian public opinion about priorities in education widens in scope (Sinclair, 1991).

The second domain of concern is the procedural one with issues about practicality of activities, ease of implementation, and achievement of worthwhile outcomes. For many years educational literature has been unbalanced, full of explicit advice about what ought to be done in the classroom to individualise learning and about how to devise tests to measure achievement, and with a notable absence of information to guide learning-in-collaboration. The implicit message for teachers and learners has been to separate learners, to package learning to facilitate individual progress, to maintain quiet regimentation, to reward and encourage achievers, and to counsel those who cannot achieve under these rules to leave school. How-to-do-it manuals for classroom individualisation and competition abound, but until recently those attempting to implement small-group cooperative learning have been poorly supplied with resources. The past ten years have seen a dramatic change, however, which originated in North America. The initial enthusiasm of David and Roger Johnson stimulated a flood of research into the issue of outcomes of cooperative learning, and the evidence now seems quite clear that subject matter achievement, social behaviour, and personal growth all benefit (Johnson and Johnson, 1989; Slavin, 1983). Vagueness in advice about classroom procedures ("sit them in groups so they can talk with each other and test them at the end of the week") has been replaced with a bookshelf of practical publications detailing methods and units of work. Of particular interest in Australia are the books by Reid, Forrestal and Cook (1989), Dalton (1985), and the Hills (1990), along with the series for English teachers by Forrestal and Reid (1983-1986). In England the work of Cowie and Ruddock is receiving wide attention (1988-1990). On a global scale, a network of cooperative researchers and teachers has been established as the International Association for the Study of Cooperation in Education (IASCE). The journal, Cooperative Learning is unfailingly lively, informative, and free of jargon. A regional association of IASCE has recently been established as the Australian Association for Cooperative Education. It would seem that this professional special interest group may be a new player in the public debate about cooperative alternatives to the competitive-individualistic tradition that weighs so heavily in Australian educational practice.

ACKNOWLEDGEMENTS

Jennifer Barnes was the hard-working Research Assistant for the Cooperative, Competitive, and Individualised Learning in Education Project in Sydney, and Ralph Straton capably supervised the data gathering in Perth. Sincere appreciation is expressed to the New South Wales Department of Education and the Western Australia Department of Education for permission to approach schools, and to the Principals who agreed to help. This gratefulness is extended warmly to the Headmasters of schools in Nottinghamshire, Lincolnshire, and Derbyshire who responded so enthusiastically to my requests for assistance, as did the Principals of schools in the Hopkins and Robbinsdale School Districts in Minneapolis. My enduring debt to David and Roger Johnson is plain, as friends, as sources of academic inspiration, and as facilitative hosts in the University of Minnesota. Finally, the friendly staff of the School of Education in the University of Nottingham made life comfortable for me as a Visiting Scholar in an unfamiliar land.

BIBLIOGRAPHY

Barnes, J., Owens, L., and Straton, R.(1978). Learning Preference Scale -Students, Form C. University of Sydney, Department of Education. (previous versions Forms A - B, 1977).

Connell, R., Ashenden, D., Kessler, S., and Dowsett, G. (1982). Making the difference. Sydney: Allen and Unwin.

Cowie, H. and Ruddock, J. (1988-1990). Learning together - working together, 4 volumes. London: British Petroleum Education.

Dalton, J. (1985). Adventures in thinking: Creative thinking and cooperative groups. Melbourne: Thomas Nelson.

Dutton, G. (1987). Cooperation, competition, and individualization: A classroom-physical education comparison of student learning preference. Unpublished B. Ed. (Human Movement Education) Honours Thesis, University of Sydney, School of Teaching and Curriculum Studies.

Forrestal, P. and Reid, J. (1983-1986). The English workshop series, 4 volumes. Melbourne: Thomas Nelson.

Hill, S. and Hill, T. (1990). The collaborative classroom. South Yarra, Victoria: Eleanor Curtain Publishing.

Johnson, D. and Ahlgren, A. (1976). Relationship between students' attitudes about cooperation and competition and attitudes toward schooling. Journal of Educational Psychology, 68, 92-102.

Johnson, D. and Johnson, R. (1989). Cooperation and competition: Theory and research. Edina, Minnesota: Interaction Book Company.

Johnson, D. and Norem-Hebeisen, A. (1979). A measure of cooperative, competitive, and individualistic attitudes. Journal of Social Psychology, 109, 253-261.

Johnson, D., Johnson, R., and Anderson, D. (1978). Relationships between student cooperative, competitive, and individualistic attitudes toward schooling. Journal of Psychology, 114, 135-142.

Newbery, L. (1979). A cross-cultural study of preferences for cooperative, competitive, and individualized learning modes, with special reference to Australian aborigines. Unpublished B.A. Honours Thesis, University of Sydney, Department of Education.

Owens, L. (1983a). With others, against others, and on your own: The learning preferences of teachers. Journal of Education for Teaching, 9, 131-49.

Owens, L. (1983b). Learning mode preferences and perceptions of classroom atmosphere by primary students in Sydney and Perth. Paper presented at the Annual Conference of the South Pacific Association for Teacher Education, Brisbane.

Owens, L. (1984). Cooperation, competition, and individualization: A longitudinal study of the learning preferences of Australian primary and secondary school students. In Leong Yin Ching, Chiam Heng Keng, and Lily Chew Suk Men (Eds.), Proceedings of the Third Asian Workshop on Child and Adolescent Development, Preparation for Adulthood (pp. 182-200). Kuala Lumpur: Faculty of Education, University of Malaya.

Owens, L. (1985a). The learning preferences of students and teachers: An Australian-American comparison. Teaching and Teacher Education, 1, 229-41.

Owens, L. (1985b). The stability of cooperative, competitive, and individualized learning preferences of students during a single school year. Paper presented at the Annual Conference of the Australian Association for Research in Education, Hobart.

Owens, L. and Barnes, J. (in press). Learning Preference Scales - Student, Teacher, Parent. A Test Package with Scales and Technical Manual. Melbourne: Australian Council for Educational Research.

Owens, L. and Barnes, J. (1982). The relationships between cooperative, competitive, and individualized learning preferences and students' perceptions of classroom learning atmosphere. American Educational Research Journal, 19, 182-200.

Owens, L. and Dutton, G. (1987). Learning Preference Scale -Physical Education. University of Sydney, School of Teaching and Curriculum Studies.

Owens, L. and Straton, R. (1980). The development of a cooperative, competitive, and individualized learning preference scale for students. British Journal of Educational Psychology, 50, 147-63.

Pratt, D. (1987). Curriculum design as humanistic methodology. Journal of Curriculum Studies, 19, 149-162.

Reid, J., Forrestal, P., and Cook, J. (1989). Small group learning in the classroom. Scarborough, Western Australia: Chalkface Press.

Sinclair, K. (1991). Aiming higher: The concerns and attitudes of leading business executives and university heads to education priorities in Australia in the 1990s. Camberwell, Victoria: Business/Higher Education Round Table.

Slavin, R. (1983). Cooperative learning. New York: Longman.

Times Educational Supplement, "UK takes class for granted" (10/5/91), "US teachers 'saddened' by UK trip" (17/5/91).

Wegener, C. (1986). Learning preferences of Aboriginal students in a NSW country high school. Unpublished research report, University of Sydney, School of Teaching and Curriculum Studies.

Table 1. Mean Scores and Standard Deviations for the Cooperative, Competitive, and Individualised Subscales and Indices (LPSS)

Group	n	Cooperation Mean	Cooperation SD	Competition Mean	Competition SD	Individualisation Mean	Individualisation SD	Cooperative Involvement Mean	Cooperative Involvement SD	Combined Involvement Mean	Combined Involvement SD
Australia: Sydney	**N = 1249**										
Sex											
Male	598	36.4	5.3	37.6	5.4	34.4	5.3	-1.2	7.4	74.0	7.8
Female	650	37.8	5.2	35.5	5.6	33.9	5.5	2.3	7.6	73.3	7.6
Year											
7	252	36.9	5.6	36.2	5.5	34.8	5.7	0.7	7.4	73.1	8.2
9	249	37.3	5.4	35.8	5.8	33.9	5.5	1.5	8.2	73.1	7.6
10	253	37.4	4.9	36.5	5.4	34.6	5.0	0.9	7.5	73.9	7.1
11	227	36.8	5.5	37.2	4.9	33.4	5.4	-0.4	7.4	74.0	7.2
12	268	37.2	5.2	36.9	6.1	34.0	5.3	0.3	7.8	74.1	8.2
Australia: Perth	**N = 837**										
Sex											
Male	400	36.5	5.3	35.9	5.4	35.0	5.2	0.6	7.8	72.4	7.3
Female	437	37.7	5.1	34.7	5.6	33.9	5.7	3.0	7.9	72.4	7.3
Year											
8	165	36.4	5.6	34.9	5.7	35.9	5.7	1.5	8.3	71.4	7.5
9	168	37.7	4.8	35.3	5.0	33.8	5.7	2.3	7.3	73.0	6.7
10	172	36.5	5.4	35.9	5.5	35.1	5.4	0.5	8.1	72.3	7.3
11	149	36.8	5.6	35.6	6.0	34.9	5.2	1.2	8.5	72.4	7.9
12	183	38.1	4.8	34.6	5.5	32.8	5.1	3.4	7.5	72.7	7.1
England: Midlands	**N = 2125**										
Sex											
Male	1035	37.0	4.7	35.3	5.5	33.9	5.9	1.7	7.3	72.3	7.1
Female	1075	37.7	4.1	32.2	5.5	32.5	5.4	5.5	7.1	69.9	6.7
Year											
7	348	38.1	4.5	32.4	5.8	33.0	6.4	5.7	7.6	70.5	7.0
8	393	37.8	4.6	33.4	5.7	32.4	5.9	4.4	7.0	71.2	7.5
9	489	37.9	4.4	34.1	5.5	32.8	5.7	3.8	7.4	72.0	6.6
10	559	37.0	4.3	34.2	5.7	33.8	5.3	2.8	7.3	71.2	7.0
11	179	35.8	4.3	34.4	5.7	34.6	5.1	1.4	7.2	70.2	7.1
12	155	36.2	4.3	33.6	5.9	32.5	5.1	2.6	7.7	69.8	6.8
USA: Minneapolis	**N = 570**										
Sex											
Male	274	37.0	4.5	35.1	5.2	33.8	5.1	1.9	6.4	72.1	7.4
Female	296	37.7	4.4	33.2	5.8	32.5	6.0	4.4	7.4	70.9	7.2
Year											
7	107	37.2	4.7	33.2	5.2	32.6	6.0	3.9	7.2	70.3	6.9
8	103	36.4	4.6	33.8	5.1	33.4	5.9	2.6	6.5	70.2	7.3
9	88	37.4	4.4	34.2	6.0	33.4	5.7	3.2	7.3	71.6	7.7
10	88	37.3	4.2	35.3	6.0	32.6	5.4	2.0	7.1	72.6	7.6
11	99	38.7	3.9	34.3	5.6	32.3	5.1	4.4	6.9	73.0	6.8
12	85	37.2	4.7	34.3	5.8	34.4	5.6	2.9	7.2	71.5	7.7

Table 2. School Year x Sex of Student Analyses of Variance of the Cooperative, Competitive, and Individualised Subscale Scores and Indices (LPSS)

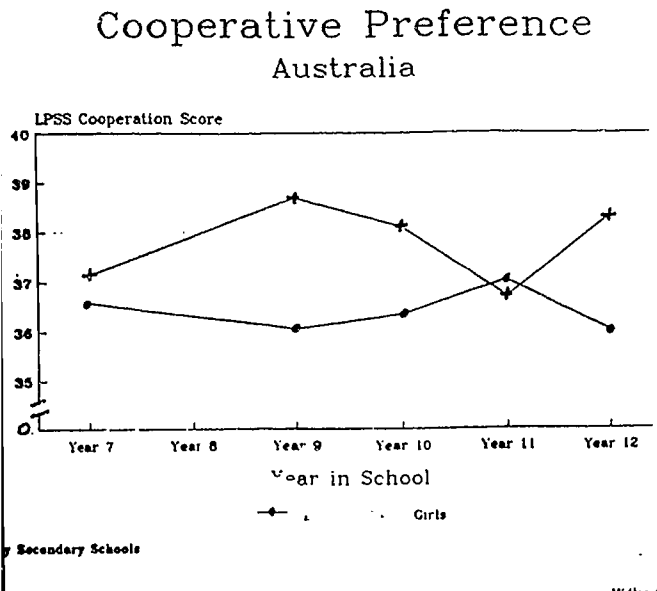
Source of Variance	df	Cooperation MS	Cooperation F	Competition MS	Competition F	Individualisation MS	Individualisation F	Cooperative Involvement MS	Cooperative Involvement F	Combined Involvement MS	Combined Involvement F
Australia: Sydney		N = 1249									
Year	4	12	<1	84	2.8*	73.3	2.5*	122	2.2	70.3	1.2
Sex	1	611	22.1***	1346	45.3***	97.9	3.3	3769	68.2***	143	2.4
Year x Sex	4	90	3.3**	53	1.8	5.6	<1	257	4.6***	30	<1
Australia: Perth		N = 837									
Year	4	90	3.3**	39.3	1.3	256	8.8***	194	3.2*	64.4	1.2
Sex	1	296	10.9***	308	10.3***	214	7.4**	1207	19.7***	0.1	<1
Year x Sex	4	13	<1	74.6	2.5*	55.6	1.9	72.2	1.2	103	1.9
England: Midlands		N = 2125									
Year	5	217	11.3***	155	5.2***	190	6***	587	11.6***	156	3.3**
Sex	1	250	13***	4662	156***	1043	33***	7069	140***	2754	57.8***
Year x Sex	5	30	1.6	29.9	<1	29.4	<1	39	<1	80.9	7.7***
USA: Minneapolis		N = 570									
Year	5	55.2	2.8*	41.2	1.3	48.4	1.5	59.9	1.2	133	2.5*
Sex	1	46.6	2.4	503	16.3***	209	6.7**	856	17.8***	244	4.6*
Year x Sex	5	12.5	<1	34.9	1.1	18.8	<1	44.4	<1	50.3	<1

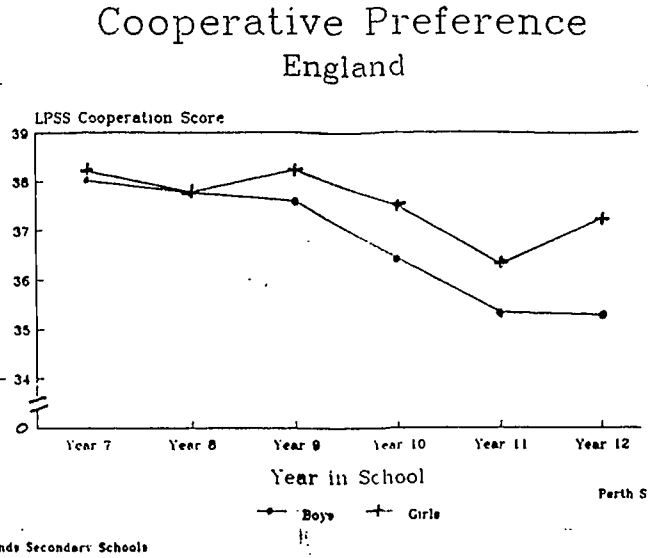
* p < .05
** p < .01
*** p < .001

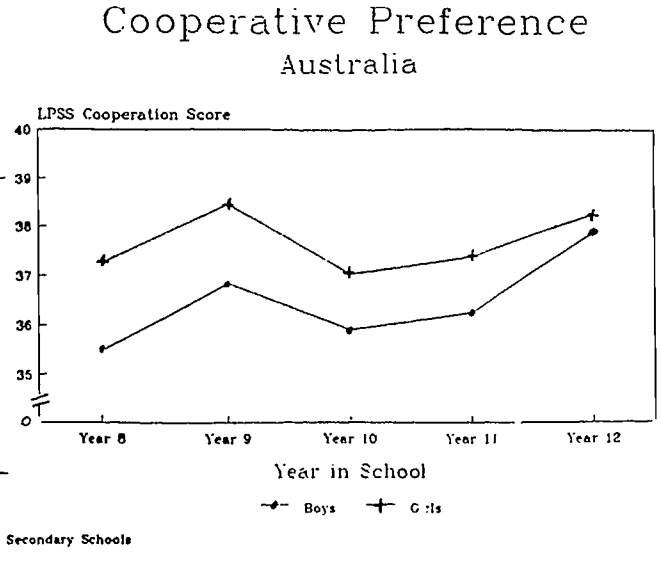
Table 3. Analysis of Variance by Testing Location of the Cooperative, Competitive, and Individualised Subscale Scores (LPSS).

Source of Variance	df	Cooperation MS	Cooperation F	Competition MS	Competition F	Individualisation MS	Individualisation F
Testing Location: Sydney, Perth, English Midlands Counties, Minneapolis		N = 4781					
Location	3	23.3	1.0	2148	67.9***	504	16.1***

* p < .05
** p < .01
*** p < .001







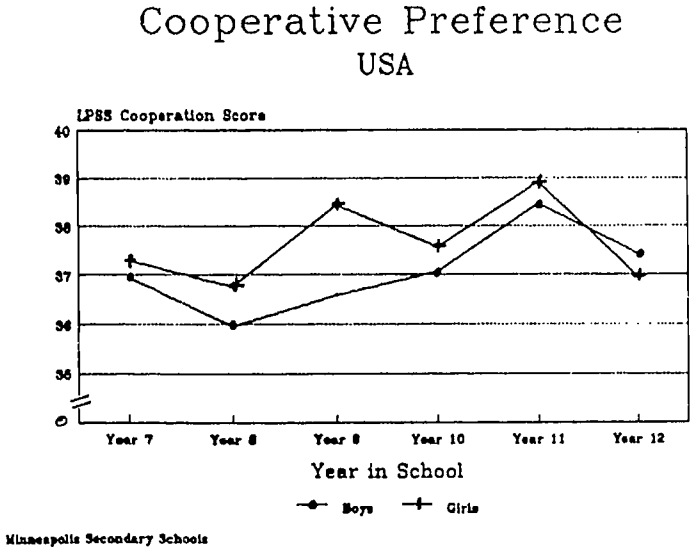
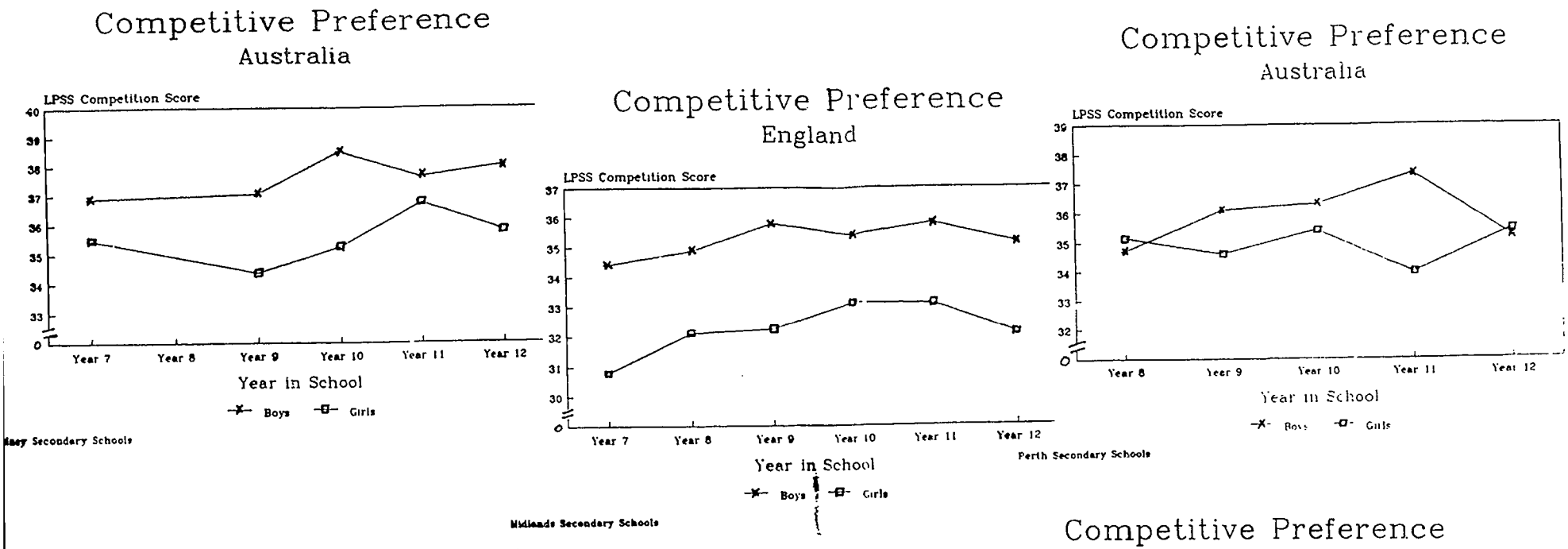


Figure 1. Cooperative learning preference scores for secondary school students: Australia (Sydney, Perth), England (Midlands), and USA (Minneapolis).



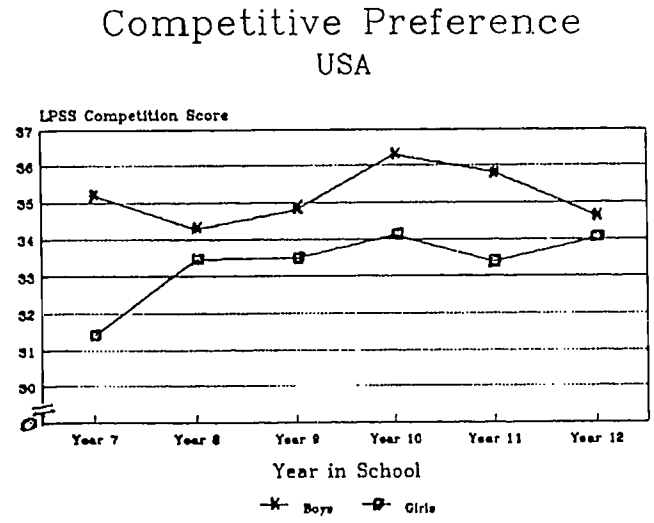
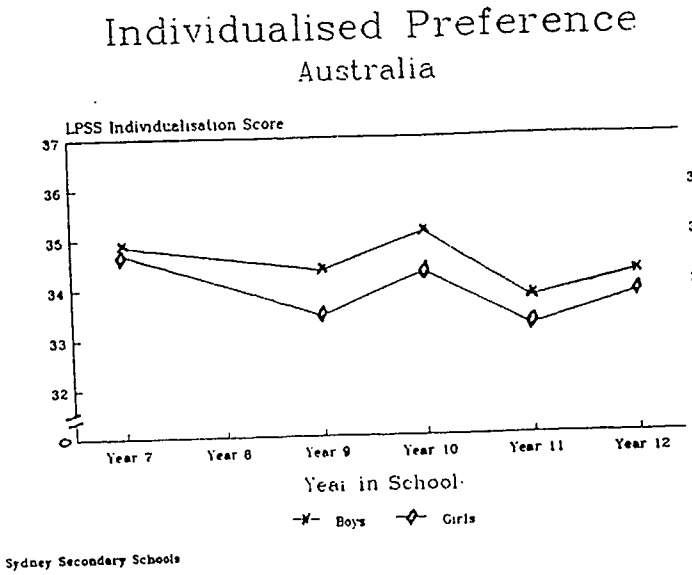
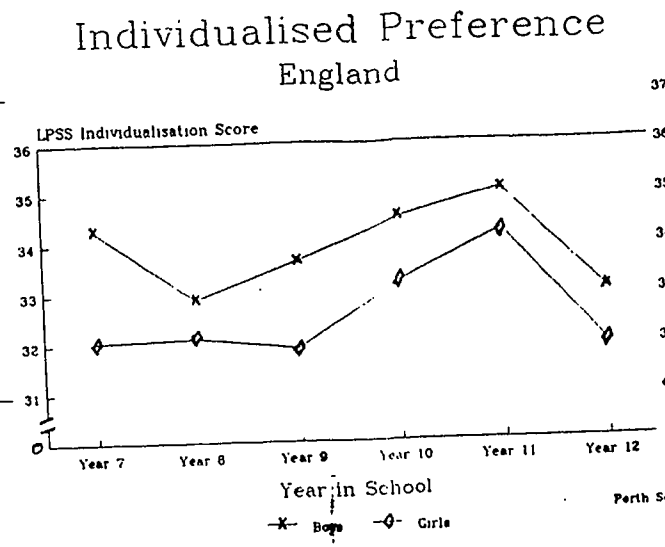
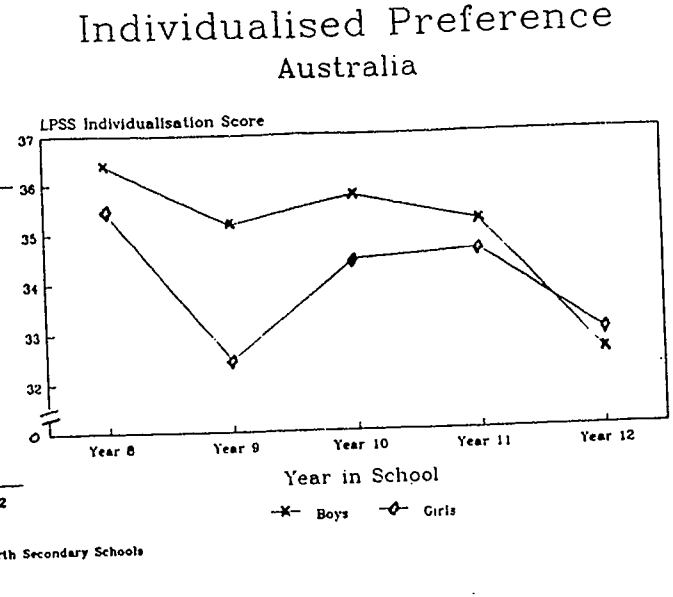


Figure 2. Competitive learning preference scores for secondary school students: Australia (Sydney, Perth), England (Midlands), and USA (Minneapolis).







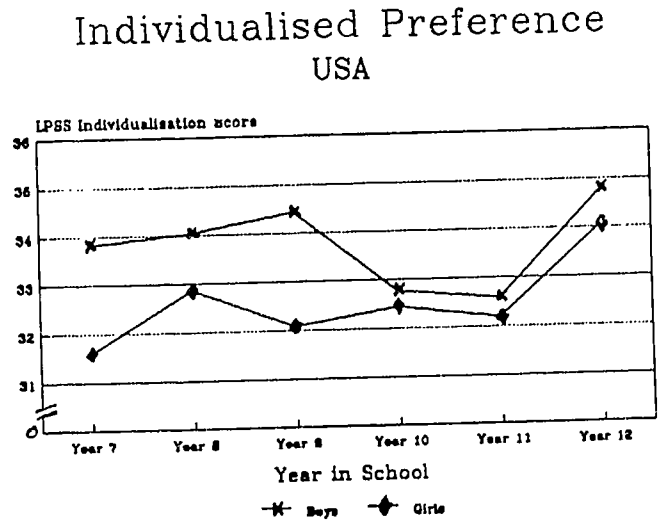


Figure 3. Individualised learning preference scores for secondary school students: Australia (Sydney, Perth), England (Midlands), and USA (Minneapolis).