

# Parental involvement in schooling, classroom environment and student outcomes

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**Abstract** We investigated relationships between students' perceptions of parental involvement in schooling, their Spanish classroom environment and student outcomes (attitudes and achievement). Modified Spanish versions of the What Is Happening In this Class?, Test of Spanish-Related Attitudes-L<sub>1</sub>, a parental involvement questionnaire and a Spanish achievement test were administered to 223 Hispanic Grade 4–6 students in South Florida. The factor structure and internal consistency reliability of the questionnaires was supported. Strong associations were found for parental involvement with students' learning environment perceptions and student outcomes, and for Spanish classroom environment with student outcomes. When the unique and common variances in student outcomes explained by the classroom environment and the home environment were examined, the home environment was more influential than the classroom environment in terms of students' attitudes, but the classroom environment was more influential than the home environment in terms of achievement.

**Keywords** Achievement · Attitudes · Classroom environment · Home environment · Parents

## Background and theoretical framework

In the field of learning environments, a large amount of research has focused on the environment of the school/class (Fisher and Khine 2006; Fraser 1994, 1998, 2007, 2012; Fraser and Walberg 1991, 2005; Goh and Khine 2002), but only a few studies have attempted to determine the joint influence of the school/class and home environments on students' achievement and attitudes. The famous Coleman et al. (1966) report drew attention to the way in which the contributions of the school and the home to variance in student achievement are confounded. Moos (1991), Marjoribanks (1999) and Fraser and Kahle (2007) have teased out linkages between outcomes and students' school and home

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environments. Kelleghan et al. (1993) have clearly established the potency of positive school-home partnerships in improving student outcomes. Numerous researchers report a link between parental involvement and better academic success (Berger 1991; Bryant et al. 2000; Lunenburg and Irby 1999), school attendance and motivation and reduced dropout rates (Tinkler 2002). In a secondary analysis of a large national database, the environments of the class and home were found to be significant independent predictors of achievement and attitudes (Fraser et al. 1986; Walberg et al. 1986).

Nevertheless, a lack of parental involvement still remains. It seems that disadvantaged students who are part of low-income and single-parent families are the ones who are most affected (Epstein 2001). Other groups of parents who are not highly involved in their child's schooling are minority groups, perhaps because of their limited ability to communicate with the school because of language barriers, inability to understand school rules and regulations, and the constant struggle with their own cultural beliefs. This seems to hold true for many Hispanic or Latino parents whose cultural beliefs are very different from those of American parents (Tinkler 2002) and who often view parental involvement as a sign of disrespect and intrusion. Therefore, they participate less in their child's schooling. This was an important issue for our research study because our sample consisted of Spanish-speaking students of Hispanic descent in the USA.

Current research on learning environments builds on to Lewin's (1936) recognition that both the environment and its interaction with characteristics of the individual are potent determinants of human behavior, and on research on person-environment fit by Stern (1970) and Fraser and Fisher (1983). Research on classroom learning environments took off with two pioneering research programs in the USA involving the development and use of the Learning Environment Inventory (LEI, Walberg and Anderson 1968; Walberg 1979) and Classroom Environment Scale (CES, Moos 1974, 1979; Moos and Trickett 1974). This work then spread to the Netherlands with the use of the Questionnaire on Teacher Interaction (QTI, Wubbels and Levy 1993) and to Australia with the use of the Individualised Classroom Environment Questionnaire (ICEQ, Fraser and Fisher 1982). More recently, Asian researchers have conducted numerous studies with large sample sizes (Fraser 2002), cross-validated several questionnaires in English-speaking countries (e.g. Singapore and Brunei), and completed the laborious task of translating, back-translating, and validating these instruments in the Chinese, Indonesian, Korean and Malay languages (Kim et al. 2000; Scott and Fisher 2004).

Contemporary research on classroom learning environments often makes use of well-established and extensively-validated questionnaires such as the What Is Happening In this Class? (Aldridge et al. 1999; Dorman 2003, 2008), Science Laboratory Environment Inventory (Fraser et al. 1995; Lightburn and Fraser 2007; Quek et al. 2005) or Constructivist Learning Environment Survey (Aldridge et al. 2000; Nix et al. 2005).

The relationship between learning environment variables and student outcomes has provided a frequent focus for the application of learning environment instruments (Fraser 2007; Goh et al. 1995; Haertel et al. 1981; McRobbie and Fraser 1993). Another important and frequent use of learning environment assessments has been as a source of process criteria in the evaluation of educational programs (Lightburn and Fraser 2007; Martin-Dunlop and Fraser 2008; Mink and Fraser 2005; Nix et al. 2005). In other applications, learning environment questionnaires have been used in investigating differences between teachers' and students' perceptions of the same classroom environments (Fisher and Fraser 1983), gender differences in students' perceptions of classroom environment (Teh and Fraser 1995) and changes in classroom environment across the transition from primary to secondary schools (Ferguson and Fraser 1998).

Walberg proposed a nine-factor model of educational productivity in which student outcomes are codetermined by three student aptitude variables, the quantity and quality of instruction and the psychosocial environments of the school/class, the home, the peer group and the mass media (Fraser et al. 1987; Walberg 1981). The model holds that no single factor alone has a huge impact on learning and, to lift the tide of achievement, several factors need to be aligned and raised simultaneously. However, although a large amount of past research on learning environments has focused on the class/school (Fraser 1994, 1998, 2007; Fraser and Walberg 1991), only the few studies have attempted to determine the joint influence of the class/school and home environments on students' achievement and attitudes (Allen and Fraser 2007; Coleman et al. 1966; Fraser et al. 1986; Kelleghan et al. 1993; Marjoribanks 1999; Moos 1991; Walberg et al. 1986).

The literature suggests that only a limited amount of previous learning environments research has involved the teaching–learning of languages or parental involvement in schooling. Therefore, it was timely in our study to investigate the Spanish classroom environment, parental involvement and student outcomes (attitudes toward Spanish and Spanish achievement) with Grade 4–6 students.

## Objectives

The objectives of the study were to:

- provide validation data for modified Spanish versions of classroom environment, attitude and parental involvement questionnaires when used with Grade 4–6 Spanish-speaking students;
- investigate associations between students' perceptions of parental involvement and the Spanish classroom environment, attitudes to Spanish and Spanish achievement;
- examine associations between students' perceptions of the Spanish classroom environment and their attitudes to Spanish and Spanish achievement;
- explore the unique and common contributions of the classroom environment and home environment (i.e. parental involvement) to the variance in the students' attitudes to Spanish and Spanish achievement.

## Methods

### Instruments

Although the What Is Happening In this Class? (WIHIC) questionnaire was originally developed in English (Fraser et al. 1996), this versatile and reliable instrument has been utilised successfully in numerous other countries and, in some cases, translated into other languages. The WIHIC is composed of 56 items (7 scales with 8 items in each) that measure the dimensions of Student Cohesiveness, Teacher Support, Involvement, Investigation, Task Orientation, Cooperation and Equity (Aldridge and Fraser 2000), but we omitted the Investigation scale in our study because of its limited relevance in Spanish classes.

The WIHIC has proved to be valid and useful in the English language in studies: in Australia with 1081 junior high school science students (Aldridge et al. 1999); in Singapore with 2,310 senior high school geography and mathematics students (Chionh and

Fraser 2009) and with 250 working adults undertaking computing courses (Khoo and Fraser 2008); in Brunei with 644 Grade 10 chemistry students (Riah and Fraser 1998) and with 1,188 Form 5 science students (Khine and Fisher 2001); in Australia and Canada with 1,404 secondary school students in computer-networked classrooms (Zandvliet and Fraser 2004, 2005); in Canada with 1,173 secondary mathematics and science students (Raaflaub and Fraser 2002); and in Australia, the UK and Canada with a sample of 3,980 high school students (Dorman 2003). As well, translated versions of the WIHIC have been crossvalidated in Korea with 543 Grade 8 science students (Kim et al. 2000); in the Chinese language with 1,460 students in Singapore (Chua et al. 2001) and 1,879 junior high school science students in Taiwan (Aldridge and Fraser 2000; Aldridge et al. 1999); in Indonesia with 2,498 university students undertaking computing-related courses (Margianti et al. 2004) and with 594 secondary science students (Fraser et al. 2010); in India with 1,021 secondary science students (Koul and Fisher 2005); and with higher-education classes in the United Arab Emirates involving 763 students (MacLeod and Fraser 2010) and 352 students (Afari et al. in press). Specifically in the USA, the WIHIC has proved to be valid and useful in research with 661 middle-school mathematics students in California (Ogbuehi and Fraser 2007), 520 Grade 4 and 5 science students in Florida (Allen and Fraser 2007), 1,434 middle-school physical science students in New York (Wolf and Fraser 2008), 525 preservice elementary teachers in California (Martin-Dunlop and Fraser 2008), 745 high-school mathematics students in California (Taylor and Fraser in press), 178 kindergarten students and their parents in Florida (Robinson and Fraser in press) and 924 grade 8 and 10 science students in Florida (Helding and Fraser in press).

The modified version of the WIHIC used in our study was translated into Spanish and pilot-tested with 20 students. Because many of the students had difficulty with several of the items, a total of 12 items were removed, thus leaving a modified 36-item Spanish version.

The Test Of Spanish-Related Attitudes- $L_1$  (TOSRA- $L_1$ ), which was modeled after the Test Of Science-Related Attitudes (Fraser 1981) by simply rewording the statements to focus on Spanish, was used to assess students' attitudes toward Spanish. The only two of the original seven scales from the TOSRA that were chosen as being centrally relevant for our study were the Adoption of Scientific Attitudes and Enjoyment of Science Lessons scales, and these were renamed Cultural Attitudes and Enjoyment of Spanish Lessons. When the TOSRA- $L_1$  was translated into Spanish and pilot-tested with 20 students, the number of statements was reduced from 20 to 14 (eight statements in the Cultural Attitudes scale and six statements in the Enjoyment of Spanish Lessons scale) to make the questionnaire more comprehensible.

We created a six-item scale measuring parental involvement, in Spanish, to assess the level of parental involvement in schooling from the point-of-view of the students. It was named the Student Perceptions of Parental Involvement scale. A sample item from this scale reads "My parents know the school's policies".

A teacher-made Spanish achievement test, modeled after the reading portion of a state-mandated examination, was used to measure students' achievement in Spanish. It included two reading passages in Spanish along with comprehension questions based on the state's reading standards.

## Sample

The present study was conducted in a school in Miami South Beach, Florida, where world-class business and cultural facilities attract millions of interstate and overseas visitors

annually. This school's approximately 800 students encompass 40 nationalities, with Hispanics representing 79 % of the student population (with smaller numbers of Black, White and Asian students). The school is part of the Miami-Dade County Public Schools district (the fourth largest in the US), which has a Bilingual Education Program that helps students to acquire English language skills and to learn the mandatory school subjects (which are taught mainly in English), while preserving the native language (Spanish) of the majority of students.

Specifically, the sample in our study consisted of 223 Grade 4–6 students in nine Spanish-for-Spanish-speakers classes in one elementary school. Each of these 223 students completed the modified Spanish version of the WIHIC, TOSRA-L<sub>1</sub> and Parental Involvement questionnaires and the Spanish achievement test.

## Analyses and results

### Factor structure and internal consistency reliability of WIHIC

Initially, item and factor analyses were conducted for the 36 items of the modified Spanish version of the WIHIC questionnaire to identify those items whose removal would improve the internal consistency reliability and factorial validity of the WIHIC scales. Items 4, 24 and 36 were found to have a low factor loading and item-remainder correlation; consequently, they were removed and excluded from subsequent analyses. Thirty-three (33) items of the original 36 were retained in the same six-factor structure: Student Cohesiveness, Teacher Support, Involvement, Task Orientation, Cooperation and Equity.

A principal components factor analysis followed by varimax rotation was conducted to examine the internal structure of the remaining 33 items of the modified Spanish version of the WIHIC and to generate orthogonal factors for the data set. Table 1 shows the factor loadings and percentage of variance for each scale of the modified version of the Spanish WIHIC questionnaire for the 223 students and using the individual student as the unit of analysis. The a priori six-factor structure of the modified Spanish version of the WIHIC was accepted because (after omission of Items 4, 24 and 36) every item had a factor loading of at least 0.40 on its a priori scale and no other scale (see Table 1). The bottom of Table 1 shows that the percentage of variance for different scales ranged from 4.0 to 26.6 %, with a total of 72.3 % for the six scales.

The internal consistency reliability of each WIHIC scale is reported at the bottom of Table 1 using the Cronbach alpha coefficient for two units of analysis, namely, the individual and class mean. The alpha coefficient for different scales ranged from 0.80 to 0.96 for the individual and from 0.92 to 0.97 for the class mean as the unit of analysis.

### Factor structure of and internal consistency reliability of TOSRA-L<sub>1</sub>

Originally, item and factor analyses were conducted for the 14 items in the two scales of the TOSRA-L<sub>1</sub> (8 items in Cultural Attitudes and 6 items in Enjoyment of Spanish Lessons) to identify those items whose removal would improve the internal consistency reliability and factorial validity of the TOSRA-L<sub>1</sub> scales. Items 1 and 9 were found to have low factor loadings and item-remainder correlations; consequently, they were removed and excluded from subsequent analyses. Twelve (12) items of the original 14 were retained in the same two-factor structure: Cultural Attitudes and Enjoyment of Spanish Lessons. Principal components factor analysis followed by varimax rotation for the remaining 12

**Table 1** Factor analysis results and internal consistency reliability (Cronbach alpha coefficient) for a modified Spanish version of the WIHIC

Item no.	Factor loadings					
	Student cohesiveness	Teacher support	Involvement	Task orientation	Cooperation	Equity
1	0.64					
2	0.78					
3	0.76					
5	0.78					
6	0.74					
7	0.74					
8	0.55					
9		0.80				
10		0.88				
11		0.81				
12		0.88				
13		0.77				
14		0.75				
15		0.82				
16			0.81			
17			0.87			
18			0.88			
19			0.71			
20			0.84			
21				0.88		
22				0.74		
23				0.81		
25				0.87		
26				0.86		
27					0.76	
28					0.68	
29					0.61	
30					0.67	
31					0.59	
32						0.78
33						0.89
34						0.80
35						0.83
% Variance	21.8	26.6	7.2	8.2	4.5	4.0
Reliability						
Individual	0.88	0.94	0.92	0.96	0.80	0.87
Class	0.92	0.96	0.95	0.97	0.95	0.94

Factor loadings smaller than 0.40 have been omitted

The sample consisted of 223 students in 9 classes in Miami-Dade County, Florida

Items 4, 24, and 36 were removed from the original 36-item version

items of the TOSRA-L<sub>1</sub> revealed the factor loadings and percentages of variance shown in Table 2 for the sample of 223 students.

The a priori two-factor structure of TOSRA-L<sub>1</sub> was accepted because every item had a factor loading of at least 0.40 on its a priori scale and no other scale (see Table 2). The percentage of variance was 54.3 % for the Cultural Attitude scale and 16.0 % for the Enjoyment of Spanish Lessons scale, making a total for the two scales combined of 70.3 % (see Table 2).

Table 2 also shows the Cronbach alpha coefficient for each of the two scales of the TOSRA-L<sub>1</sub> for the sample of 223 students using two units of analysis (individual and class mean). As shown in Table 2, the alpha coefficient was 0.86 (individual student) and 0.91 (class mean) for the Cultural Attitudes scale and was 0.88 and 0.72 for the individual and class mean, respectively, for the Enjoyment of Spanish Lessons scale.

The reliability of the Parental Involvement scale (not reported in any table) was found to be 0.80 for individuals and 0.88 for class means for the same sample of 223 students.

Associations of students’ perceptions of parental involvement with Spanish classroom environment and student outcomes

Table 3 reports the simple correlation between Parental Involvement and each of the six WIHIC scales and three student outcomes for two units of analysis (the student and the class mean). As shown in Table 3, three of the six WIHIC scales (Student Cohesiveness, Cooperation and Equity) were significantly correlated with Parental Involvement. A positive and statistically significant ( $p < 0.01$ ) correlation existed between the Student Cohesiveness and Cooperation scales of the WIHIC and Student Perceptions of Parental Involvement for both units of analysis (individual and class mean). Of particular interest is the high positive correlation found for Student Cohesiveness (0.92) and Cooperation (0.85)

**Table 2** Factor loadings for the TOSRA-L<sub>1</sub>

Item no.	Factor loadings	
	Cultural attitudes	Enjoyment of Spanish lessons
2	0.83	
3	0.82	
4	0.77	
5	0.92	
6	0.67	
7	0.47	
8	0.92	
10		0.91
11		0.73
12		0.89
13		0.65
14		0.90
% Variance	54.3	16.0
Reliability		
Individual	0.86	0.88
Class mean	0.91	0.72

Factor Loadings smaller than 0.40 have been omitted  
 N = 223 students in 9 classes in Miami-Dade County, Florida  
 Items 1 and 9 were omitted from the original 14-item version

**Table 3** Simple correlation analysis for associations between parental involvement and scores on the WIHIC, TOSRA-L<sub>1</sub> and Spanish achievement test for two units of analysis

Scale	Unit of analysis	Correlation with perceptions of parental involvement
<i>WIHIC</i>		
Student cohesiveness	Individual	0.37**
	Class	0.92**
Teacher support	Individual	−0.05
	Class	−0.12
Involvement	Individual	0.10
	Class	0.30
Task orientation	Individual	0.01
	Class	−0.06
Cooperation	Individual	0.33**
	Class	0.85**
Equity	Individual	0.16*
	Class	0.62
<i>TOSRA-L<sub>1</sub></i>		
Cultural attitudes	Individual	0.66**
	Class	0.71*
Enjoyment of Spanish lessons	Individual	0.52**
	Class	0.57
<i>Spanish achievement</i>		
	Individual	0.16*
	Class	0.48

*N* = 223 students in 9 Spanish classes in Miami-Dade County, Florida

\*  $p < 0.05$ ; \*\*  $p < 0.01$

with Parental Involvement when using the class mean as the unit of analysis. The third scale (Equity) showed a positive and statistically significant ( $p < 0.05$ ) correlation with Parental Involvement at the individual student level of analysis.

Table 3 also shows that the two TOSRA-L<sub>1</sub> scales were significantly correlated with students' perceptions of parental involvement. In particular, a positive and statistically significant correlation ( $p < 0.05$ ) existed between the Cultural Attitudes scale and students' perceptions of parental involvement for both units of analysis (individual and class mean). Also Enjoyment of Spanish Lessons showed a positive and statistically significant ( $p < 0.01$ ) correlation with students' perceptions of parental involvement using the individual student as the level of analysis.

Additionally, as shown in Table 3, a positive and statistically significant correlation ( $p < 0.05$ ) existed between students' Spanish achievement and their perceptions of parental involvement using the individual student as the level of analysis. Overall, the results in Table 3 suggest a relatively strong and positive link between greater parental involvement in schooling and a range of criteria, including the classroom environment, student attitudes and student achievement.

Associations between classroom environment and student outcomes

Table 4 reports the results of simple correlation and multiple regression analyses that were conducted to investigate bivariate and multivariate associations between the six Classroom

**Table 4** Simple correlation and multiple regression analyses for associations between the Spanish classroom environment and scores on the TOSRA-L<sub>1</sub> and Spanish achievement test for two units of analysis

Scale	Unit of analysis	Cultural attitudes		Enjoyment of Spanish lessons		Spanish achievement	
		<i>r</i>	$\beta$	<i>r</i>	$\beta$	<i>r</i>	$\beta$
Student cohesiveness	Individual	0.51**	0.41**	0.40**	0.26**	0.11	0.06
	Class	0.84**		0.66		0.50	
Teacher support	Individual	0.12	0.01	0.12	0.06	0.13*	0.11
	Class	0.42		0.36		0.32	
Involvement	Individual	0.16*	0.03	0.11	-0.04	0.04	0.06
	Class	0.08		0.07		-0.29	
Task orientation	Individual	0.27**	0.08	0.23**	0.04	0.12	0.02
	Class	0.39		0.32		0.35	
Cooperation	Individual	0.39**	0.03	0.39**	0.21**	0.10	-0.02
	Class	0.82**		0.72*		0.32	
Equity	Individual	0.35**	0.24**	0.19**	0.04	0.16*	0.13
	Class	0.81**		0.79*		0.23	
Multiple correlation ( <i>R</i> )	Individual		0.58**		0.45**		0.21

*N* = 223 students in 9 Spanish classes in Miami-Dade County, Florida

Multiple regression results are shown only for individual student because the small number of classes (*N* = 9) did not allow meaningful results when using class means

\*  $p < 0.05$ ; \*\*  $p < 0.01$

Environment Scales of the WIHIC and the three outcome measures (two attitude scales and achievement). As shown in Table 4, students' attitudes toward Spanish were significantly correlated with their perceptions of the Spanish classroom environment. In particular, a positive and statistically significant ( $p < 0.05$ ) correlation existed between: five WIHIC scales (Student Cohesiveness, Involvement, Task Orientation, Cooperation and Equity) and students' Cultural Attitudes using the individual student as the unit of analysis; three scales of the WIHIC (Student Cohesiveness, Cooperation and Equity) and students' Cultural Attitudes using the class mean as the unit of analysis; four scales of the WIHIC (Student Cohesiveness, Task Orientation, Cooperation and Equity) and students' Enjoyment of Spanish Lessons using the individual student as the unit of analysis; and two scales of the WIHIC (Cooperation and Equity) and students' Enjoyment of Spanish Lessons using the class mean as the unit of analysis. Table 4 also reports a positive and statistically significant ( $p < 0.05$ ) correlation between students' Spanish achievement and both Teacher Support and Equity when using the individual student as the unit of analysis.

Multiple regression analysis was utilised to further investigate associations between students' perceptions of the Spanish classroom environment and student outcomes and to provide a more parsimonious picture of the joint influence of a set of correlated environment scales on each outcome and reduce the Type I error rate. However, because of the relative smallness of the sample size for class means (*N* = 9), multiple regression analyses were performed only with the student as the unit of analysis. As shown in Table 4, the multiple correlation (*R*) between the group of six WIHIC scales was 0.58 for the Cultural Attitudes scale and 0.45 for the Enjoyment of Spanish Lessons scale, and was statistically significant ( $p < 0.01$ ) for each attitude scale. However, the multiple correlation

of 0.21 between the group of six WIHIC scales and Spanish achievement test scores was not statistically significant (Table 4).

In order to determine which individual WIHIC scales explained the significant multiple correlation between attitudes and the set of WIHIC scales, we examined the regression weights (which describe the association between an attitude outcome and a particular WIHIC scale while controlling for all other WIHIC scales). The standardized regression weights ( $\beta$ ) shown in Table 4 indicate that Student Cohesiveness was a positive, significant, and independent predictor of both Cultural Attitudes and Enjoyment of Spanish Lessons when controlling for the other WIHIC scales and using the individual student as the unit of analysis. Also Cooperation was a positive, significant, and independent predictor of Enjoyment of Spanish Lessons and Equity was a positive, significant and independent predictor of Cultural Attitudes.

#### Unique and common variance in student outcomes associated with classroom and home environment

The simple correlation and multiple regression analyses results shown in Tables 3 and 4 revealed associations between student outcomes, especially attitudes, and students' perceptions of both parental involvement (Table 3) and the Spanish classroom environment (Table 4). Furthermore, Table 3 shows that associations existed between students' perceptions of parental involvement and their perceptions of the classroom environment. Consequently, it is likely that the classroom environment and home environment (i.e. parental involvement) jointly influence students' outcomes. Therefore, we examined the unique and common influences of the class and home environments on each outcome by conducting commonality analysis of the square of the multiple correlation ( $R^2$ ). When commonality analyses were conducted for each student outcome separately using the student as the unit of analysis, the results reported in Table 5 were obtained.

Table 5 shows that the home environment made a larger unique contribution to the variance in students' attitudes (0.24 for Cultural Attitudes and 0.16 for Enjoyment of Spanish Lessons) than did the classroom environment (0.14 for Cultural Attitudes and 0.09 for Enjoyment of Spanish Lessons). However, the proportion of variance common to the classroom and home environments is appreciable (0.19 for Cultural Attitudes and 0.11 for Enjoyment of Spanish Lessons), which is about one-third of the total proportion of variance accounted for.

**Table 5** Commonality analysis of  $R^2$  statistic for classroom environment (WIHIC) and home environment (Parental Involvement) for attitude and achievement outcomes

Source of variance	Proportion of variance ( $R^2$ )		
	Cultural attitudes	Enjoyment of Spanish lessons	Spanish achievement
Unique to classroom environment	0.14	0.09	0.37
Unique to home environment	0.24	0.16	0.18
Common to classroom and home environments	0.19	0.11	0.07
Total	0.57	0.36	0.62

$N = 223$  students in 9 Spanish classes in Miami-Dade County, Florida

For student achievement, however, the opposite was found. Table 5 shows that the classroom environment made a larger unique contribution (0.37) to the variance in Spanish achievement scores than did the home environment (0.18). The proportion of variance common to the classroom and home environments was relatively small for achievement (0.09). This suggests that the classroom environment is more influential for students' Spanish achievement than is the home environment (but, as noted above, the home environment is more influential for students' Spanish attitudes than the classroom environment).

## Conclusion

Although extensive prior research has been conducted internationally for various school subjects such as science (Fraser et al. 2010), mathematics and geography (Chionh and Fraser 2009) and information technology (Khoo and Fraser 2008), our learning environments study is distinctive because it is the only one to be conducted in the subject area of Spanish. This led to the development and validation of a modified Spanish-language version of the WIHIC among Grade 4–6 Spanish-speaking students. Our study is also unique in that it included a measure of home environment or parental involvement in addition to scales assessing the classroom environment.

When associations between parental involvement in schooling and classroom environment perceptions, attitudes toward Spanish and Spanish achievement were explored, positive and statistically significant associations existed between students' perceptions of parental involvement and the Spanish classroom environment. Positive and statistically significant associations were also found between students' perceptions of parental involvement and student outcomes (attitudes toward Spanish and Spanish achievement). These findings add to already-existing knowledge about the strong link between parental involvement and student performance in school (Kelleghan et al. 1993).

Some positive and statistically significant associations were found between students' Spanish achievement and their perceptions of the Spanish classroom environment. Additionally, positive and statistically significant associations were found between students' attitudes toward Spanish and their perceptions of the Spanish classroom environment. Our findings replicate past research in the field of learning environments regarding the consistent link between a more positive classroom learning environment and more favourable student outcomes (Fraser 2007, 2012).

One distinctive aspect of our study is that we explored the unique and common influences of the classroom environment and home environment (i.e. parental involvement) on student outcomes (attitudes toward Spanish and Spanish achievement). It was found that the home environment was more influential than the classroom environment in terms of students' attitudes toward Spanish, but that the classroom environment was more influential than the home environment in terms of achievement.

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