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CULTURAL BACKGROUND AND STUDENTS' PERCEPTIONS OF SCIENCE CLASSROOM LEARNING ENVIRONMENT AND TEACHER INTERPERSONAL BEHAVIOUR IN JAMMU, INDIA

ABSTRACT. This article reports research into associations between students' cultural background and their perceptions of their teacher's interpersonal behaviour and classroom learning environment. A sample of 1021 students from 31 classes in seven co-educational private schools completed a survey including the Questionnaire on Teacher Interaction (QTI), the What Is Happening In this Class? (WIHIC) and a question relating to cultural background. Statistical analyses showed that the Kashmiri group of students perceived their classrooms and teacher interaction more positively than those from the other cultural groups identified in the study.

1. INTRODUCTION

In the domain of learning environments research, there is a growing body of research that links teacher-student interpersonal behaviour – one of the many aspects of teaching – to students' attitudes toward the subject taught (Brekelmans, den Brok, van Tartwijk & Wubbels, 2005; Brekelmans, Wubbels & den Brok, 2002; den Brok, Brekelmans & Wubbels, 2004). This research has shown that both teacher dominance and cooperation are positively linked to students' affective outcomes and has included studies in countries such as The Netherlands (Amelsvoort, 1999; Brekelmans, Wubbels & Créton, 1990; den Brok, 2001), Australia (Evans, 1998; Henderson, Fisher & Fraser, 1995; Rawnsley, 1997), Singapore (Goh, 1994; Goh & Fraser, 1995), Korea (Kim, Fisher & Fraser, 2000) and Brunei (Riah & Fraser, 1998; Scott, den Brok & Fisher, 2004).

Despite this consistent and growing body of knowledge, there were several reasons to conduct this particular study. First and most importantly, although many studies have involved examining learning environments in different parts of the world, none or few have been reported from India. As such, the present study provides a basis upon which an Indian sample can be included in the future. Second, Kashmir is particularly an interesting area for such research because it finds itself in the midst of changing social and political climates. India's partition in August 1947 on the basis of religion,

and Kashmir's accession with India, has led to a number of disturbances in Kashmir and two international wars with Pakistan. In recent times, there has been an exodus of people from the Srinagar valley to Jammu – the city in which our research was carried out – which had major consequences for the populations of schools and classes and the school careers of students. The present generation of high school students has been through an educational journey while living in politically uncertain conditions. Third, the state of Jammu and Kashmir has the distinction of having a multi-faceted, variegated and unique cultural blend that distinguishes it from the rest of the country. The state is comprised of three different cultural forms of heritage in three regions namely Jammu, Kashmir and Ladakh. These social entities form a distinct spectrum of diversity of religion, language and culture. Kashmir's different cultural forms like art and architecture, fairs and festivals, rites and rituals, seers and sagas, languages and mountains are embedded in an ageless period of history. Fourth, investigation of the link between teaching and student outcomes has an important value for the government of Kashmir because, for Kashmiri parents, education of Kashmiri children is a top priority in their culture and, despite living in tough conditions, parents continue sending their children to (mainly private) schools.

2. DEVELOPMENT AND VALIDATION OF THE QUESTIONNAIRE ON TEACHER INTERACTION (QTI)

Students and teachers spend a considerable amount of time in a formal school setting. The teacher's behaviour, when interacting with students, has been found to have a considerable impact on the nature of the learning environment that is created. Wubbels, Brekelmans and Hermans (1987) and Getzels and Thelen (1960) suggested that teacher-student interaction is a powerful force that can play a major role in influencing the cognitive and affective development of students. Wubbels and Levy (1993) reaffirmed the role and significance of teacher behaviour in classrooms, particularly how this can influence students' motivation, which can be linked with improved achievement.

In The Netherlands, Wubbels, Créton and Holvast (1988) investigated teacher behaviour in classrooms from a systems perspective, adapting a theory on communication processes developed by Watzlawick, Beavin and Jackson (1967). Within the systems perspective on communication, it is assumed that the behaviours of participants influence each other mutually. The behaviour of the teacher is influenced by the behaviour of the student and in turn influences student behaviour. Circular communication processes develop which not only consist of behaviour, but determine behaviour as well.
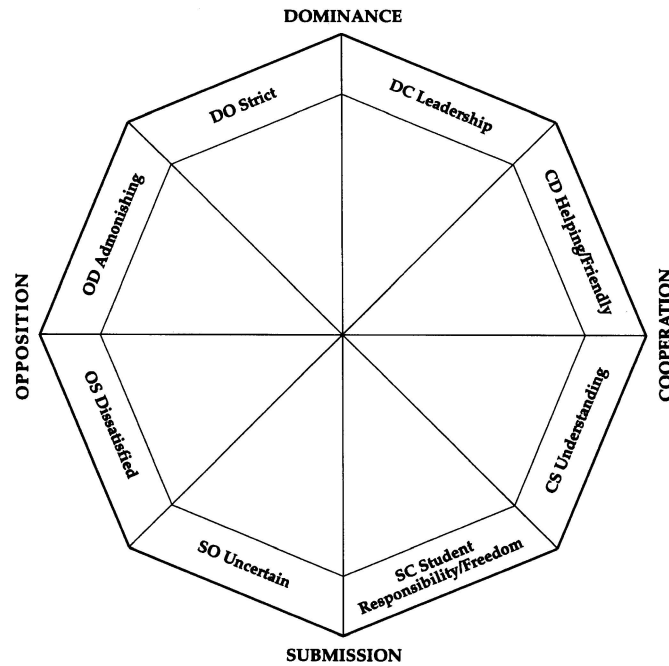
Figure 1. The model for interpersonal teacher behaviour. (Source: Fisher, Fraser & Wubbels, 1993).

With the systems perspective in mind, Wubbels, Créton and Hooymayers (1985) developed a model to map interpersonal teacher behaviour extrapolated from the work of Leary (1957). This model has been used in The Netherlands in the development of an instrument, the Questionnaire on Teacher Interaction (QTI), to gather students' and teachers' perceptions of teacher-student interactions or teacher's interpersonal behaviour (Wubbels, Brekelmans & Hooymayers, 1991; Wubbels & Levy, 1993). This model maps interactions with the aid of an Influence dimension (Dominance-Submission) and a Proximity dimension (Cooperation-Opposition) (see Figure 1). This was expanded to an eight-sector model and the QTI was developed to assess student perceptions of these eight aspects of behaviour, namely, Leadership, Helping/Friendly, Understanding, Student Responsibility/Freedom, Uncertain, Dissatisfied, Admonishing and Strict (see Figure 2). Each item has a 5-point response scale ranging from Never (1) to Always (5).

The original version of the QTI in the Dutch language consisted of 77 items and it was designed to measure secondary students' and teachers' perceptions of teacher interpersonal behaviour. After extensive analysis, the 77-item Dutch version was reduced to a 64-item version. This version
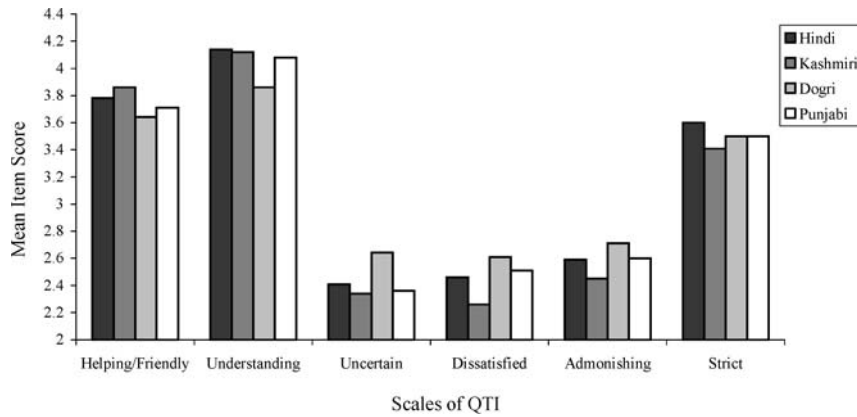
Figure 2. Means for significant cultural differences in students' perception of teacher–student interactions measured by the QTI.

was translated, validated and administered in the USA (Wubbels & Levy, 1991, 1993). Later an Australian version of the QTI containing 48 items was developed and validated (Fisher, Henderson & Fraser, 1995). Table I clarifies further the nature of the QTI by providing a scale description and a sample item for each of the eight scales.

The QTI has been used in The Netherlands, USA, Australia, Singapore and a few other Asian countries and has been cross-validated in different contexts and cultures (Fisher & Rickards, 1998; Fisher, Rickards, Goh & Wong, 1997; Kim et al., 2000; Wubbels & Levy, 1993). All the studies confirm that data obtained from the questionnaire provide valid, reliable and useful information about teacher interpersonal behaviour.

Fisher and Rickards (1998) analysed a large database of 2960 student responses to the QTI and found associations between students' perceptions of teacher interpersonal behaviour and students' attitudinal and cognitive achievement outcomes. Seven out of eight scales of the QTI were significantly correlated with student attitudes to the class and achievement scores when using simple and multiple correlations. It was found that the scales of Leadership, Helping/Friendly and Understanding were positively and significantly correlated with students' attitude to class and their achievement scores. The other QTI scales of Uncertain, Dissatisfied, Admonishing and Strict were negatively correlated to both student outcomes. From a cultural viewpoint, it was reported that students from an Asian background perceived their teachers significantly more positively than did those from the other cultural groups used in the analysis.

Fisher et al. (1997) carried out a similar study involving 720 students in Singapore and 705 students in Australia. In this study, the results were

TABLE I

Description and Example of Items for Each Scale in the Questionnaire on Teacher Interaction (QTI)

Scale	Description	Item
Leadership	Extent to which teacher provides leadership to class and holds student attention	This teacher explains things clearly.
Helping/friendly	Extent to which the teacher is friendly and helpful towards students	This teacher is friendly.
Understanding	Extent to which teacher shows understanding and care to students	If we do not agree with this teacher, we can talk about it.
Student responsibility/freedom	Extent to which the students are given opportunities to assume responsibilities for their own activities	We can influence this teacher.
Uncertain	Extent to which teacher exhibits her/his uncertainty	This teacher seems uncertain.
Dissatisfied	Extent to which teacher shows unhappiness/dissatisfaction with the students	This teacher thinks that we do not know anything.
Admonishing	Extent to which the teacher shows anger/temper and is impatient in class	This teacher gets angry.
Strict	Extent to which the teacher is strict with demands of the students	We are afraid of this teacher.

the same except that the Student Responsibility/Freedom scale was also positively associated with students' attitudes towards their science classes in both countries. Rawnsley and Fisher (1998) reported the same results in a study involving 490 students in 23 Grade 9 mathematics classes in Adelaide.

Khine and Fisher (2001) administered the QTI to 1188 students from 54 science classes in Brunei. This study provided further validation data on the use of the QTI in an Asian context. This study also showed that the students enjoyed science lessons more when their teachers displayed greater leadership and understanding and were helping and friendly. On the other hand, teachers' uncertain, admonishing and dissatisfied behaviours were negatively associated with the enjoyment of science lessons.

Den Brok et al. (2003) reported the reliability and validity of the QTI when used with secondary science students from six different countries: The Netherlands, USA, Australia, Slovakia, Singapore and Brunei. The

results showed that there were slight differences in scale means between countries and that further research, like that described in this article, is necessary on the instrument's cross-cultural validity.

3. DEVELOPMENT AND VALIDATION OF THE 'WHAT IS HAPPENING IN THIS CLASS?' (WIHIC) QUESTIONNAIRE

It was decided in this study to assess students' perceptions of their classroom learning environment in addition to their teachers' interpersonal behaviour. In order to do this, the What Is Happening In this Class? (WIHIC) questionnaire was selected. The WIHIC questionnaire brings parsimony to the field of learning environment by combining modified versions of the most salient scales from a wide range of existing questionnaires with additional aspects of learning environment that accommodate contemporary educational concerns (e.g. equity and cooperation) (Fraser, 1998). Based on the previous studies, Fraser, Fisher and McRobbie (1996) developed this new learning environment instrument. The WIHIC consists of 56 items in seven scales, namely, Student Cohesiveness, Teacher Support, Involvement, Investigation, Task Orientation, Cooperation and Equity. Table II lists the scales in the WIHIC, along with a brief description and a sample item from each scale in the questionnaire.

The WIHIC questionnaire has been used to measure psychosocial aspects of the classroom learning environment in various contexts since its development (e.g. Chionh & Fraser, 1998). In certain cases, the questionnaire has been adapted without any modifications, while in other cases modifications were made to suit the specific context. The original questionnaire written in English has been translated into Chinese for use in Taiwan (Aldridge & Fraser, 2000) and into Korean for use in Korea (Kim et al., 2000).

In a study on associations between learning environments in mathematics classrooms and students' attitudes using the WIHIC questionnaire (Rawnsley, 1997), it was found that students developed more positive attitudes toward their mathematics in classes where the teacher was perceived to be highly supportive and equitable, and where the teacher involved students in investigations.

Riah and Fraser (1997) used a modified version of the WIHIC in Brunei, and reported associations between perceptions of learning environment and attitudinal outcomes. Simple and multiple correlations showed that there was a significant relationship between the set of environment scales and students' attitudes towards chemistry theory classes. The Student Cohesiveness, Teacher Support, Involvement and Task Orientation scales were positively associated with students' attitudes.

TABLE II

Description and Example of Items for Each Scale in the What Is Happening In this Class? (WIHIC) Questionnaire

Scale	Description	Item
Student cohesiveness	Extent to which students know, help and are supportive of one another	I make friendships among students in this class.
Teacher support	Extent to which teacher helps, befriends, trusts, and shows interest in students	The teacher takes a personal interest in me.
Involvement	Extent to which students have attentive interest, participate in discussions, perform additional work and enjoy the class	I discuss ideas in class.
Investigation	Extent to which there is emphasis on the skills and their use in problem solving investigation	I am asked to think about the evidence for statements.
Task orientation	Extent to which it is important to complete activities planned and to stay on the subject matter	Getting a certain amount of work done is important.
Cooperation	Extent to which students cooperate rather than compete with one another on learning tasks	I cooperate with other students when doing assignment work.
Equity	Extent to which the teacher treats students equally	The teacher gives as much attention to my questions as to other students' questions.

Khoo and Fraser (1998) used a modified version of the WIHIC to measure classroom environment when evaluating adult computer courses in Singapore. The Cooperation scale was dropped in this modified version and Student Cohesiveness and Teacher Support were collapsed into one scale named Trainer Support. A set of 38 items was retained after factor analyses. This study indicated that males perceived greater Involvement, while females perceived more Equity. The other striking result was that older females had a more positive perception of Trainer Support than the younger ones.

Associations between actual classroom environment and outcomes in Singapore were investigated using the WIHIC (Chionh & Fraser, 1998). The associations between examination results, self-esteem and an attitude scale with seven classroom environment scales were investigated in geography and mathematics classrooms in Singapore. It was found

that better examination scores were achieved where students perceived the environment as more cohesive. Self-esteem and attitudes were more favourable in classrooms perceived as having more teacher support, task orientation and equity.

Khine and Fisher (2001) used the WIHIC in Brunei to study the class-room environment and teachers' cultural background in an Asian context. The study found that teachers from different cultural backgrounds created different types of learning environments. It also indicated that the WIHIC is a useful instrument with which to measure the effect of cultural background differences and as a basis for the identification and development of desirable teacher behaviours that will lead to a more effective learning environment.

Aldridge and Fraser (2000) and Fraser and Aldridge (1998) used English and Chinese versions of the WIHIC in Australia and Taiwan, respectively, to explore the potential of cross-cultural studies. The results of this study indicated that students in Australia consistently perceived their classroom environment more positively than did students in Taiwan. Significant differences were detected on the WIHIC scales of Involvement, Investigation, Task Orientation, Cooperation and Equity. This suggested that students in Australia perceived that they are given more opportunity to get involved in experiments and investigate scientific phenomena. In this study, cultural differences were highlighted. Education in Taiwan is examination based and teaching styles are adopted to suit the particular situation. Also, in Taiwan, having good content knowledge of the subject was the main measure for being a good teacher while, in Australia, having good interpersonal relationships between students and teachers was considered the most important factor in the education process. Taiwanese classrooms were more teacher centred with fewer opportunities for students to discuss issues.

The above studies support the validity and reliability of the WIHIC in portraying the nature of science classroom environments. These studies also have consistently demonstrated that the WIHIC can be used to gather information from students for improving teaching and learning in different classroom contexts. Thus, with such wide use and applicability, the WIHIC was used in India to gain insight into the nature of Indian classroom learning environments. At the same time, it can be noted that there has not been many investigations of the differences in perceptions of students from various cultural backgrounds attending the same class.

4. RESEARCH METHODOLOGY AND SIGNIFICANCE

The main aim of this study was to validate two already-existing questionnaires, namely, the QTI and the WIHIC, and then investigate how perceptions of learning environment and teacher interpersonal behaviour in

science classrooms varies with students' cultural backgrounds. For the purpose of the study, cultural background was determined by asking students what language they and their parents normally speak at home.

Jammu city is understood to be a melting pot of various cultures because of the migration from neighbouring provinces into the city due to the various political situations of the past five to six decades. It is amazing that students in this study, who underwent the same core curriculum at school, came from 13 different cultural subgroups. The languages spoken at home, a clear indication of their cultural backgrounds, are Hindi, Kashmiri, Dogri, Punjabi, Balti, Pahari, English, Badarwahi, Muzfarabadi, Punchy, Telugu, Urdu and Kistwari. However, only four of these groups contain sufficient numbers for the analyses. These are Hindi (522), Kashmiri (221), Dogri (175) and Punjabi (82), which constituted 98% of the sample. The total sample comprised of 1021 students from 31 science classes from Grades 9 and 10 in seven different private co-educational schools. The three instruments, assembled into one survey, were administered towards the end of the academic school year. This was done so that, firstly, students would have enough time to get to know their teachers and classmates and, secondly, teachers would have enough time to establish the learning environment.

5. RESULTS

5.1. *Validation of QTI*

Validity and reliability information for the QTI when used with the Indian sample of this study are presented in Table III. To determine the degree to which items in the same scale measure the same aspect of teacher

TABLE III

Scale Internal Consistency (Cronbach Alpha Reliability) and Ability to Differentiate Between Classrooms (ANOVA Results) for the QTI

Scale	Alpha reliability	ANOVA (eta^2)
Leadership	0.71	0.13*
Helping/friendly	0.65	0.14*
Understanding	0.72	0.20*
Student responsibility/freedom	0.50	0.13*
Uncertain	0.62	0.25*
Dissatisfied	0.72	0.18*
Admonishing	0.58	0.21*
Strict	0.53	0.16*

The sample consisted of 1021 students in 31 classes.
*$p < 0.001$.

TABLE IV

Internal Consistency (Cronbach Alpha Reliability), Discriminant Validity (Mean Correlation with Other Scales) and Ability to Differentiate Between Classrooms (ANOVA Results) for Each WIHIC Scale

Scale	Alpha reliability	Mean correlation with other scales	ANOVA (eta^2)
Student cohesiveness	0.58	0.38	0.10*
Teacher support	0.78	0.42	0.14*
Involvement	0.76	0.47	0.14*
Investigation	0.77	0.40	0.10*
Task orientation	0.70	0.39	0.12*
Cooperation	0.77	0.42	0.09*
Equity	0.83	0.43	0.14*

The sample consisted of 1021 students in 31 classes.
*$p < 0.001$.

interpersonal behaviour, a measure of internal consistency, the Cronbach alpha reliability coefficient (Cronbach, 1951), was used. The highest alpha reliability was obtained for the scales of Understanding and Dissatisfied and the lowest for Student Responsibility/Freedom, but all were consistently above 0.50. This suggests that the QTI can be considered to be a reliable tool (De Vellis, 1991) for use with Indian students. However, results obtained for Student Responsibility/Freedom should be interpreted with caution as the low alpha coefficient for this scale could be attributed to the nature of the Indian culture. The students could be reluctant to provide a frank opinion about these behaviours of their teachers.

The ability of a learning environment instrument to differentiate between classes is important and the ability of each QTI scale to differentiate in this way was measured using one-way analysis of variance (ANOVA). The eta^2 statistic was calculated to provide an estimate of the strength of the association between class membership and the dependent variables and is reported in Table IV. The eta^2 statistic for the QTI, which indicates the amount of variance in scores accounted for by class membership, ranged from 0.13 to 0.25 and was statistically significant ($p < 0.001$) for all scales. It appears that the instrument is able to differentiate clearly between the perceptions of students in different classrooms.

5.2. *Validation of the WIHIC*

In the statistical analyses of the WIHIC, the internal consistency (Cronbach alpha reliability) and discriminant validity (mean correlation of a scale with the other six scales of the instrument) were used and these results are

reported in Table IV. The reliability coefficients for the different WIHIC scales ranged from 0.58 to 0.83. The highest alpha reliability (0.83) was obtained for the Equity scale and the lowest (0.58) for Student Cohesiveness. The mean correlations of one scale with the other scales ranged from 0.38 to 0.47. These values can be regarded as small enough to suggest that each scale of the WIHIC has adequate discriminant validity, even though the scales assess somewhat overlapping aspects of classroom environment. An ANOVA was again used and the eta^2 statistic was calculated to provide an indication of the degree to which each WIHIC scale could differentiate between the perceptions of students in different classes. The eta^2 values ranged from 0.09 to 0.14 and were statistically significant ($p < 0.001$) for each scale. This indicates that each scale of the WIHIC is capable of differentiating significantly between classes. Overall the reliability, discriminant validity and ANOVA results confirm that the WIHIC can be used with confidence in further research in India.

5.3. Cultural Differences in Students' Perceptions of Teacher Interpersonal Behaviour

To examine the cultural differences in students' perception of teacher interpersonal behaviour in the science classes, the within-class cultural subgroup mean was chosen as the unit of analysis to reduce the effect of class differences due to various groups being unevenly distributed in the sample.

Mean scores for each of the four cultural groups (namely, Hindi, Kashmiri, Dogri, Punjabi) were computed. Table V shows the scale item

TABLE V

Differences Between Four Cultural Groups (Language Spoken at Home) in Students' Perceptions of Teacher-Student Interactions Measured by the QTI

	Item mean				
Scale	Hindi ($n = 522$)	Kashmiri ($n = 221$)	Dogri ($n = 175$)	Punjabi ($n = 82$)	F value
Leadership	4.22	4.16	4.12	4.16	1.01
Helping/friendly	3.78	3.86	3.64	3.71	3.48*
Understanding	4.14	4.12	3.86	4.08	6.82*
Student responsibility/ freedom	3.07	3.12	3.10	3.12	0.33
Uncertain	2.41	2.34	2.64	2.36	6.11*
Dissatisfied	2.46	2.26	2.61	2.51	5.93*
Admonishing	2.59	2.45	2.71	2.60	3.94*
Strict	3.60	3.41	3.50	3.50	4.27*

*$p < 0.001$.

means and F values for the scales of the QTI for the four main cultural groups. ANOVA was conducted to establish whether there are significant differences in the perceptions of students according to their cultural backgrounds.

As can be seen in Table V, the differences in the perceptions of students of their science teachers on six of the eight QTI scales are statistically significant ($p < 0.001$). The scales in which there were significant differences were Helping/Friendly, Understanding, Uncertain, Dissatisfied, Admonishing and Strict. Tukey's post hoc test ($p < 0.05$) revealed that, for the Helping/Friendly and Understanding scales, the Kashmiri group of students had statistically significantly higher means, while the Dogri group of students had the lowest mean for the scales of Understanding and higher means for the scales of Admonishing, Dissatisfied and Strict. Overall results suggest that the Kashmiri group of students had the most positive perceptions and the Dogri group of students had the most negative perceptions of their teachers' interpersonal behaviour. Graphical representation of these results can be seen in Figure 2.

5.4. *Cultural Differences in Students' Perceptions of Classroom Environment*

Differences in perceptions of classroom environment according to the cultural group of the students also were examined. The same four groups were used as with the QTI (namely, Hindi, Kashmiri, Dogri, Punjabi).

Table VI shows the scale means and F values for the scales of the WIHIC for the four main cultural groups. The purpose of this analysis is to establish whether there are significant differences in the perceptions of students about their classroom learning environment according to their cultural backgrounds. These differences can be seen in Figure 3.

Statistical analysis using ANOVA indicated that student perceptions on four scales out of seven of the WIHIC had statistically significantly differences according to the cultural groups of the students. These were the scales of Student Cohesiveness, Task Orientation, Cooperation and Equity. Tukey's post hoc test revealed that students coming from the Kashmiri group had significantly higher means for the Student Cohesiveness, Task Orientation, Cooperation and Equity scales ($p < 0.05$). The Dogri group of students perceived their classroom environment as least favourable on Involvement and Investigation compared with the other three groups involved in the study, suggesting that the Kashmiri group of students had very positive perceptions of their classroom learning environment, while the Dogri group of students perceived their classroom learning environment quite negatively.

TABLE VI

Differences Between Four Cultural Groups (Language Spoken at Home) in Students' Perceptions of Classroom Learning Environment as Measured by the WIHIC

| | Item mean | | | | |
Scale	Hindi ($n = 522$)	Kashmiri ($n = 221$)	Dogri ($n = 175$)	Punjabi ($n = 82$)	F Value
Student cohesiveness	4.23	4.15	4.08	4.06	6.77*
Teacher support	3.52	3.51	3.43	3.41	0.93
Involvement	3.38	3.41	3.39	3.43	0.20
Investigation	3.42	3.47	3.36	3.40	0.76
Task orientation	4.24	4.37	4.07	4.19	10.03*
Cooperation	3.95	3.98	3.81	3.83	2.91*
Equity	4.04	4.15	3.77	3.89	9.57*

*$p < 0.001$.
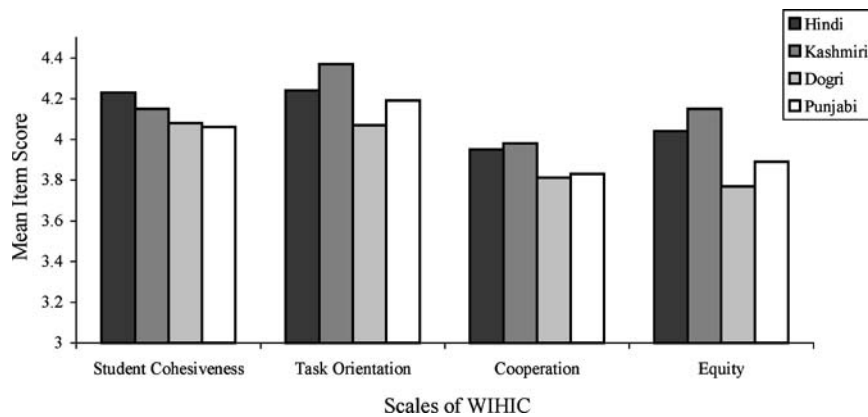
Figure 3. Means for significant cultural differences in students' perceptions of classroom learning environment as measured by the WIHIC.

6. CONCLUSION

Around the world, in both developed and developing countries, science education has become a very important area. In an era of rapid advances in science and technology, we can face the challenges of science only by making necessary provision for science education. However 90% of eligible students in India do not have access to higher education and the Government spends only 0.5% of GNP on this area. The Indian National Science Academy was concerned with this situation and requested the government to take a fresh look at the country's science and technology system (Indian National Science Academy, 2001). In this grim situation,

positive teacher-student relationships and a positive learning environment are very important.

The results from this study indicate that there are differences in students' perceptions of their learning environment and teacher interpersonal behaviour that are associated with students' cultural background (as indicated by the language spoken at home). For both the WIHIC and QTI, the Kashmiri group of students had the most positive perceptions of their classroom environment and teacher interactions. These students had significantly higher means for the Student Cohesiveness, Task Orientation, Cooperation and Equity scales. The Dogri group of students perceived less Involvement and Investigation in their classroom environment than the other three groups involved in the study and had the most negative perceptions of their classroom environment and teacher interaction.

This significant difference in the perceptions of students coming from these two different cultural groups perhaps could be attributed to the following reason. The Kashmiri community on the whole has a 99% literacy rate and they place a high value on education. Most Kashmiris are now living a relatively good life and they consider that a major factor in this is their education. So the students from these families enter school with a positive frame of mind towards education and respond in positive ways in class. On the other hand, Dogri students are the natives of Jammu and come predominantly from families who run the local businesses. Therefore, this group of students generally has an established family business and often their aim is to acquire just enough skills to run it.

Analysis of the data collected in this study demonstrated that students in Jammu come from a range of different cultural backgrounds and that this influences how the students perceive their learning environments. Teachers with students of different cultural backgrounds in their classrooms should not interact with students as a homogenous group, but take cultural differences into account when interacting with different students.

The results from this study can provide guidelines for teachers in India who wish to develop more positive and productive learning environments for their students keeping the cultural diversity of region/country in view. Ultimately, it is the Indians who must decide the type of learning environment that they want to have and implement accordingly. This study, although the first in India, has added to the existing rich and maturing learning environment research at the global level.

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