

An International Comparison of the Cooperative, Competitive, and Individualized Learning Preferences of Students and Teachers: Australia (Sydney) and the United States (Minneapolis)

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Abstract

The Learning Preference Scale-Students and the Learning Preference Scale-Teachers have been administered to large samples from Sydney schools (N = 1814, 619 respectively). With corresponding American versions, a large sample of students and teachers was tested in Minneapolis schools (N=1059, 342 respectively). Data were analyzed first in separate batches by country, and then combined with Country as a variable. School Year and Sex findings are discussed for students. Teaching Subject, Sex, and Years of Teaching Experience findings are discussed for teachers. International similarities and differences emphasize that care should be taken in employing American texts and research evidence relating to the social psychology of teaching and learning, in which assumptions and expectations are subsumed which may differ from our own.

There are numerous aspects of education in Australia in which policy-makers and researchers look to the United States for current social trends, for practical innovations, and occasionally for legislation and policies to be avoided because of obvious disastrous consequences resulting from the American experience. The assumption that is frequently made is that there are more similarities than there are differences between the two cultures. One noticeable outcome is that American publishers dominate the Australian market for education texts, especially in the social sciences, particularly educational psychology and the sociology of education. Such American texts are far less parochial than they were a decade or two ago, but nonetheless they are written by persons functioning within a culture infused with pervasive and unique customs and beliefs. It is inescapable that such persons acknowledge these beliefs and that their writing embodies them at some level, either consciously and explicitly or sub-consciously in subtle ways.

An area in which Australian and American schools are frequently analyzed is the social psychology of total school functioning and of specific classroom learning. An important component of this analysis recently has been the desirability and the usefulness of cooperative, competitive, and individualized learning modes. American educational psychologists certainly do not speak with a common voice, yet there are fashions in points-of-view which seem to prevail for periods of years and which become part of textbook advice to teachers and administrators. As an example, we have only to recall the recommendations for competitive identification of excellence that accompanied the re-assessment of U.S. schooling in the 1950's, and subsequently stress on individualized learning schemes in the 1960's and early 1970's. The hazard for Australian users of American texts and social analyses lies in the assumption that our two cultures share similar foundational beliefs, and that our teachers, students and schools are ready to adopt similar practices based on these beliefs at a common time.

The study described in this paper is an attempt to document similarities and differences in the preferences of students and teachers in both cultures for cooperative, competitive, and individualized learning modes. Samples are drawn from schools in two urban centres of similar size and complexity, Sydney and Minneapolis. The intent is to display some aspects of the Australian cultural ethos which may make it easy or difficult to introduce classroom practices recommended from overseas.

METHOD

Instruments

Preferences for cooperative, competitive, and individualized learning modes were obtained by means of the Learning Preference Scale - Students (LPSS) and the Learning Preference Scale - Teachers (LPST). Developmental work on an early version of the LPSS (Form B) has demonstrated factorial validity, internal consistency, and test-retest stability (Owens & Straton, 1980). In the current version of the LPSS (Form C), there are 36 items, brief statements about a feature of learning by cooperating with others, by competing with others, or by working alone (Barnes, Owens, Straton, 1978). 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 3 matched 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 4-point answer scale is used, with the response categories "completely true", "more

true than false", "more false than true", and "completely false". Three of the 12 items in each subscale are expressed in negative phrasing to counteract an acquiescence effect. Numerical values are assigned to the answers on a 4-3-2-1 basis, with 4 representing the strongest preference. Three main preference subscale scores (min. 12, max. 48) are calculated for each student, indicating strength of preference for cooperative, competitive, and individualized learning situations. In addition, two involvement indices are calculated. Combined Involvement is obtained by adding the cooperative and competitive subscale scores; this is an indication of desire for contact with others during the learning processes. Cooperative Involvement is obtained by subtracting the competitive subscale score from the cooperative score; this is an indication of the relative strength of the cooperative preference within the general desire for contact with others in learning.

The LPST was developed in a parallel fashion as an instrument to obtain preferences of teachers for cooperative, competitive, and individualized learning (Owens, Barnes, Straton, 1978). Factorial validity and internal consistency have been demonstrated (Owens, 1982). There are 33 items, arranged as for the LPSS. Scoring is identical, with three subscale scores and two involvement indices being calculated.

An "American Revision" of both scales was prepared in order to carry out testing in that country. Very few changes were required in the revision process. The LPSS received six one-word alterations (e.g., "grades" substituted for "marks" in reference to assessment). The LPST received only three such alterations. Thus, it is possible to state that the forms of the scales used in the two countries varied only marginally, and in idiom rather than substance.

Sample

The Australian sample of students for this study was drawn from one state high school and a neighbouring primary school selected from each of four separate suburbs in the western metropolitan area of Sydney. All schools were coeducational and comprehensive, and the group provided a population with a broadly representative socioeconomic background and with a relatively low non-English-speaking migrant population. In all, 1814 students responded to the LPSS_{at} grade levels ranging from Year 5 to Year 12. In the smaller primary schools, all students in a year were tested; in the larger high schools classes were selected in each year, and low ability remedial classes were avoided.

The American sample of students for this study was drawn mainly from two school districts in suburban Minneapolis, a major city in the Midwest of the United States. An elementary school (1-6), a junior high school (7-9), and a senior high school (10-12) were chosen from each district, and one additional elementary school were added to the group. Classes were selected at each grade level from Year 4 to Year 12 to give a representative sample of students, though not random, and remedial classes were avoided. Children from recognized "minority groups" did not form a large proportion of the school enrolments. The schools were situated in a wide range of socioeconomic areas, with children entitled to the "free school lunch program" ranging from 10/600 in one primary school to 167/700 in another. In all, 1059 students were tested. The breakdown of mean scores and standard deviations on the LPSS sub-scales for both the Sydney and Minneapolis samples is presented in Table 1.

The Australian sample of teachers was drawn from 30 schools in the Sydney area which differed from the student sample schools. Two in-service courses were added to the group.

A total of 619 teachers completed the LPST, three-quarters of whom were secondary teachers. Although a balanced sample of schools (Government and Catholic, single sex and coeducational) was selected, data were collected only from staff who voluntarily completed the scale. In some schools, the entire staff participated; in other schools, fewer than half returned forms. The staff group from the primary schools was predominantly female, while from the secondary schools there were more males than females. In general, both the primary and the secondary teachers were well-experienced, which is characteristic of the total population of teachers. From the secondary schools, the majority were teachers of the humanities (predominantly English and History), science and mathematics, and social science subjects. From the primary schools, there were more teachers of the primary grades, there were more teachers of the primary grades (3-6)

Table 1

Mean Scores and Standard Deviations for the Cooperative, Competitive, and Individualized Sub-Scales and Indices (LPSS) for the Sydney and Minneapolis Student Samples

Group	Cooperation			Competition		Individualization		Cooperative Involvement		Combined Involvement	
	N	\bar{X}	SD	\bar{X}	SD	\bar{X}	SD	\bar{X}	SD	\bar{X}	SD
Sydney^a											
Sex											
Male	873	35.9	5.7	36.8	5.6	34.8	5.6	-0.9	7.8	72.8	8.3
Female	922	37.6	5.4	35.2	5.8	34.2	5.7	2.4	8.0	72.9	7.8
Year											
5	278	35.1	6.7	34.7	5.9	35.7	6.3	0.4	9.1	69.8	8.8
6	267	37.0	5.5	35.1	6.0	34.8	5.9	1.9	8.3	72.2	8.0
7	252	36.9	5.6	36.2	5.5	34.8	5.7	0.7	7.4	73.1	8.2
9	250	37.3	5.4	35.8	5.8	33.9	5.5	1.5	8.2	73.1	7.6
10	252	37.4	4.9	36.4	5.4	34.6	5.0	1.0	7.5	73.9	7.1
11	226	36.8	5.5	37.2	4.8	33.5	5.5	-0.4	7.4	74.0	7.2
12	269	37.2	5.2	36.9	6.0	34.0	5.3	0.3	7.8	74.1	8.2
Minneapolis^b											
Sex											
Male	533	38.0	5.2	34.4	5.5	34.2	5.5	3.6	7.4	72.4	7.7
Female	525	38.7	5.0	32.8	5.6	33.2	6.2	6.0	7.9	71.4	7.2
Year											
4	91	39.2	5.7	31.5	5.3	35.5	5.9	7.7	8.0	70.7	7.6
5	221	37.4	5.4	33.2	5.4	34.7	6.0	4.2	7.9	70.6	7.3
6	175	39.0	4.9	33.1	5.8	33.7	6.2	5.9	8.4	72.1	6.8
7	108	38.1	5.1	33.3	5.2	32.6	6.0	4.8	7.5	71.4	7.1
8	103	37.4	5.1	33.8	5.1	33.3	5.9	3.6	6.9	71.3	7.5
9	89	38.4	4.9	34.2	6.0	33.4	5.7	4.2	7.7	72.6	7.9
10	88	38.7	4.9	35.3	6.0	32.6	5.4	3.4	7.5	74.0	8.1
11	99	39.5	4.3	34.3	5.6	32.3	5.1	5.2	7.1	73.8	7.0
12	85	37.9	5.1	34.3	5.8	34.3	5.6	3.6	7.1	72.2	8.2

^aSeveral students in the sample of 1814 did not return complete data and 16 Year 4 students are not included in this breakdown.

^bOne student in the sample of 1059 did not return complete data.

than of the infant grades (1-2).

The American sample of teachers was drawn from the same seven schools as the students, with an additional elementary school from each district and one in-service course added. All schools were public and coeducational; staff participation was voluntary. Elementary staff were predominantly female, while the majority of secondary staff was male. In general, these were highly experienced teachers. The range of teaching subjects was very similar to the Australian sample. The breakdown of mean scores and standard deviations on the LPST sub-scales for both the Sydney and Minneapolis samples is presented in Table 2.

Procedure

The student data were gathered personally by the author both in Sydney schools and in Minneapolis schools. Testing in Sydney was carried out in Term I of the school year as part of a much larger research program that required repeated visits to the schools later in the year. In Minneapolis, the testing occurred late in the first semester, with no further visits fore-shadowed. Similar instructions were given in both cases, although those used in the American schools were somewhat less detailed.

The teacher data in Sydney were gathered over the period of a full school year by the author with major assistance from collaborating teachers in a number of schools. In Minneapolis, the data were gathered at the same time as the student data as a result of direct personal appeal to the staff, backed up by administrative reminders. As a result of getting incomplete data on teaching experience from the Sydney sample by asking for a simple indication of > or < 3 years, the American teachers were asked for the actual number of years of teaching on the scale (1 10, more than 10).

RESULTS

Students (Separate Analyses)

A two-way analysis of variance was carried out for each of the five LPSS scores with the Sydney data and the Minneapolis data. The independent variables were Sex(2) and Year(7-S,9-M).

Table 2
Mean Scores and Standard Deviations for the Cooperative, Competitive, and Individualized Sub-Scales and Indices (LPST)
for the Sydney and Minneapolis Teacher Samples

Group	Cooperation			Competition		Individualiza- tion		Cooperative Involvement		Combined Involvement	
	N	\bar{X}	SD	\bar{X}	SD	\bar{X}	SD	\bar{X}	SD	\bar{X}	SD
Sydney^a											
Sex											
Male	281	32.1	4.5	29.3	5.7	26.7	3.9	2.8	7.6	61.4	6.9
Female	335	33.8	4.4	26.3	5.3	27.3	3.7	7.5	7.7	60.1	6.0
Experience											
< 3 years	127	33.0	4.1	28.2	5.2	27.2	4.0	4.8	7.1	61.3	6.1
> 3 years	490	33.0	4.5	27.6	5.6	27.0	3.8	5.4	7.8	60.6	6.5
Subject or Level											
Infants	64	35.9	3.8	25.5	4.6	28.4	4.3	10.4	6.1	61.3	5.8
Primary	85	34.7	3.7	27.1	5.5	27.3	3.8	7.6	7.1	61.7	6.2
Humanities	186	32.5	4.1	26.5	5.5	27.2	3.6	5.9	7.5	59.0	6.1
Social Science	98	32.8	4.5	28.8	5.1	26.9	3.8	4.0	7.7	61.6	5.9
Science/Maths	132	31.5	5.1	29.4	6.2	26.3	3.9	2.1	8.7	61.0	7.3
Industrial Arts	19	32.9	4.0	29.4	5.2	25.1	3.8	3.5	7.3	62.3	5.8
Home Science	14	33.9	3.8	29.3	3.5	26.2	4.0	4.6	5.1	63.1	5.1
Phys. Educ.	6	33.5	3.7	29.5	4.3	27.3	3.1	4.0	5.2	63.0	6.2
Minneapolis^b											
Sex											
Male	148	33.7	3.7	27.7	5.2	26.5	3.8	5.9	7.0	61.4	5.7
Female	188	34.5	4.3	24.2	5.2	26.8	3.9	10.3	7.5	58.7	5.8
Experience											
< 10 years	55	34.4	4.4	24.0	5.2	26.8	4.1	10.5	7.1	58.4	5.1
> 10 years	276	34.2	4.1	26.1	5.4	26.7	3.8	8.1	7.5	60.3	5.9
Subject or Level											
Lower Elem.	28	35.4	3.8	24.2	4.8	27.4	3.4	11.3	6.9	59.6	5.2
Upper Elem.	89	34.9	4.2	24.0	5.0	27.3	3.2	10.9	7.4	58.9	5.6
Humanities	67	33.3	3.9	26.6	5.8	25.8	3.8	6.7	7.8	60.0	6.0
Social Science	35	34.0	3.3	26.6	4.2	27.0	4.4	7.4	5.7	60.5	5.0
Science/Maths	48	32.7	4.1	28.5	5.2	25.8	3.7	4.2	6.4	61.2	6.8
Industrial Arts	9	33.4	4.9	29.8	3.2	28.9	1.8	3.6	2.4	63.2	8.0
Home Science	11	36.1	4.9	24.6	6.1	28.2	4.4	11.5	9.3	60.7	6.1
Phys. Educ.	11	35.2	2.3	28.2	5.7	25.2	4.3	7.0	7.5	63.4	4.5
Special Educ.	23	34.5	3.8	22.0	4.7	26.7	5.5	12.7	6.6	56.6	5.5
Other	7	33.9	4.7	23.1	5.4	25.7	3.2	10.8	8.6	57.1	5.4

^aSome teachers in the sample of 619 did not return complete data.

^bSome teachers in the sample of 342 did not return complete data.

Table 3

School Year x Sex of Student Analyses of Variance of the Cooperative, Competitive, and Individualized Sub-Scale Scores and Indices (LPSS) for the Sydney and Minneapolis Samples

Source of Variance	Cooperation			Competition		Individualiza- tion		Cooperative Involvement		Combined Involvement	
	df	MS	F	MS	F	MS	F	MS	F	MS	F
Sydney^a											
Year	6	135	4.5**	223	7.1**	142	4.5**	137	2.2*	580	9.2**
Sex	1	1293	42.6**	1266	40.1**	183	5.8*	5119	83.8**	0.1	<1
Year x Sex	6	82	2.7**	63	2	9	<1	175	2.9**	114	1.8
Minneapolis^b											
Year	8	75	2.9**	108	3.6**	124	3.7**	200	3.5**	167	3.1**
Sex	1	126	5.0*	738	24.3**	243	7.2**	1476	25.7**	253	4.7*
Year x Sex	8	53	2.1*	23	<1	26	<1	76	1.3	77	1.4

^aN = 1795 ^bN = 1058 *p < .05 **p < .01

The main and interaction effects are presented in Table 3. Sex differences are consistent for both Sydney and Minneapolis samples. Girls express a greater preference for cooperative learning, and boys opt for competitive and individualized learning. In Sydney, secondary students, especially girls, express stronger preference for cooperative learning than primary students. In Minneapolis, the junior high school years (7-9) are noticeably lower in cooperative inclination than elementary and senior high school years. In both samples, competitive learning preference rises with increasing school year. Correspondingly, individualized learning preference declines, with the exception of the Year 12 students in Minneapolis.

Display of the learning preference scores in the form of graphs enables the Year and Sex findings to be seen clearly. These graphs are presented as Figures 1, 2, and 3. The consistency in preference by girls for cooperative learning, and by boys for competitive and individualized learning is unmistakable. Certain observations about events and trends related to school year also become obvious. Cooperative preferences are relatively stable through Years 9-11 in Sydney

Fig. 1

Cooperative Learning Preference Scores for Australian Students (Sydney) and American Students (Minneapolis)

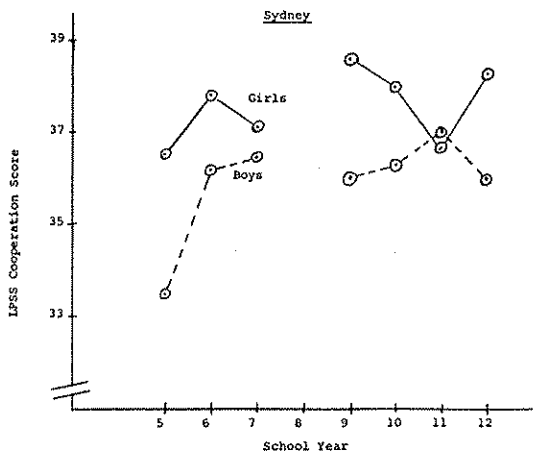
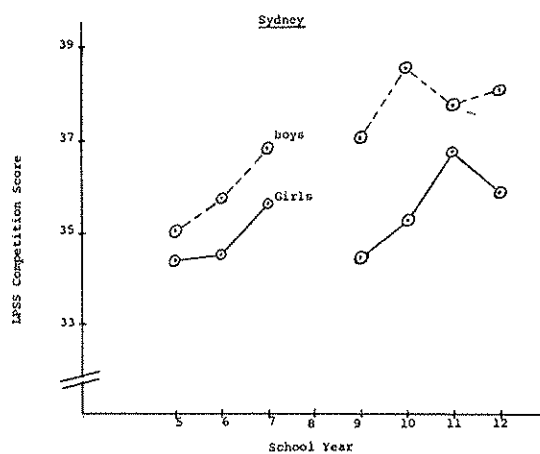
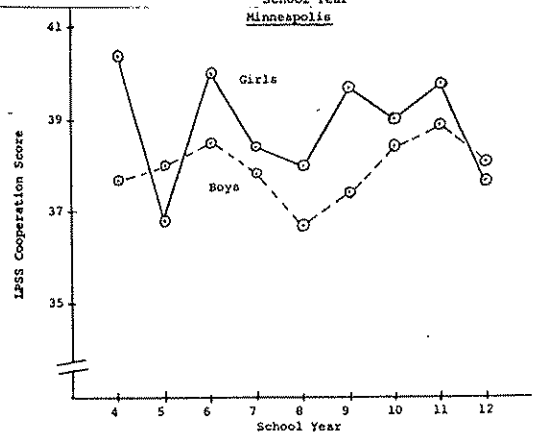


Fig. 2

Competitive Learning Preference Scores for Australian Students (Sydney) and American Students (Minneapolis)



Minneapolis



Minneapolis

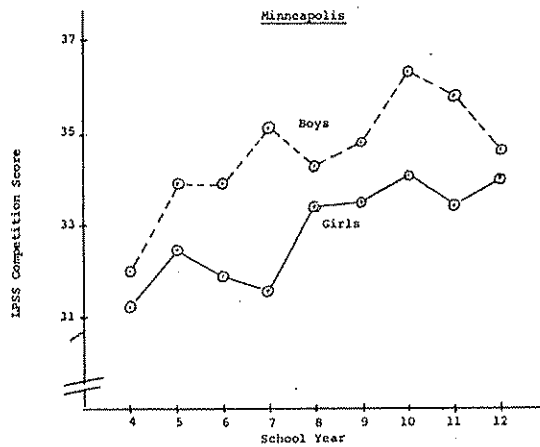
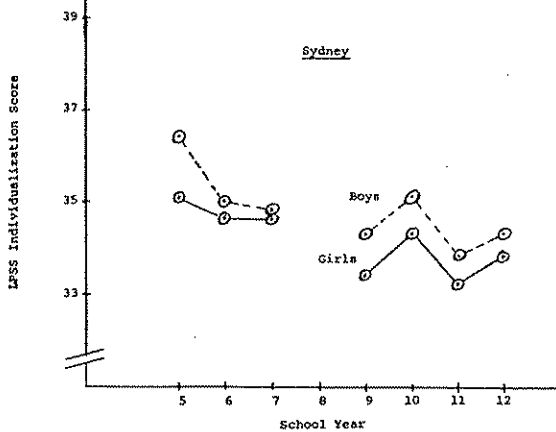
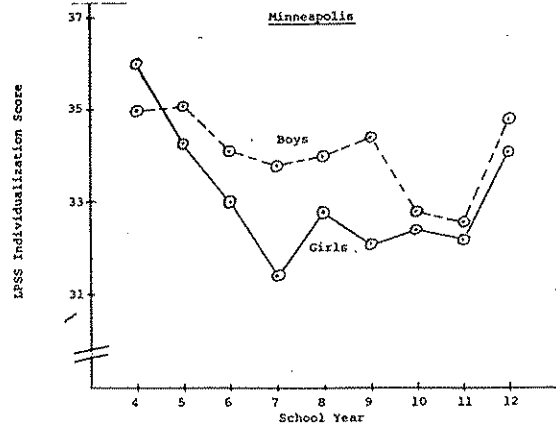


Fig. 3

Individualized Learning Preference Scores for Australian Students (Sydney) and American Students (Minneapolis)



Minneapolis



because a decline for girls is matched by an increase for boys. Years 8-11 in Minneapolis, however, are characterized by a steady increase for both boys and girls, especially marked for boys. Competitive preferences by Sydney girls rise sharply in Years 9-11, while those of the boys are stable at a high level. Both boys and girls seem to respond to high school entry with an increased awareness of competition. In Minneapolis, however, the girls show no such rise in the secondary years, and it is noticeably the boys who respond to change of school (Year 7 and Year 10) with an increased level of preference for competition. In individualized preferences, sex differences in Minneapolis are most obvious in the junior high school years (7-9), with boys being more different from girls than they were previously in elementary school or than they will be after in senior high school.

Table 4

Teaching Subject x Sex of Teacher x Teaching Experience Analyses of Variance of the Cooperative, Competitive, and Individualized Sub-Scale Scores and Indices (LPST) for the Sydney and Minneapolis Samples

Source of Variance	Cooperation			Competition		Individualization		Cooperative Involvement		Combined Involvement	
	df	MS	F	MS	F	MS	F	MS	F	MS	F
Sydney^a											
Subject	7	108	5.8**	95	3.4**	31	2.1*	259	4.8**	146	3.7**
Sex	1	125	6.7**	873	30.9**	4	<1	1659	30.7**	337	8.5**
Experience	1	0.2	<1	103	3.6	2	<1	112	2.1	95	2.4
Sub x Sex	4	29	1.6	37	1.3	18	1.2	113	2.1	20	<1
Sub x Exp	7	14	<1	13	<1	11	<1	12	<1	40	1
Sex x Exp	1	0.6	<1	38	1.3	37	2.5	29	<1	48	1.2
Minneapolis^b											
Subject	8	32	2.1*	75	3.0**	31	2.1*	169	3.5**	45	1.4
Sex	1	2	<1	226	9.0**	2	<1	182	3.7*	275	8.6**
Experience	1	1	<1	30	1.2	2	<1	42	<1	21	<1
Sub x Sex	7	16	1	22	<1	3	<1	30	<1	46	1.4
Sub x Exp	7	35	2.3*	22	<1	12	<1	42	<1	73	2.3*
Sex x Exp	1	11	<1	54	2.2	39	2.7	17	<1	113	3.5

^aN = 603 ^bN = 314 *p < .05 **p < .01

Teachers (Separate Analyses)

A three-way analysis of variance was carried out for each of the five LPST scores with the Sydney data and the Minneapolis data. The independent variables were Sex(2), Experience(2), and Subject(8-S,9-M). The main and interaction effects are presented in Table 4. Among Sydney teachers, females expressed greater preference for cooperative learning than males, but no such difference was found for the Minneapolis teachers. In both samples, males opted more for competitive learning than females. Subject differences were virtually identical for both groups. In cooperative preferences, infants and primary/lower and upper elementary teachers had the higher scores and secondary teachers the lower scores, with science/math teachers the lowest. In competitive preferences, infants teachers in Sydney and elementary teachers generally in Minneapolis were the lowest, and science/math teachers the highest. In individualized preferences, the infants and primary teachers in Sydney and the elementary teachers in Minneapolis were higher than the secondary teachers, with science/math teachers the lowest.

A significant difference between the samples is apparent in the analysis of subject groupings by means of Duncan's Multiple Range Test, presented in Table 5. Primary teachers in Sydney are more oriented toward competitive learning than their Minneapolis counterparts. As a result, they become indistinguishable from secondary humanities teachers in this regard, and combined they form a contrast to the other major groups of secondary teachers in Sydney schools. In Minneapolis, the humanities teachers are much more akin to the other secondary specialists than they are to the elementary teachers in this regard.

Students (Combined Samples)

A three-way analysis of variance was carried out for each of the five LPSS scores with the Sydney and Minneapolis data combined, and with the U.S. Year 4 data omitted. The independent variables were Country(2), Sex(2), and Year(8). The main and interaction effects are presented in Table 6. Since the Sex and Year differences in the separate analyses are identical in the main, this combined analysis merely confirms these prior findings. With regard to Country, however, interesting differences emerge between Sydney and Minneapolis students. Overall, the Sydney students are significantly less cooperatively inclined, more competitively inclined, and more individualistically inclined. The sex difference in cooperative preference is more prominent in Sydney, with scores being far higher for girls than for boys when compared with Minneapolis.

Teachers (Combined Samples)

A three-way analysis of variance was carried out for each of the five LPST scores with the Sydney and Minneapolis data combined. The independent variables were Country(2), Sex(2), and Subject(5). The main and interaction effects are presented in Table 7. Sex and subject differences are identical in the two separate samples, and they have been commented upon previously. As with the students, differences again emerge between teachers in Sydney and Minneapolis. Overall, the Sydney teachers express significantly less preference for cooperation, more preference for competition, and more preference for individualization. The sex difference

Table 5

Comparisons Between Teachers of Different Subjects on the LPST Sub-Scale Scores and Involvement Indices as Revealed by Duncan's Multiple Range Test

Sub-Scale/Involvement Score / Index	Primary and Secondary Teachers (Australia) ^a	
	Higher \bar{X}	(differs significantly from) ^b Lower \bar{X}
Cooperative Preference	Infants	Primary
	Infants) Primary)	(Social Science, Science/ Maths, Humanities)
	Social Science	Science/Maths
Competitive Preference	Social Science)	(Primary, Humanities)
	Science/Maths)	(Infants, Humanities)
	Primary	Infants
Individualized Preference	Infants	(Primary, Humanities, Social Science, Science/Maths)
Combined Involvement	Infants, Primary) Social Science,) Science/Maths)	Humanities
Cooperative Involvement	Infants	(Primary, Humanities, Social Science, Science/Maths)
	Primary,) Humanities)	(Social Science, Science/Maths)
	Humanities	Science/Maths

Primary and Secondary Teachers (USA) ^c	
Cooperative Preference	Lower Elementary ↔ Science, Maths
Competitive Preference	Social Science ↔ Upper Elementary
	Humanities,) Science, Maths)
Individualized Preference	No differences
Combined Involvement	No differences
Cooperative Involvement	Upper Elem.,) Lower Elem.) ↔ Science, Maths

^a Teachers of industrial arts, physical education, and home science have been removed from this analysis because of small numbers.

^b All differences reported are $p < .05$ and no distinction has been made between $p < .05$ and $p < .01$.

^c Teachers of industrial arts, physical education, home science, and remedial subjects have been removed from this analysis because of small numbers.

Table 6

Country x Sex of Student x School Year Analysis of Variance of the Cooperative, Competitive, and Individualized Sub-Scale Scores and Indices (LPSS) for the Combined Student Samples (Year 5 - Year 12) from Sydney and Minneapolis

Source of Variance	Cooperation		Competition		Individualization		Cooperative Involvement		Combined Involvement		
	df	MS	F	MS	F	MS	F	MS	F	MS	F
Country	1	1763	61.9**	2482	79.5**	737	22.9**	8429	141**	61	1
Sex	1	1143	40.1**	2060	66**	451	14**	6274	105**	134	2.2
School Year	7	162	5.7**	237	7.6**	168	5.2**	189	3.2**	608	10.2**
Country x Sex	1	230	8.1**	18	<1	32	1	119	2	378	6.3**
Country x Year	6	41	1.4	27	<1	54	1.7	60	1	75	1.2
Sex x Year	7	48	1.7	42	1.4	5	<1	105	1.8	76	1.3

N = 2762 * $p < .05$ ** $p < .01$

Table 7

Country x Sex of Teacher x Teaching Subject Analysis of Variance of the Cooperative, Competitive, and Individualized Sub-Scale Scores and Indices (LPST) for the Combined Teacher Samples from Sydney and Minneapolis

Source of Variance	Cooperation			Competition		Individualization		Cooperative Involvement		Combined Involvement	
	df	MS	F	MS	F	MS	F	MS	F	MS	F
Country	1	72	4.2*	440	16.2**	79	5.7*	869	16.4**	155	4.3*
Sex	1	63	3.7	1019	37.5**	1	<1	1588	30**	575	16.1**
Subject	4	211	12.3**	160	5.9**	50	3.6**	609	11.5**	135	3.8**
Country x Sex	1	69	4.0*	4	<1	3	<1	104	2	42	1.2
Country x Sub	4	2	<1	54	2	20	1.5	49	<1	63	1.8
Sex x Sub	4	20	1.1	71	2.6*	14	1	136	2.6*	45	1.3

N = 961 (Indus. Arts, Home Sci., Phys. Ed., Special Ed. have been removed from this analysis because of small numbers)
*p < .05 **p < .01

in cooperative preference is slightly greater in Sydney, with scores for females marginally greater than scores for males when compared with Minneapolis.

DISCUSSION

Sydney is not all of Australia, nor is Minneapolis all of the U.S.A.; therefore, extravagant claims about international comparisons would be unwarranted. It is possible, however, to use the findings to question the ease of applying American social psychological research to our own educational problems without at the same time considering the discernible cultural differences.

There is obvious agreement between the Sydney and Minneapolis data in several important aspects of the study. In both cities the girl-boy differences are identical, with the girls showing stronger cooperative preferences and the boys stronger competitive and individualized preferences. The overall trends with regard to school year, too, are the same, with cooperative and competitive preferences increasing with year level and individualized preference decreasing. In addition, teachers in both cities show striking similarities. Males have more orientation to competitive learning than females. Primary/elementary teachers express more cooperative preferences than secondary teachers, while high school teachers, especially those of science and mathematics, are more strongly competitive in their preferences.

The last decade of research by David Johnson, Roger Johnson, and their postgraduate students into various aspects of cooperative, competitive, and individualized learning is acknowledged to be among the most comprehensive and creative in the educational psychology area. This research strongly supports the use of cooperative groups in the classroom both for reasons of effectiveness in facilitating learning and for reasons of promoting personal satisfaction among learners. This accumulation of findings also leads the Johnsons to observe of American schools that children "do not receive the type of experiences that would sensitize them to the possibility of cooperation, and that schools promote this irrational competition" (1975, p. 10). A co-researcher in a different part of the U.S.A. has come to the same conclusion, observing that "schools are one of the very few areas of human endeavour in which cooperation is relatively rare, and in fact is often defined by the system as 'cheating'" (Slavin, 1981, p. 1). The Johnsons have proposed as a remedy that schools arrange 70% of students' time in cooperative learning, 20% in individualized learning, and a mere 10% in competitive learning (1975, p. 67). They take this message to teachers in the form of inservice education in a large nationwide network of workshops and summer schools. It has been received with enthusiasm by many thousands of teachers (Johnson and Johnson, 1983).

The message reaches Australia through the selective audience that reads the specialized international research journals, but mainly through the texts from American publishers that are widely used in teacher education programs. At first sight, the promotion of cooperative learning in Australian schools certainly seems appropriate and necessary. As R. Reed, a former senior administrator of the Victorian Education Department has aptly observed, "our secondary schools have become the most competitive institutions in Australia, compared with which the celebrated rat race of industry and commerce is like a picnic handicap for field mice" (n.d., p.7). The findings of the current study substantiate this observation. Both our students and our teachers are more competitively inclined, more individualistically inclined, and less cooperatively inclined than the sample of their American counterparts. The problem arises because this emphasis on competition is so inherent in the Australian procedures of schooling and because it is so totally accepted by students and teachers as necessary for the system of schooling to

function effectively. It is no surprise, therefore, that a typical reaction to suggestions for cooperative learning is "that's very interesting, but it won't work here". Frequently such suggestions are regarded as curiosities of the American culture, interesting to know about but without connection to life as it is lived in Australia. Occasionally an adventurous teacher does actually attempt to implement a program of cooperative learning in the classroom. More often than not the attempt is defeated by students who, without prior experience, have not developed the social skills and sensitivity that might contribute to success. This is usually accompanied by the fault-finding of sceptical teaching colleagues. The attempt is usually not repeated.

The place of competition in schooling seems well-protected from change, from within and from without. Yet there is an alternative view that emerges from a nationwide survey conducted by Campbell and Robinson (1979). Of the sixty "beliefs about school and teaching" in the questionnaire, the seven on which there was the greatest agreement and the clearest requests for increased emphasis were concerned with: contributing to life in society, working cooperatively, developing personal worth and esteem, how to discover knowledge, assembling facts and posing questions, warm and supportive teaching, and children and teachers working together on significant problems. The authors see in these characteristics "an image of schools as humane, learning communities" (p. 57). Is there deep within the Australian psyche a receptiveness toward cooperative learning procedures that might be disclosed by an appropriately sensitive approach? Or is this an instance of the well-recognized public espousal of acceptable beliefs that are privately resisted in practice?

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